Ecological Survey Report

Note: This report outlines an ecological survey of the bog. This report should not be taken as a management plan for the site as other land-uses may still be considered. Information within this report may inform the development of other land-uses and identify areas with particular biodiversity value. The report outlines potential options for biodiversity management after industrial peat production has ceased, (if this is the proposed main land-use for the site).

Bog Name:	**Cloncreen**	**Area (ha):**	1028 Hectares
Works Name:	Derrygreenagh	**County:**	Offaly
Recorder(s):	MMC & DF	**Survey Date(s):**	5 & 11th August 2010 Re-surveyed 1+7/05/2015
Photos:	Photos taken – see L:\AI_Data\Boora\Ecology Team\Photos\Cloncreen		

Peat production programme and outlook

Peat resource data indicates that the majority of the site has less than 2.5 m of peat left while a significant area has even less peat (< 1m peat) and has already come out of production. More and more fields are likely to come out of production over the next few years. Peat production is anticipated to cease by 2018.

This site is gravity drained at present (2011). There have been plans to introduce pumps to the silt-pond system in the south-west part of the site in the near future.

Rehabilitation has been carried out in Rathvilla gravel pit (2015). See Rathvilla rehabilitation plan.

This site is currently being assessed for its windfarm potential.

Key biodiversity features of interest

- The railway tracks are supporting populations of Blue Fleabane and Basil Thyme. Both species are nationally rare plant species listed in the Irish Red Data Book (Curtis and McGough 1988) and Basil Thyme is also listed on the Flora Protection Order (FPO) (part of Wildlife Act). Several populations are present on railway tracks throughout the site or on areas of exposed gravel that are associated with the railway tracks as part of the 'weed' or recolonising flora. These species are not typical bog species and are likely to have come on to the production bog from nearby eskers or gravel pits. Continued disturbance along the railway tracks is likely to be beneficial for these species and they are not likely to be threatened by BnM operations.
- Some of the sections of Birch woodland (WN7) around the margins of the site are providing important refuses for biodiversity.
- Typical cutaway habitats are developing in areas where production has ceased, although these cutaway habitats have a limited value at present as they are immature and at a pioneer stage.
- 2015. Breeding Lapwing noted on site. Sand Marten also breeding in Rathvilla quarry.

Habitats present (in order of dominance)

The most common habitats present on the production bog and cutaway at this site include:

- Bare peat (BP) (Codes refer BnM classification of pioneer habitats of production bog. See Appendix I).
- Pioneer poor fen communities dominated by Soft Rush, Marsh Arrowgrass or Bog Cotton (pJeff, pTrig pEang) frequently in mosaic with Birch scrub.
- Emerging, open and closed Birch scrub (eBir, oBir, cBir)
- Dry Heath (dheath)

- Dry grassland dominated by Purple Moorgrass (gMol)
- Disturbed vegetation (DisWill, DisCF)
- Access routes (rail lines and tracks including gravel embankments and associated habitats such as dry grassland communities (GS2) and scrub)
- Silt-pond areas (Silt) with silt ponds and associated spoil heaps and access tracks
- Reedbeds dominated by Reedmace (pTyp) and Common Reed (pPhrag)

The most common habitats found around the margins and in other parts of the site include:

- Bog woodland (WN7) (Codes refer to Heritage Council habitat classification, Fossitt 2000), See Appendix I.)
- Scrub (WS1) – Gorse and Birch scrub
- Mixed broad-leaved/conifer woodland (WD2)
- Conifer plantation (WD4)
- Recently felled woodland (WS5)
- Wet grassland (GS4) and improved grassland (GA1)
- Raised bog remnants (PB1)
- Cutover bog (PB4) (industrially harvested area adjacent to the BnM property)
- Refuse and other waste (ED5) – Ash dump site
- Active gravel quarry (ED4) and associated flooded areas (FL8) spoil heaps (ED2) and recolonised areas (ED3, WS1)

Description of site

Cloncreen bog is situated approximately 4.5 km south west of Edenderry, Co. Offaly along the R401. The Edenderry Power Station is located immediately to the east of the site. Cloncreen bog is located within a group of BnM bogs with Ballycon situated to the west and Ballydermot to the east of the site. This area was originally part of The Bog of Allen. Much of Cloncreen bog is in active peat production with some production related areas also marked on the BnM land-use maps. An ash waste facility is located in the south east corner of the site and this facility is used to store ash from the nearby power station. An active BnM quarry is also present in the northern section of the site and gravel is being quarried for use along railway lines etc. For ease of description, Cloncreen can be divided into four main sections that are clearly divided by the BnM rail network.

<u>North-western section</u>

The majority of this area is now out of active peat production. Much of this section of the site has come out of active peat production quite recently and is developing pioneer poor fen vegetation communities with Bog Cotton and Marsh Arrowgrass prominent in places, or scattered Soft Rush. Birch is also colonising. There is still a significant area of bare peat present. The majority of this section is relatively dry but some sections of fields become wet in the winter towards the mid –southern part of this section.

Towards the north-west some groups of fields have been out of production for some time. The oldest patches have developed open Birch scrub, generally in mosaic with poor fen dominated by Soft Rush. There are also some small patches of denser closed scrub and one small low mound where drier grassland was developing in association with the Birch-dominated scrub. Sitka Spruce is also present in the scrub but is quite rare and other species present include Raspberry. One notable feature of this scrub was an exceptionally tall Popular tree about 20 m high. The Birch scrub is surrounded by several fields that have been out of production for a shorter period of time and these generally have poor fen dominated by Soft Rush (pJeff) or by Bog Cotton (pEang), in association with bare peat. Towards the western boundary there is a slight fall in ground level and the wetter fields generally have poor fen dominated by Bog Cotton developing. There were also some small patches of poor fen dominated by Marsh Arrowgrass (pTrig) in association with the other plant communities and some

minor cover of Reedmace (pTyph).

This area is surrounded by a narrow fringe of habitats along the bog margins. There is some active peat cutting by private individuals along the western border and adjacent to the road. Bog woodland and Birch scrub developed on high bog are quite common. There is a small patch of mature Bog woodland (WN7) along the northern boundary of this section that has a tall Birch-dominated canopy and contains Holly and Bilberry. The woodland is quite open and the ground cover is dominated by Bramble, Purple Moorgrass and Bracken. Other species present include Broad Buckler Fern, Heather and Gorse. There are also some sections of intact high bog dominated by Heather along the margins that are now quite narrow and being dried out and colonised by trees and scrub.

North-eastern section

The majority of this section is also still in production and dominated by bare peat. One of the main features in this area is the quarry (Rathvilla) located at the western side. This area is located on a large glacial mound that was originally overlain by the bog. Peat has now been cleared from this area and the quarry is now surrounded by tall spoil heaps. The oldest heaps towards the east are developing scrub (WS1) in association with Bracken (HD1) and patches of disturbed vegetation (ED3) dominated by Rosebay Willowherb. The active inner part of the quarry is dominated by bare gravel and sand with some vegetation colonisation in places (ED2/3). There are some patches of calcareous grassland (GS1) in places. A small gravel pit is flooded and (FL8) and surrounded by a narrow band of emergent vegetation (FS1) dominated by Reedmace. The north-west section of the quarry is much younger and the spoil heaps are covered with disturbed vegetation that is quite diverse.

Rehabilitation was carried out in the quarry in 2015. Waste material was removed. Spoil heaps were levelled and some sections were re-profiled. Mixed peat and sub-soil from the spoil heaps was spread over some of the basin of the quarry to provide a more suitable substrate for re-vegetation. Species-diverse sections of the quarry were left un-disturbed, including much of the scrub.

The north-west section of this area is also out of production and is covered with open Birch scrub and poor fen dominated by Soft Rush. There are also a band of several fields along the northern boundary that were not harvested to the same extent and are at a higher position in comparison with the rest of the section. These fields are developing some dry heath dominated by Heather in places and there is also some open Birch and some dry grassland dominated by Purple Moorgrass. Another dry grassland community dominated by Cocksfoot, Creeping Bent and Yorkshire Fog is also present and has developed over an old stockpile that marks the boundary of this small area.

The eastern part of this section contains two groups of silt ponds. These silt ponds are surrounded by tall banks of peat spoil and spoil made up of glacial sub-soil and silt-blue clay. Some of the ponds are filled with riparian and emergent aquatic vegetation with species like Pondweed, Reedmace, Water Horsetail, Bur-weed and Reedmace present. These banks are being colonised with disturbed vegetation while older banks are covered by rank grassland (GS2), dry grassland dominated by Purple Moorgrass (gMol), dry grassland (gAn-H-Eq) and some Bracken (HD1). Shell-marl is being exposed in this area.

This section of Cloncreen is also surrounded by a narrow fringe of bog woodland (WN7), Birch scrub (WS1) and remnant patches of high bog (PB1). The western side is located adjacent to active cutover bog that is being industrially harvested by a private company. The glacial mound also extends into this area and this has also been quarried for gravel, which has left some deep gravel pits.

South-eastern section

The majority of this section had re-vegetated with only small areas still in production, namely in the northern half of the section. This section is underlain with gravel. In the northern part of this section a raised area of exposed sub-soil is a result of constant peat harvesting, this area of exposed sub-soil is almost entirely revegetated with scrub and poor fen vegetation (oBir and pJeff). Large sections of bare peat area located to the eastern and western sides of this mound and are still in active peat production. Along the eastern edge of the site an area of pioneer dry heath (dHeath) exists on an old section of cutaway. This area was dominated by Heather with scattered trees. The old drainage ditches had begun to fill in with *Sphagnum* in some sections.

An old disused rail line is located approximately half way down this section and is completely revegetated with a mixture of scrub (eBir), Heather (dHeath) and dry grassland dominated by Purple Moorgrass (gMol). This old railway line was higher than the surrounding areas and contained some small areas of gravel where Basil Thyme

was located.

The southern half of the south eastern section was largely revegetated with a mixture of scrub (eBir, oBir and cBir) and poor fen vegetation (pTrig, pJeff and pTyp) apart from some areas that were still in active peat production. This section of the site is underlain by gravel.

A waste facility has been developed on part of the cutaway at the southern end of the site to store ash from the nearby Edenderry power station. Cells for the collection of ash are still being developed. A mixture of habitats are found around this facility including scrub (eBir, oBir and cBir), and grassland (gMol and gCal). A large section of bog woodland (WN7) was located to the south of this facility. This woodland was mature and was dominated by Birch with an understorey of Bramble and Purple Moorgrass.

A small section of this site in the south eastern corner had been planted with a mixture of broad-leaved and conifer trees. However a section of this had been recently cleared to make way for a power line.

South-western section

This area is the smallest section on the site, the majority of this section has not been actively used for peat production in recent years and as such become colonised by vegetation. The northern half of this section is rapidly colonising with vegetation and habitats such as scrub (oBir, eBir) and pioneer poor fen (pJeff, pEang and pTrig) are well established.

A relatively large section of the southern section of this area is in active peat production with plant species such as Soft Rush, Bulrush and Birch becoming established in many of the drainage ditches. Occasional high fields are still in active peat production throughout the site.

A series of silt ponds are located close to the western boundary of the site, these areas consist of a series of interconnected channels of water. Very few aquatic plants were present owing to the fact that these silt ponds appeared to have been cleared out regularly. The higher ground that surrounds the silt ponds had been colonised with emerging Birch scrub (eBir) and patches of Common Reed (pPhrag).

All along the western boundary of the site pockets of bog woodland (WN7) were located, the largest of which was located in the north west corner of the site. These sections of bog woodland were well developed and were dominated by Scot's Pine along with Birch, Oak, Rowan and Holly with a ground flora of Bramble, Male Fern, Bilberry, Purple Moorgrass and Herb Robert. These areas of woodland were rich in fungus which included Plums and Custard, Slippery Jack, Saffron Milkcap and Birch Webcap.

The south of the site contained a small silt pond and the most southerly production fields were becoming colonised by poor fen (pEang), dry heath (dHeath), Birch scrub (oBir) and dry calcareous grassland (gCal). Much of the peat fields that have recently come out of production are being colonised by pioneer poor fen vegetation with Bog Cotton and Marsh Arrowgrass. The SW section is somewhat wetter than the rest of the site and is also underlain by shell marl.

Small sections of remnant raised bog are located along margins of the south of the site along with one section in the south west corner of the site. These areas of degraded raised bog are dry and were dominated by tall leggy Heather. Trees such as Scot's Pine, Lodgepole Pine and Birch were also becoming established in these areas in large numbers.

A new power line had been constructed close to the southern border of the site and a small section of conifer plantation (WD4) had been clear felled to make way for it.

Rail Lines

Rail lines run in east west and north south directions on the site, these lines connected Cloncreen Bog with other bogs and with Edenderry Power Station. At the time of the ecological survey more rail lines were being installed. The foundations for these rail lines are constructed of gravel from nearby quarries. These lines are providing habitat for plant species such as Blue Fleabane, Basil Thyme and Wild Mignonette, which are naturally suited to sandy, gravely habitats such as eskers. Blue Fleabane (*Erigeron acer*) and Basil Thyme (*Clinopodium acinos*) are listed in the Irish Red Data Book (Curtis and McGough 1988) and their current status is endangered.

Overall rail lines on the site were in varying states ranging from brand new rail lines to lines that have not been used for a number of years and were over grown with vegetation such as Bracken and grasses.

Forestry and potential forestry on site

Some forestry is located in the south eastern corner of the site. This area is managed by Coillte. This area was a mixture of broadleaf tree species - Ash and Alder - along with a smaller section of conifer plantation that consisted of Lodge-pole Pine and Norway Spruce. A large section of this forestry has been recently cleared to make way for a new power line. Overall, the sections of forestry that had not been felled were in good condition and although they have not reached maturity yet they could be expected to provide good final crop of saw log.

Large sections of the site have re-vegetated and as time goes by these areas will become more and more unsuitable for the establishment of forestry. Another factor that will curtail forestry development on the site is the presence of shell marl close to the surface of the remaining peat. The presence of shell marl below shallow peat is an unsuitable substrate on which to plant Spruce (*Picea sp*.).

Designated areas on site (cSAC, NHA, pNHA, SPA other)

None

Adjacent habitats and land-use

The surrounding landscape is typically low-lying and is dominated by farmland with improved grassland. Adjacent habitats include those of reclaimed cutover bog such as conifer plantation (WD4), improved grassland (GA1), wet grassland (GS4) and conifer plantation (WD4). There are also some drying high bog (PB1) remnants and active cutover bog (PB4) around the margins that are not in ownership by BnM. The margins around the production bog are typically dominated by scrub (WS1) and bog woodland (WN7) developing on peat remnants. There is a large area of bog along the northern BnM boundary that is being industrially harvested for peat. This area also has a gravel pit (ED4) that is also not owned by BnM.

Watercourses (major water features on/off site)

- Tributaries of the Philipstown River start in the north western corner of the site and in the south western corner of the site.
- The Figile River flows along the eastern boundary of the site.
- All watercourses on the site are part of the South Eastern Barrow catchment.

Peat type and sub-soils

Shell-marl and grey marl were exposed in places around the site. Shell marl is predominant towards the western side of the site. Grey marl is seen towards the NE part of the site. There are two main gravel deposits through the mid-section of the site including Rathvilla quarry.

Basil Thyme

Basil Thyme is a rare plant that is typically found on esker and arable habitats, on sandy and gravel soils. Its distribution is midlands-based. It has only been recorded in 18 10 km gird squares in Ireland in the past 20 years. It is only previously known from 3 sites in Offaly. It is listed on the Flora Protection Order (part of Wildlife Act) and in the Red Data Book (Curtis and McGough 1988). Its status in the Red Data Book is listed as ‘vulnerable’. As part of the FPO, this species and its habitat have legal protection.

Basil Thyme was noted on a gravel bank and along the central railway embankment at numerous locations and seemed to have a widespread distribution across the site, although there were large sections of the track where it was absent. The overall population was estimated at > 1000 plants. This is a very significant population and adds significantly to the rare flora of Co. Offaly.

Basil Thyme was found in association with other dry grassland plant species in a patch of habitat that would generally be classified as dry calcareous grassland. Species present include Wild Mignonette (another rare and

notable species), Purple Moorgrass, Knapweed, Glaucous Sedge, Ox-eye Daisy, Wild Carrot, Colt's-foot, London Rocket, Heather, Mouse-ear Hawkweed, Common Horsetail, Spotted orchid, Yarrow, Wild Strawberry, Catsear, Bracken, Yellow Sedge, Creeping bent, Long-leaved Plantain, Quaking Grass, Ragwort, Hogweed, Weld, Bird's-foot, Square-stemmed St John's-wort and Woodrush. Wild Mignonette (*Reseda lutea*) is described as being rare in Ireland apart form coastal areas in the East (Webb, Parnell and Doogue 1996).

Basil Thyme has not been recorded at this site before and would not be a typical species of cutaway bog. This species was probably unlikely to have been present on the site prior to the development of the cutaway. The exposed gravel along the railway embankments is a perfect habitat for this species. One of its main known populations in Co. Offaly is located close by at the Long Derries cSAC, Edenderry. This site was a BnM gravel pit and material from this site was used to make railway embankments. A gravel pit is present on this site and would be a suitable location for this species. However, after extensive searching, this species was not recorded.

In the long-term, it could be expected that these railway embankments will re-vegetate with grassland and scrub as they go out of use, which will not favour this species. Occasional track maintenance is likely to be beneficial for this species as it will keep the gravel embankments exposed and prevent development of dense vegetation, which would be unsuitable for this species. Other BnM operations are not likely to have a significant impact on the status of this species. One possible solution is to develop some of the main railway line as an amenity walkway when production ceases. A suitable management regime to maintain the habitat of these rare plant species could easily be developed in association with the development and maintenance of these walkways. This will be considered within the wider context of the Derrygreenagh and Ballydermot Bogs, which are viewed as strongholds for the species in east Offaly. Consultation and licensing will be required with NPWS.

Blue Fleabane

This rare species (whose status is listed as endangered) was recorded at several locations around the site. It has not been recorded at this site before. Blue Fleabane (*Erigeron acer*) is an annual species that is found in dry pastures and sandy or gravely places such as eskers and its distribution is mainly confined to the central and south-eastern parts of Ireland (Webb et al 1992). It has been recorded in several 10 km grid squares in Offaly in the past.

Several populations were recorded on the site, mainly along the central railway (see Habitat Map). The largest population was noted in the south-eastern cutaway area around the silt pond area.

This species is not likely to have been present on the site prior to the development of the cutaway. Subsequent development of the site, including construction of railways on gravel embankments, have created suitable exposed gravel banks made up of calcareous rich material that this species prefers. In the long-term, it could be expected that these railways will re-vegetate with grassland and scrub, which may not favour this species.

Fauna biodiversity

Birds

Several bird species were noted on the site during the survey.

- Kestrel
- Heron
- Skylark
- Raven,
- Other more common birds included Blackbird, Wren, Redpoll, Rook, Wood Pigeon, Meadow Pipit and Swallow.
- 2015 – Stonechat, Redpoll, Chaffinch, Whitethroat, Lapwing, Willow Warbler, Skylark, Heron, Blackcap, Reed Bunting, Cuckoo, Kestrel, Buzzard, Wood Pigeon, Grey Crow, Pheasant, Blue Tit & Meadow Pipit.

Mammals

- Signs of Fox, Deer, Rabbit and Badger were noted on the site.

- A Hare was observed on the site and there are frequent signs of Hares around the site.

Other species

- Small heath butterfly
- Peacock butterfly
- Large White butterfly
- Speckled Wood butterfly
- Dragonfly activity around site including Brown Hawker
- Dingy Skipper (Rathvilla quarry 2015)
- Common Blue (Rathvilla quarry 2015)
- Wood White (Rathvilla quarry 2015)
- Orange-tip

Fungal biodiversity

Plums and Custard, Slippery Jack, Saffron Milkcap and Birch Webcap

Activities on the site

Activities on the site include:

- Standard BnM operations related to milled peat production.
- Construction of new railway lines.
- Rehabilitated gravel quarry.
- Ash waste facility.
- Clearance of scrub and forestry in order to make way for a new power line in the south of the site.
- The gravel quarry attracts scrambler bikes (tracks present).
- Turf-cutting of small peat remnants around the margins by private individuals.

Potential future natural habitats on the site

This section attempts to predict the development of natural habitats on the site, assuming there is no intervention or changes in land-use. This prediction is based on research and methods used to predict the natural vegetation of Ireland (Cross 2006). Cross (2006) predicted that cutaway bog is likely to develop a mosaic of Birch forest, alder and ash-alder carr, fen and heath in the future. There is no time-line given for the development of these habitats, although it could be expected that the development of natural climax habitats could take hundreds of years. The complexity is the result of small scale variations in the substrate and other environmental factors such as drainage and ground-water influence.

- It is somewhat more difficult to predict the future development of habitats at this site as the majority of the site is still in production and does not indicate yet what type of habitats will be formed.
- Bog woodland (WN7) is likely to be the dominant climax habitat that will develop on the site. This habitat is already developing on some of the higher ground including the mound in the south-east section with Birch scrub the primary habitat in this area.
- Wetland mosaic - a mixture of poor fen (PF2), Reedbeds (FS2), open water (OW) and wet Willow-dominated woodland (WN6). This mosaic of habitats is likely to develop in the south-west part of the site and along the south-east boundary, where the ground is lowest. However, there are no significant

indications from developing pioneer vegetation in areas out of production that these habitats will develop at present. While the site is similar in nature to Ballycon, there is no development of permanent open water yet on the site and other indicators like Reeds and Reedmace in the drains were absent. This site is at a lower level relative to Ballycon. The location of the site between two rivers should aid the development of wetlands when production ceases. The drainage system in this site may be more effective at present in comparison with other sites.

- Dry heath (HH1) is likely to develop on higher cutaway along north-east boundary.
- The access zones including disused railways through the site are likely to develop Oak-Ash-Hazel woodland over time, as the railways are built on a sub-soil embankment. Some of the silt pond areas could also develop this type of woodland as the spoil heaps are made up of marl and sub-soil.
- Most of the high bog remnants around the margins are likely to be slowly invaded by scrub and will develop into bog woodland as they dry out.

References

European Commission (1996). Interpretation manual of European Union habitats. Brussels. European Commission, DGXI.

Fossitt, J. (2000). A guide to habitats in Ireland. Kilkenny. The Heritage Council.

HABITAT DESCRIPTIONS

(See Habitats Description Document for detailed description of each vegetation community not described in this section.)

HABITAT DESCRIPTIONS

Appendix I. Codes used for habitat classification.

Bord na Moña habitat classification scheme

	General	Habitat [1]	BnM habitat code	Equivalent Heritage Council codes [2]
Pioneer habitats of industrial cutaway	Peatland	Bare peat (0-50% cover)	BP	ED2
		Embryonic bog community (containing *Sphagnum* and Bog Cotton)	PBa	PB
		Embryonic bog community (Calluno-Sphagnion)	PBb	PB
	Flush and Fen	Pioneer *Campylopus*-dominated community	pCamp	PF2
		Pioneer *Juncus effusus*-dominated community (Soft Rush)	pJeff	PF2
		Pioneer *Eriophorum angustifolium*-dominated community (Bog Cotton)	pEang	PF2
		Pioneer *Juncus bulbosus*-dominated community (Bulbous Rush)	pJbulb	PF2
		Pioneer *Triglochin palustris*-dominated community (Marsh Arrowgrass)	pTrig	PF2
		Pioneer Caricion davallianae-Community with *Cladium* (rich fen)	pCladium	PF1
	Emergent communities	Pioneer *Carex rostrata*-dominated community (Bottle Sedge)	pRos	FS1
		Pioneer *Phragmites australis*-dominated community (Common Reed)	pPhrag	FS1
		Pioneer *Typha latifolia*-dominated community (Reedmace)	pTyp	FS1
		Pioneer *Schoenoplectus lacustris*-dominated community (Bulrush)	pSch	FS1
	Open water	Charaphyte-dominated community	pChar	FL2
		Permanent pools and lakes	OW	FL2
		Temporary open water	tOW	
	Woodland and scrub	Emergent *Betula*/*Salix*-dominated community (A) (Birch/Willow)	eBir	WS1
		Open *Betula*/*Salix*-dominated community (B) (Birch/Willow)	oBir	WS1
		Closed *Betula*/*Salix*-scrub community (C) (Birch/Willow)	cBir	WS1
		Ulex europaeus-dominated community (Gorse)	eGor	WS1
		Betula/*Salix*-dominated woodland (Birch/Willow)	BirWD	WN7
	Heathland	Pioneer dry *Calluna vulgaris*-dominated community (Heather)	dHeath	HH1
		Dense *Pteridium aquilinum* (Bracken)	dPter	HD1
	Grassland	Pioneer dry calcareous and neutral grasssland (Centaureo-Cynosuretum)	gCal	GS1
		Dactylis-Anthoxanthum-dominated community (Cocksfoot-Sweet Vernalgrass)	gCo-An	GS2
		Anthoxanthum-Holcus-Equisetum community (Sweet Vernalgrass-Yorkshire Fog-Horsetail)	gAn-H-Eq	GS
		Molinia caerulea-dominated community (dry) (Purple Moorgrass)	gMol	GS4
		Marsh (Meadowsweet and other tall herbs) (Filipendulion ulmariae)	Mar	GM1
	Disturbed	*Tussilago farfara*-dominated community (vegetation > 50%) (Colt's Foot)	DisCF	ED3
		Epilobium-dominated community (vegetation > 50%) (Willowherb spp.)	DisWil	ED3
	General	Riparian areas (streams or drain with associated edge habitats (e.g. FW2/4 + WS1, GS2 etc)	Rip	FW2 +
		Silt Ponds (artificial ponds with associated bank habitats (e.g. FL8 + WS1, GS2, ED2, ED3)	Silt	FL8 +
		Access (tracks or railways with associated edge habitats (e.g. BL3 + gCal, gMol, eGor etc)	Acc	BL3 +
		Works areas (predominately built land but can include landscaped and brownfield habitats (e.g. GA2, WS3, WD4, ED2, ED3)	Works	BL3 +

[1] These are generally pioneer habitats of bare peat and the communities can contain a significant proportion of bare peat. Some habitats are more developed than others. They frequently occur in mosaic with each other.
[2] Not all these communities are equivalent to habitat classes used by The Heritage Council habitat classification scheme (Fossitt 2000) as some are quite rudimentary and undeveloped.

Heritage Council habitat classification scheme (Fossitt 2000)

	General	Habitat	Heritage Council code
Semi-natural and modified habitats	Peatlands	Raised Bog	PB1
		Lowland Blanket bog	PB3
		Cutover Bog	PB4
		Rich fen and flush	PF1
		Poor fen and flush	PF2
		Transition mire and quaking bog	PF3
	Woodland and scrub	Oak-Birch-Holly woodland	WN1
		Oak-Ash-Hazel woodland	WN2
		Wet Pendunulate Oak-Ash woodland	WN4
		Riparian Woodland	WN5
		Wet Willow-Alder-Ash woodland	WN6
		Bog woodland	WN7
		Mixed broad-leaved woodland	WD1
		Mixed broad-leaved/conifer woodland	WD2
		Conifer plantation	WD4
		Scrub (Gorse)	WS1
		Emergent Betula-dominated community	WS1
		Closed Betula scrub community	WS1
		Recently-planted woodland	WS2
		Ornamental scrub	WS3
		Short-rotation coppice	WS4
		Recently-felled woodland	WS5
	Linear woodland	Hedgerow	WL1
		Treeline	WL2
	Grasslands and Marsh	Improved grassland	GA1
		Amenity grassland	GA2
		Dry calcareous and neutral grassland	GS1
		Dry meadows and grassy verges	GS2
		Dry-humid acid grassland	GS3
		Wet grassland	GS4
		Freshwater Marsh	GM1
	Heath and Bracken	Dry Heath	HH1
		Dry calcareous Heath	HH2
		Wet Heath	HH3
		Dense Bracken	HD1
	Disturbed ground	Exposed sand, gravel or till	ED1
		Spoil and bare ground	ED2
		Recolonising bare ground	ED3
		Active quarry	ED4
	Freshwater	Acid Oligotrophic lakes	FL2
		Mesotrophic lakes	FW4
		Artificial ponds (slit ponds)	FL8
		Depositing rivers	FW2
		Canals	FW3
		Drains	FW4
	Cultivated and Built land	Stonewalls and other stonework	BL1
		Earth Banks	BL2
		Buildings and artificial surfaces	BL3
		Arable crops	BC1
		Horticulture	BC2
		Tilled land	BC3

Bord na Móna

Mammal Survey

Final Report

20th May 2015

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sites for camera traps will be chosen with their security in mind. In order to carry out surveys safely INIS recommend that either two people conduct the surveys together or a buddy system be set up to ensure the safety of the surveyors, most especially in expansive peat land habitats. A buddy system is where the surveyor contacts the office every 4 hours to confirm that they are safe. If the surveyor cannot be contacted and has not checked-in 30 minutes after the allotted time then the appropriate emergency services are contacted. A full risk assessment was prepared in this regard. An induction course on all pertinent Health and Safety issues on Bord Na Móna land was also completed by all staff members conducting field surveys.

2.4. Methods

Mammal surveys vary depending on the scale of a particular development and habitat that is associated on site (Kerbs 2006). The scale of this project demanded a variety of different methods to be employed in order to cover all aspects of mammal biology and mammal distribution at the two Bog Groups. There is no single survey technique which can be used for all Irish mammal species due to their diverse life-cycles, behaviour and habitat requirements (National Road Schemes 2004). INIS have researched the Best Practice methods to survey each species and combined them to affect an umbrella survey effort encompassing all species with as few methods as possible allowing INIS ecologists to survey all species in an efficient manner.

Following review of Best Practice methods INIS decided to use the following methods (Chanin 2003, Kerbs 2006 and Marnell *et al*. 2009):

- Walked Transect Surveys
- Remote Camera Trapping Surveys
- Small Mammal Trapping
- Ink-pad Tunnel Traps
- Hinterland Otter Survey

Table 3 presents the species which have been recorded on or within a 10 km radius of the Bog Groups (National Biodiversity Data Centre, 2014).

Table 3. Mammal species recorded within a 10km radius of the two Bog Groups.

Species	Common name
Cetartiodactyla	
Cervus Nippon	Sika deer
Dama dama	Fallow deer
Carnivora	
Vulpes vulpes	Fox
Lutra lutra	Otter
Martes martes	Pine marten
Meles meles	Badger
Mustela ermine	Stoat
Neovison vison	Mink
Eulipotyphla	
Erinaceus europaeus	Hedgehog
Lagomorpha	
Lepus europaeus	Brown hare
Oryctolagus cuniculus	Rabbit
Rodentia	
Sciurus carolinensis	Grey squirrel
Sciurus vulgaris	Red squirrel
Apodemus sylvaticus	Wood Mouse
Mus musculus	House Mouse
Rattus norvegicus	Brown Rat
Soricomorpha	
Sorex mintus	Pygmy shrew

Habitat features which required in-depth surveys are those that have a medium/high foraging/commuting/connectivity factor for mammals within the wider landscape (e.g. hedgerows, tree lines, watercourses/bodies, woodland) (Hundt, 2012).

2.4.1. Walked Transect Surveys

Walked transect surveys consisted of walking lines through a variety of different habitats within each bog. The length of time spent conducting each transect, the length of a particular transect and the reason why INIS covered some habitats more extensively compared to others within a bog was decided through INIS's extensive knowledge of mammal behaviour, the size of the particular bog and the habitat present within it e.g. optimal habitats such and hedgerows were surveyed more intensively than bare peat areas, as they are higher quality habitat for all types of mammals, simply to ensure presence of key species was checked for at each site. In order to fully compare how mammals utilise BnM bogs a proportion of transects routes walked through areas of unsuitable habitat like open peat. To ensure a comprehensive survey was completed for Otters (*Lutra lutra)* all drains and other watercourses within Bog Groups were specifically checked for signs (this was followed up with a survey of all hinterland aquatic areas for Otter following consultation with NPWS). Optimal habitats were identified through extensive literature review of mammalian

literature on habitat preference and from INIS's extensive knowledge of mammal surveys. Transects themselves were chosen through careful planning in consultation with NPWS, GIS maps, aerial ortho-photographic maps, OSI maps, habitat maps and on-site visits. Transects traversed both suitable areas of optimal mammal habitat and areas of sub-optimal habitat.

The following field signs of mammals were recorded during all day-time walked transects (See Appendix 1 for photographs):

- Well-used pathways;
- Prints/tracks;
- Scat/spraints/dropping;
- Signs of feeding (foraged pine cones, badger snuffle holes)
- Places of shelter and features or areas likely to be of particular value as foraging resources (NRA 2004).

The advantage of the walked transect survey, is that it allowed field-signs to be examined on both a small (individual bogs) and larger scale (bog groups). This allows for efficient deduction of presence/absence of target species within particular bogs and making the results easily comparable to other sites. All tracks and signs of mammal activity were recorded on a data sheet with a GPS coordinate, which was used to create detailed GIS maps for each bog (Appendix 2). Tracks and signs which could not be confidently identified in the field were photographed for *ex situ* two-way agreement. In addition, when feeding signs of squirrels (foraged pine cones) were observed they were recorded as squirrels because there is no way to distinguish between Red Squirrels (*Sciurus vulgaris*) and Grey Squirrels (*Sciurus carolinensis*) using feeding signs exclusively.

2.4.2. Remote Camera Trapping Surveys

Camera-trapping presents a relatively new approach for surveying mammals. Cameras can be left in the field for up to 30 days without having to be collected and they use motion sensor technology to video mammals as they pass by the camera.

The area directly in front of each camera trap was baited with dog food to increase the effectiveness of this mammal monitoring method. Once triggered the camera was set to record a 30 second video clip. This clip would then be stored on a memory card, which was examined once the camera trap was collected from the field. Field trials in Ireland have concluded that camera-trapping is the most labour-efficient method for producing a species inventory, and frequently records more species per sampling site than transect-sampling. Despite greater initial economic costs, it is advocated that camera-trapping is the most efficient, rigorous and cost-effective method for large-scale monitoring programmes, especially if the monitoring programmes are long term in nature. Camera trapping also

has the ability to examine areas where field signs may not be as prevalent – this is especially important on peat and grass environments where prints do not form easily. The GPS coordinates of all remote camera trap locations and the number and type of species recorded were logged on a data sheet along with a GPS coordinate, which was used to create detailed GIS maps for each bog (Appendix 2).

Bushnell passive infrared camera traps were used during this survey, with automatic infrared flash for taking photos at night. All units were programmed to capture videos when triggered. They were also configured to minimal latency periods between triggers and secured to trees at a height of approximately 1.5m above the ground to maximize capture probability. Assuming functionality, cameras were operational 24 hr and date / time were imprinted on all videos. Traps were checked frequently so as to ensure functionality and to replace memory cards if necessary (See Appendix 1 for photographs). Traps were placed in a variety of different locations and habitat type throughout each bog.

2.4.3. Small Mammal Trapping Surveys

Following best-practice guidelines both Longworth and Sherman traps were used for conducting the small mammal trapping survey. This allowed for species such as the Pygmy Shrew to be captured alive and to be surveyed humanely. The traps are placed 10 meters apart along a given transect line in a variety of habitats within each bog. This allows for the species distribution to be examined and to determine the presence/absence of small mammal species on a bog (See Appendix 1 for photographs). Each trap is baited with oats and peanut butter along with bedding to keep the animal alive during the trapping period. The GPS coordinates of all small mammal trap locations and the number and type of species caught were recorded on a data sheet along with a GPS coordinate, which was used to create detailed GIS maps for each bog (Appendix 2). Small mammals are difficult to survey using camera traps/walked transect surveys and this is the only survey technique that is reliable for the accurate assessment of smaller mammals.

2.4.1. Ink-pad Tunnel Surveys

This method is used to record mammal activity through the use of purpose built tunnels (See Appendix 1 for photographs). These tunnels are 700 x 300 x 250 mm and are placed within a variety of habitats present in each bog. White A4 paper is pinned to the inside of these traps along with ink pads; when a mammal steps on an ink pad it leaves its print on the white paper which can then be identified. These tunnels are baited with dog food in order to increase the effectiveness of this mammal monitoring method. These traps are especially useful in recording hedgehog activity which is a difficult animal to record under normal circumstances. The GPS coordinates of all ink pad tunnel

traps locations were recorded and the number and type of species that passed through them was recorded on a data sheet, which was used to create detailed GIS maps for each bog (Appendix 2).

2.4.2. Hinterland Otter Surveys

As recommended through consultation with the National Parks and Wildlife Service (See Appendix 3), a detailed search for Otter activity was conducted within the hinterland (1km) of both Bog Groups. The most frequently observed signs of Otters are spraints (faeces). Otters have regular sprainting locations which they use to mark their territories; they use these as a form of inter-specific communication. Significant physical features are often used as regular sprainting locations. These include ledges under bridges, stream/river junctions, significant promontory positions, or large rocks. All significant physical features that were examined for signs of Otters were chosen through careful planning in consultation with GIS maps, aerial ortho-photographic maps, OSI maps, habitat maps and on-site visits.

The hinterland otter survey followed best practice methods and surveyed fifty meters either side of all major physical features for Otter activity (spraints, tracks, couches, slides) within a one kilometre radius around each individual bog (Chanin, 2003). All major physical features examined were outside all bogs but hydrologically connected to at least one of the 33 BnM bogs within both Bog Groups. The GPS coordinates of all hinterland survey locations were recorded and the presence or absence of Otter activity was recorded on a data sheet (See Appendix 1 for photographs), which was then used to create a detailed GIS map for the survey (Appendix 2).

3. CONSULTATION

The preparation of this section included consultation either directly or through publically-available information from the following sources:

- National Parks and Wildlife Service (NPWS) of the Department of Arts, Heritage and the Gaeltacht;
- Bord na Móna (BnM);
- National Biodiversity Data Centre (NBDC);
- Environmental Protection Agency (EPA).

A formal consultation response was received from NPWS regarding mammal survey methodologies and specific requirements for additional Otter surveys both within and in the hinterland of both Bog Groups (Appendix 3). This information was reviewed, actioned and the results of the additional survey were amalgamated into this report.

8.2.6. Cloncreen

There were 34 individual records of mammal activity throughout Cloncreen Bog accounting for eight different species of mammal.

- Badger (13 records: sett, tracks, snuffle holes and scats)
- Pine Marten (1 record: track)
- Otter (5 records: spraints)
- Red Squirrel (1 record: seen)
- Squirrel (2 record: foraged pine cones)
- Fallow Deer (3 records: tracks)
- Fox (7 records: tracks and scats)
- Wood Mouse (2 records: prints and small mammal trap)

8.2.7. Clonsast

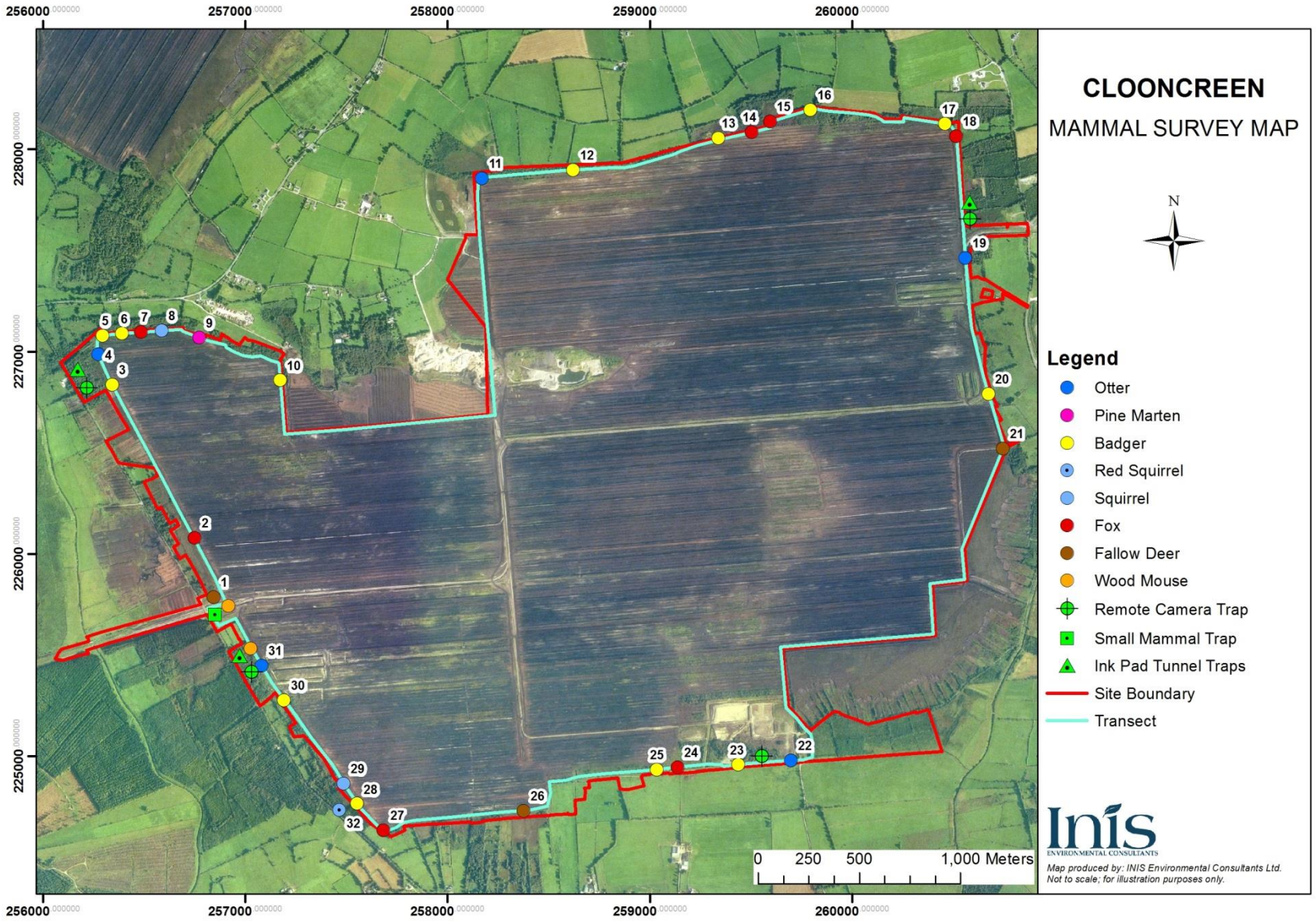
In total there were 33 individual records of seven mammal species recorded within Cavemount bog.

- Badger (17 records: sett, tracks, snuffle holes, scats and camera trap)
- Pine Marten (3 records: tracks)
- Otter (3 records: spraints)
- Squirrel (2 record: foraged pine cones)
- Fallow Deer (3 records: tracks)
- Fox (2 records: tracks and scat)
- Wood Mouse (3 records: prints and small mammal traps)

8.2.8. Clonsast North

Evidence of six mammal species and 13 individual mammal records were recorded in Clonsast North Bog.

- Badger (2 records: tracks)
- Pine Marten (1 record: scat)
- Otter (2 records: tracks and spraint)
- Fox (5 records: tracks and scat)
- Wood Mouse (2 records: small mammal trap and prints)
- Pygmy Shrew (1 record: small mammal trap)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Pine Marten
Badger
Red Squirrel
Squirrel
Fox
Fallow Deer
Wood Mouse
Remote Camera Trap
Small Mammal Trap
Ink Pad Tunnel Traps
Site Boundary
Transect
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ENVIRONMENTAL CONSULTANTS
Map produced by: INIS Environmental Consultants Ltd.
Not to scale; for illustration purposes only.

Bat Survey Report

Proposed Wind Farm Development at Cloncreen & Adjacent Townlands, Co. Offaly

McCarthy
Keville
O'Sullivan

Planning & Environmental Consultants

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1 INTRODUCTION

McCarthy Keville O'Sullivan (MKO) was commissioned by Bord na Móna Powergen Ltd to prepare an Environmental Impact Statement (EIS) for a proposed wind farm at Cloncreen, Co. Offaly. This report contains all information specifically relating to the assessment of potential impacts on bats, and will be included as an Appendix to the EIS. Other ecological impact assessments are available Chapter 5: Flora & Fauna of the main EIS.

A bat survey plan was devised in accordance with best practice and bat surveys were completed by MKO ecologists between April and August, 2016. Surveys in 2016 required a combination of methods which included roost surveys, manual transects and fixed point monitoring.

The aim of these surveys was to:

- determine to what extent bats are using the proposed development site
- identify the species present
- locate any roosts, foraging areas and commuting routes

In addition to bat survey work completed in 2016, reference was made to previous bat survey work. INIS Environmental Consultants and Malachy Walsh and Partners carried out bat surveys at the site in 2013 and 2015 respectively. All available bat data was used to assess how the proposed development may impact on bat populations. Where potential adverse impacts were identified, mitigation measures are provided to offset these impacts.

1.1 Statement of Authority

All bat surveys undertaken in 2016 were conducted by MKO ecologists; Pat Roberts (BSc, MCIEEM), John Hynes (BSc, MSc) and Laoise Kelly (BSc). All MKO staff have relevant academic qualifications and are competent experts in undertaking bat surveys to this level.

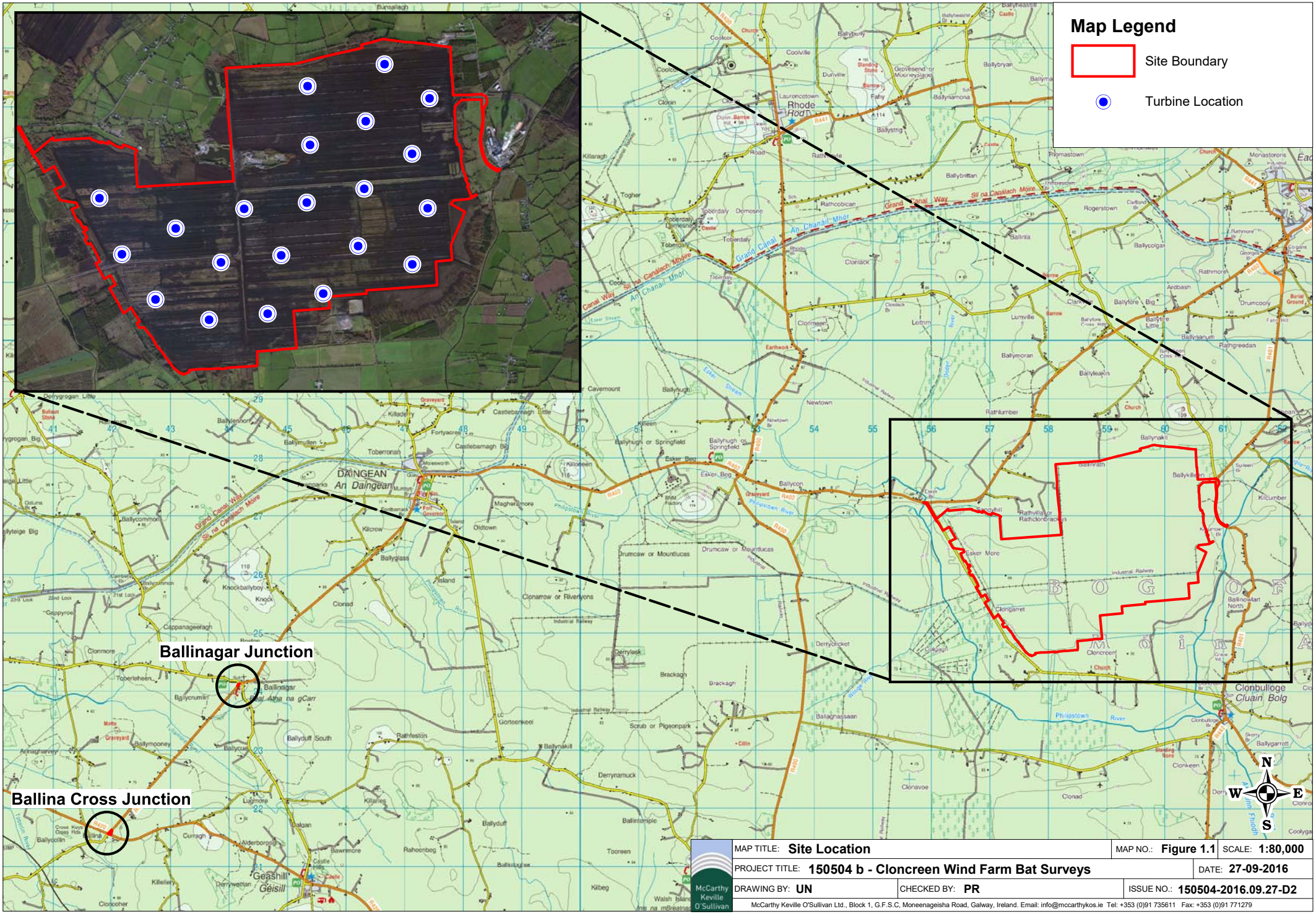
All bat survey results were compiled and assessed by Úna Nealon (BSc, PhD). Úna's primary expertise lies in bat ecology, particularly in relation to wind farm EIA. Building on her previous consultancy experience, she completed her PhD with the Centre for Irish Bat Research, examining the impacts of wind farms on Irish bat species. Her unique background leaves her ideally suited to undertake scope development for wind energy bat surveys, including the practical application of bat survey guidelines at Irish wind energy sites. She is also practiced in bat survey methods at potential development sites using multiple techniques. Furthermore, she is skilled in bat impact assessment and the design of mitigation measures where she applies scientific and technical knowledge to produce practical solutions.

Previous bat survey work also informed this impact assessment. INIS Environmental Consultants and Malachy Walsh and Partners carried out bat surveys at the site in 2013 and 2015 respectively. These ecological consultants have significant experience in undertaking survey work of this kind.

1.2 Study Area

The proposed wind farm is located at Cloncreen bog in Co. Offaly, approximately 4.5 kilometres southwest of Edenderry at its nearest point. The villages of Clonbullogue and Rhode are located approximately 2.0 kilometres southeast and 7.0 kilometres northwest of the site respectively (Figure 1.1).

The proposed wind energy development will encompass 21 No. wind turbines up to a maximum tip height of 170 metres and all associated ancillary works. In accordance with best practice, the Study Area was defined by the developable area and included a 200m buffer (Hundt, 2012).



MAP TITLE: **Site Location**		MAP NO.: **Figure 1.1**	SCALE: **1:80,000**
PROJECT TITLE: **150504 b - Cloncreen Wind Farm Bat Surveys**			DATE: **27-09-2016**
DRAWING BY: **UN**	CHECKED BY: **PR**	ISSUE NO.: **150504-2016.09.27-D2**	

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2 BACKGROUND

2.1 Introduction

Wind energy provides a clean, sustainable alternative to fossil fuels in generating electricity. However, wind energy development can impact wildlife, directly through mortality and indirectly through disturbance and habitat loss. Bat fatalities have been reported at wind energy facilities around the world, raising concern about the cumulative impacts of such developments on bat populations (Arnett et al. 2016). To date, no bat mortality studies at Irish wind farms have been published. However, evidence available from the UK estimates bat fatalities at 0 – 5.25 bats per turbine per month (Mathews et al. 2016).

Investigative research in North America and mainland Europe have revealed the mechanisms for bat mortality at wind turbines. Bat fatalities result from direct collision with moving turbine blades (Horn et al. 2008, Cryan et al. 2014) and barotrauma (Baerwald et al. 2008), i.e. internal injuries caused by air pressure changes. Why bats fly in the vicinity of wind turbines remains unclear, with several behavioural and environmental factors proposed, e.g. habitat associations, weather conditions, species ecology, etc. Any spatial, temporal or behavioural factors that may put bats at greater risk were fully considered in the design of bat surveys at the proposed wind farm at Cloncreen and in the analyses of all survey results.

2.2 Policy

All Irish bats are protected under European legislation, namely the Habitats Directive (92/43/EEC). All Irish species are listed under Annex IV of the Directive, requiring strict protection. The Lesser horseshoe bat (*Rhinolophus hipposideros*) is further listed under Annex II of the Directive, requiring the designation of conservation areas for the species. Under this Directive, Ireland is obliged to maintain the favourable conservation status of Annex-listed species. This Directive has been transposed into Irish law through the European Communities (Birds and Natural Habitats) Regulations 2011.

In addition, Irish species are further protected by national legislation (Wildlife Acts 1976-2012). Under these legislation, it is an offence to intentionally disturb, injure or kill a bat or disturb its roost. Any work at a roost site must be carried out with the support of the National Parks and Wildlife Service.

The National Parks and Wildlife Service (NPWS) monitors the conservation status of European protected habitats and species and reports their findings to the European Commission every 6 years. The most recent report for the Republic of Ireland was submitted in 2013. Table 2.1 summarises the current conservation status of Irish bat species and identified threats to Irish bat populations.

Table 2.1: Irish Bat Species Conservation Status and Threats

Bat Species	Conservation Status	Principal Threats
Common pipistrelle *Pipistrellus pipistrellus*	Favourable	▪ Urbanised areas (e.g. light pollution) ▪ Bridge/viaduct repairs ▪ Pesticides usage ▪ Removal of hedges, scrub, forestry ▪ Water pollution ▪ Other pollution and human impacts (e.g. renovation of dwellings with roosts) ▪ Infillings of ditches, dykes, ponds, pools and marshes ▪ Management of aquatic and bank vegetation for drainage purposes ▪ Abandonment of pastoral systems ▪ Spieleology and vandalism ▪ Communication routes: roads - forestry management
Soprano pipistrelle *Pipistrellus pygmaeus*	Favourable	
Nathusius' pipistrelle *Pipistrellus nathusii*	Favourable	
Leisler's bat *Nyctalus leisleri*	Favourable	
Daubenton's bat *Myotis daubentoni*	Favourable	
Natterer's bat *Myotis nattereri*	Favourable	
Whiskered bat *Myotis mystacinus*	Favourable	
Brown long-eared bat *Plecotus auritus*	Favourable	
Lesser horseshoe *Rhinolophus hipposideros*	Favourable	

2.3 Guidance

In response to growing concerns regarding the impact of wind energy developments on bats, a number of guidelines have been produced in Europe, the UK and Ireland. These guidelines aid in designing bat surveys at potential wind energy sites, assessing risk and developing mitigation and compensation strategies to minimise negative impacts. The various guidelines differ in their level of technical detail and reference to published research findings. It is important that every assessment considers the scale of any likely impacts and takes a proportionate approach, with reference to all published advice and guidelines.

2.3.1 EUROBATS

At a European level, the Advisory Committee to the EUROBATS Agreement, to which Ireland is a signatory, have produced *Guidelines for Consideration of Bats in Wind Farm Projects* which outlines an approach for assessing the potential impacts of wind turbines on bats during planning, construction and operation phases (Rodrigues, 2015). However, these guidelines are based on continental scenarios and include more diverse species and behaviours than those typical of Ireland. As such, EUROBATS guidance may recommend a level of survey that may prove inappropriate in Irish scenarios. Nevertheless, the guidance is evidence-based and provides a useful European context, within which Member States are encouraged to produce specific national guidance, focusing on local circumstances.

2.3.2 Bat Conservation Trust (BCT)

The second edition of the BCT's *Bat Survey Good Practice Guidelines* (Hundt, 2012) includes a chapter on survey methodologies for assessing the potential impacts of wind turbines on bats. The document provides technical guidance for consultants carrying out impact assessments. However, the recommendations are not based on any research findings specific to the UK.

A third edition to the guidelines, published in early 2016, removed the chapter on surveying wind turbine developments. New wind farm guidance is being drafted in

partnership with relevant organisations and with regard to recent research findings in the UK. This new guidance is due for publication later in 2016. Until this new guidance is published, the chapter in the 2nd edition is still applicable.

2.3.3 Bat Conservation Ireland (BCI)

BCI produced *Wind Turbine/Wind Farm Development Bat Survey Guidelines* (BCI, 2012a). This document provides advice to practitioners and decision makers in Ireland on necessary qualifications for surveyors, health and safety considerations, pre-construction and post-construction survey methodologies and information to be included in a report. In the absence of Irish research, these guidelines provide generalised methodology rather than detailed technical advice.

2.3.4 Other Useful Publications

Prior to the publication of the BCT guidelines, *Natural England's Bat and Onshore Wind Turbines: Interim Guidance* provided a pragmatic interpretation of the EUROBATS recommendations, as applied to onshore wind energy facilities in the UK (Natural England, 2014). In addition, the Chartered Institute of Ecology and Environmental Management (CIEEM) publishes advice on best practice as well as updates on the current state of knowledge in the *Technical Guidance Series* and in the quarterly publication *In Practice*.

In addition to specific wind farm guidance documents, other sources on bat survey, assessment and mitigation were consulted. Conservatively, these included

- Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn) (Collins, 2016)
- The Bat Worker's Manual, 3rd Edition (Mitchell-Jones and McLeish, 2004).
- Ecological and Behavioral Methods for the Study of Bats, 2nd Edition (Kunz and Parsons, 2009).
- Irish Bats in the 21st Century (Roche et al., 2014)
- British Bat Calls: A guide to species identification (Russ, 2012)
- Handbook of Biodiversity Methods: Survey, Evaluation and Monitoring (Hill, 2005)
- The Lesser Horseshoe Bat: Conservation Handbook (Schofield, 2008).
- Bats and Appropriate Assessment Guidelines, Version 1 (BCI, 2012b)
- Bat Mitigation Guidelines (Mitchell-Jones, 2004).
- Bat Mitigation Guidelines for Ireland. (Kelleher and Marnell, 2006)
- Bat Conservation: Global evidence for the effects of interventions (Berthinussen et al., 2014)
- Best practice guidelines for the conservation of bats in the planning of national road schemes (NRA, 2006a)
- Guidelines for the treatment of bats during the construction of national road schemes (NRA, 2006b)
- Bat Survey – Specific Requirements for Wind Farm Proposals (Northern Ireland Environment Agency, 2011)

2.4 Irish Species at Risk

Ireland has nine resident bat species, comprising more than half of Ireland's native terrestrial mammals (Montgomery et al., 2014). This is considerably less than the 53 bat species found in mainland Europe (Rodrigues, 2015) and 17 in Great Britain (Hundt, 2012). At present, there are no available data on bat activity or fatality at Irish wind farms.

Species at high risk of collision share several morphological and ecological similarities. Species at high risk tend to be open-air foragers with long narrow wings and use high-intensity, narrow-band echolocation calls (Schuster, 2015). This pattern is consistent in North America, Europe and Australia.

Guidance provided by Natural England (2014) utilised this information to provide a collision risk assessment for British bat species. Table 2.2 summarises the results of this risk assessment with respect to species that occur in Ireland. Four species are identified as high or medium risk. They are Common pipistrelle (*Pipistrellus pipistrellus*), Soprano pipistrelle (*Pipistrellus pygmaeus*), Nathusius pipistrelle (*Pipistrellus nathusii*) and Leisler's bat (*Nyctalus leisleri*). These four species have also displayed significant mortality at wind energy facilities in mainland Europe (EUROBATS, 2016).

Table 2.2: Collision Risk Level for Irish Bat Species (Natural England, 2014)

Low Risk	Medium Risk	High Risk
Myotis species	Common pipistrelle	Leisler's bat
Brown long-eared bats	Soprano pipistrelle	Nathusius pipistrelle
Lesser horseshoe bats		

3 SURVEY METHODS

3.1 Consultation

A consultation exercise was undertaken as part of the EIS for the proposed development. A Scoping Document, comprising a description of the site, proposed development and the EIS scope, was circulated to consultees in September 2015. In addition, a description of the final proposed turbine layout was circulated in April 2016. As part of this exercise, prominent Irish conservation groups were contacted and Bat Conservation Ireland (BCI) was specifically invited to comment on the potential of the proposed development to impact on bats. No response had been received from BCI at the time of preparing this report. See Section 5.1 of this report for further details on scoping responses in relation to bats.

3.2 Desktop Study

A desktop review of published and unpublished material was undertaken to inform all subsequent field studies and impact assessment. The aim of the desktop review was to identify the presence of species of interest or designated sites within the Study Area and surrounding region.

3.2.1 Bat Survey Reports

Previous bat survey reports were reviewed as part of the desktop study. Bord na Móna previously commissioned two bat surveys, within the Ballydermot/ Timahoe and Derrygreenagh Bog Groups. The Study Area lies within the Derrygreenagh Bog Group.

A baseline bat survey was carried out by INIS Environmental Consultants in 2013. No formal bat surveys had been undertaken in the area prior to this study and the aim was to establish indicative levels of bat activity for the area. Surveyors employed a combination of walked and driven transects, passive monitoring and roost surveys to examine bat activity across both Bog Groups and determine bat habitat use within 33 individual bogs, including Cloncreen Bog. The relevant extracts from the INIS Environmental report in relation to the Cloncreen site are provided in Annex 1 of this report.

A second year of baseline bat surveys was undertaken at the Cloncreen Bog site in 2015 by Malachy Walsh and Partners. Here, surveyors used a combination of activity surveys, passive surveys, roost inspections and emergence surveys within and adjacent to the site. The goal was to provide insight on local bat populations, including species composition, level of activity and bat habitat use. In addition, this study included activity surveys at height and surveys of all potential roost sites. The Malachy Walsh and Partners report is provided in Annex 2.

3.2.2 National Bat Database of Ireland

The National Bat Database of Ireland holds records of bat observations received and maintained by BCI. These records include results of national monitoring schemes, roost records as well as ad-hoc observations. A data request was submitted to BCI to search the National Bat Database of Ireland for bat presence and roost records within a 10 km radius of the Study Area.

In addition, the following BCI monitoring reports were reviewed:

- All Ireland Daubenton's Bat Waterway Monitoring Scheme 2006-2011. Irish Wildlife Manuals, No. 61 (Aughney et al., 2012)
- Car-based bat monitoring in Ireland 2003-2011. Irish Wildlife Manuals, No. 60. (Roche et al., 2012)
- Brown long-eared bat roost monitoring scheme for the Republic of Ireland: synthesis report 2007-2010. Irish Wildlife Manuals, No.56. (Aughney et al., 2011)
- BATLAS 2020 Pilot Project Report (Abbott et al., 2015)
- Irish Bat Monitoring Schemes. BATLAS Republic of Ireland Report for 2008-2009 (Carden et al., 2010)
- An investigation of the impact of development projects on bat populations: Comparing pre- and post-development bat faunas (Aughney, 2008)
- Lesser Horseshoe bat: population trends and status of its roosting resource. Irish Wildlife Manuals, No 85 (Roche et al., 2015)

3.2.3 Designated Sites

The National Parks and Wildlife Service (NPWS) map viewer and website provides information on rare and protected species, sites designated for nature conservation and their conservation objectives. A search was undertaken of sites, specifically designated for the conservation of bats, within a 15 km radius of the Study Area. This included European designated sites, i.e. SACs, and nationally designated sites, i.e. NHAs and pNHAs.

3.2.4 Habitat and Landscape

Ordnance survey maps (OSI 1:5,000 and 1: 50,000) and aerial imagery (ortho-based maps) were reviewed to identify any habitats and features likely to be used by bats. Maps and images of the Study Area and general landscape were examined for suitable foraging or commuting habitats including woodlands and forestry, hedgerows, treelines and watercourses. In addition, any potential roost sites, such as buildings and bridges, were noted for further investigation.

Furthermore, the Geological Survey Ireland (GSI) online mapping tool and UBSS Cave Database for the Republic of Ireland were consulted for any indication of suitable subterranean bat sites, such as caves.

3.3 Study Site Assessment

The likely impact of a proposed development on bats is related to the size of the development, the extent, the quality of the habitat and the availability of buildings or other features that may support roosting bats. The scale of impacts is likely to increase in relation to the number and quality of such features. The BCT guidelines provide recommendations for assessing site characteristics and determining the minimum level of survey effort required (Hundt, 2012). All BCT assessment criteria are provided in Annex 3 to this Appendix.

In relation to the Cloncreen Wind Farm site, desk study and scoping results were reviewed with BCT advice and the Study Area was conservatively assigned a *Medium* value. Table 3.1 details the assessment of site features with relation to all BCT assessment criteria.

Table 3.1: Assessment of Required Survey Effort (as determined from Hundt, 2012)

Item	Assessment of Site	Assessment of Survey Effort
Quality of habitat, number of features likely to contribute to potential mortality rates	Small number of low potential roost features	Low
	Low quality foraging habitat that could be used by low numbers of foraging bats	Low
	Site is connected to the wider landscape by linear features such as scrub tree lines and streams	Medium
Species likely to use the site	Low number of medium and single high risk species	Medium
Importance of roost to species likely to use site, which may be affected	Local, Parish	Low
Overall assessment of required survey effort		**Medium**

3.4 2016 Field Survey

3.4.1 Survey Design

The aim of surveying bats at wind energy sites is to identify and assess the potential impacts on local, and hence national, bat populations (BCI, 2012a). To do this, surveys must compile the following information (Hundt, 2012):

- Bat species assemblages on site, noting high, medium and low risk groups
- Relative frequency of site use by different species throughout the active season
- Spatial and temporal distribution of activity for different species
- Nature of activity for different species where possible, e.g. foraging, commuting, roosting

BCT guidelines provide recommendations on minimum survey standards. The Study Area was assigned a *Medium* effort value (Table 3.1). For a medium effort value site, roost surveys are recommended within 200 m of the developable area, including an assessment of roosting potential, an inspection of all potential roost sites and activity surveys of roosts of high/medium risk species and roosts of district importance and above. For manual surveys, transect routes should be representative of all habitats and turbine locations. The guidelines recommend a minimum survey effort of one visit per transect per month between April and October. For fixed point surveys, detectors should be deployed in sufficient numbers so as to represent the extent of the site and the range of habitats present. At least 5 consecutive nights recording per detector per month is recommended. A description of minimum survey standards for all risk levels is included in Annex 4 and further detail is available in the BCT guidelines (Collins 2016, Hundt 2012).

3.4.2 Habitat Assessment

Multi-disciplinary ecological surveys were carried out on the 28th and 29th April and 10th June 2016. These surveys comprised a walkover of the Study Area, recording habitat

types. Habitats were assessed for their suitability to support bats according to Collins (2016), which provides a grading protocol for roosting habitats and for commuting and foraging areas. Suitability categories, divided into *High*, *Moderate*, *Low* and *Negligible*, are described fully in Annex 5.

The results of the desktop study, walkover survey and site assessment were used to determine any outstanding bat survey requirements. In accordance with best practice, a combination of manual activity surveys, fixed point activity surveys and roost surveys were scheduled for the 2016 activity season. The resulting data were combined with previous survey efforts, as reported by INIS Environmental Consultants and Malachy Walsh and Partners to provide a full impact assessment using roost surveys as well as spatial and temporal bat activity data, gathered at ground level and at height, over multiple years.

3.4.3 Roost Surveys

Structures and trees within the Study Area were assessed for their suitability for roosting bats (see Annex 5 for criteria in assessing roosting habitats). Any potential roost sites identified, during the walkover survey were subject to a preliminary roost assessment. This comprised a detailed inspection of the exterior and interior (if accessible) to look for evidence of bat use, including live and dead specimens, droppings, feeding remains, urine splashes, fur oil staining and noises. Trees were examined for the presence of rot holes, hazard beams, cracks and splits, partially detached bark, knot holes, gaps between overlapping branches and any other potential tree roost features identified by Andrews (2013). The aim of this study was to determine the presence of bats and the need for further survey work or mitigation.

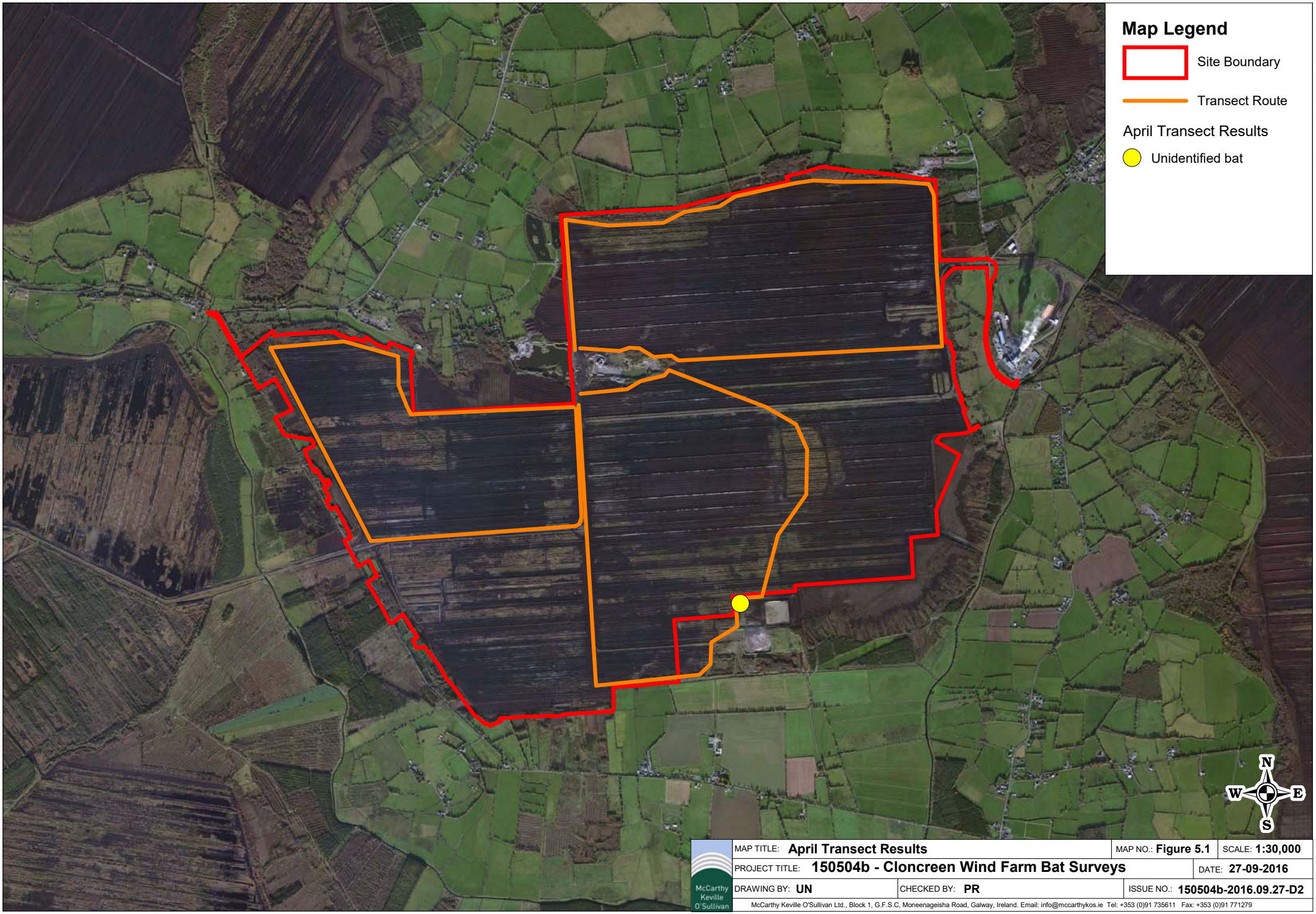
3.4.4 Manual Transects

Manual activity surveys comprised walked transects at dusk and at dawn. The aim of these surveys was to identify bat species using the site and gather any information on bat behaviour and important features used by bats. A series of transect routes, covering the extent of the Study Area and the main habitat features, were prepared with reference to desktop and walkover survey results. Minor deviations to set transect routes occurred depending on site conditions on individual survey nights (Figures 5.1 – 5.5).

During each manual survey, transects were divided between two survey teams and walked separately, recording bats in real time. Surveyors were equipped with an active full spectrum bat detector, the Echo Meter EM3+ (Wildlife Acoustics, Maynard, MA, USA), and a heterodyne bat detector, the D200 Ultrasound Detector (Pettersson Elektronik AB, Uppsala, Sweden). Where possible, species identification was made in the field and any other relevant information was also noted, e.g. numbers, behavior, features used, etc. All bat echolocation was recorded for subsequent analysis to confirm species identifications (see Section 3.4.6).

Dusk surveys commenced 30 minutes before sunset and were completed within 3 hours after sunset. Dawn surveys commenced 1.5-2 hours before sunrise and were completed within 30 minutes after sunrise. The order of transects as well as the start and finish points were alternated between survey nights across the season, to allow for varying emergence times of different bat species.

In total, 5 survey nights, each comprising a dusk and a dawn survey, were completed between April and August 2016. Survey effort is described in full in Section 3.4.7.



MAP TITLE: **April Transect Results**		MAP NO.: **Figure 5.1**	SCALE: **1:30,000**
PROJECT TITLE: **150504b - Cloncreen Wind Farm Bat Surveys**			DATE: **27-09-2016**
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MAP TITLE: **May Transect Results**		MAP NO.: **Figure 5.2**	SCALE: **1:30,000**
PROJECT TITLE: **150504b - Cloncreen Wind Farm Bat Surveys**			DATE: **27-09-2016**
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MAP TITLE: **June Transect Results**		MAP NO.: **Figure 5.3**	SCALE: **1:30,000**
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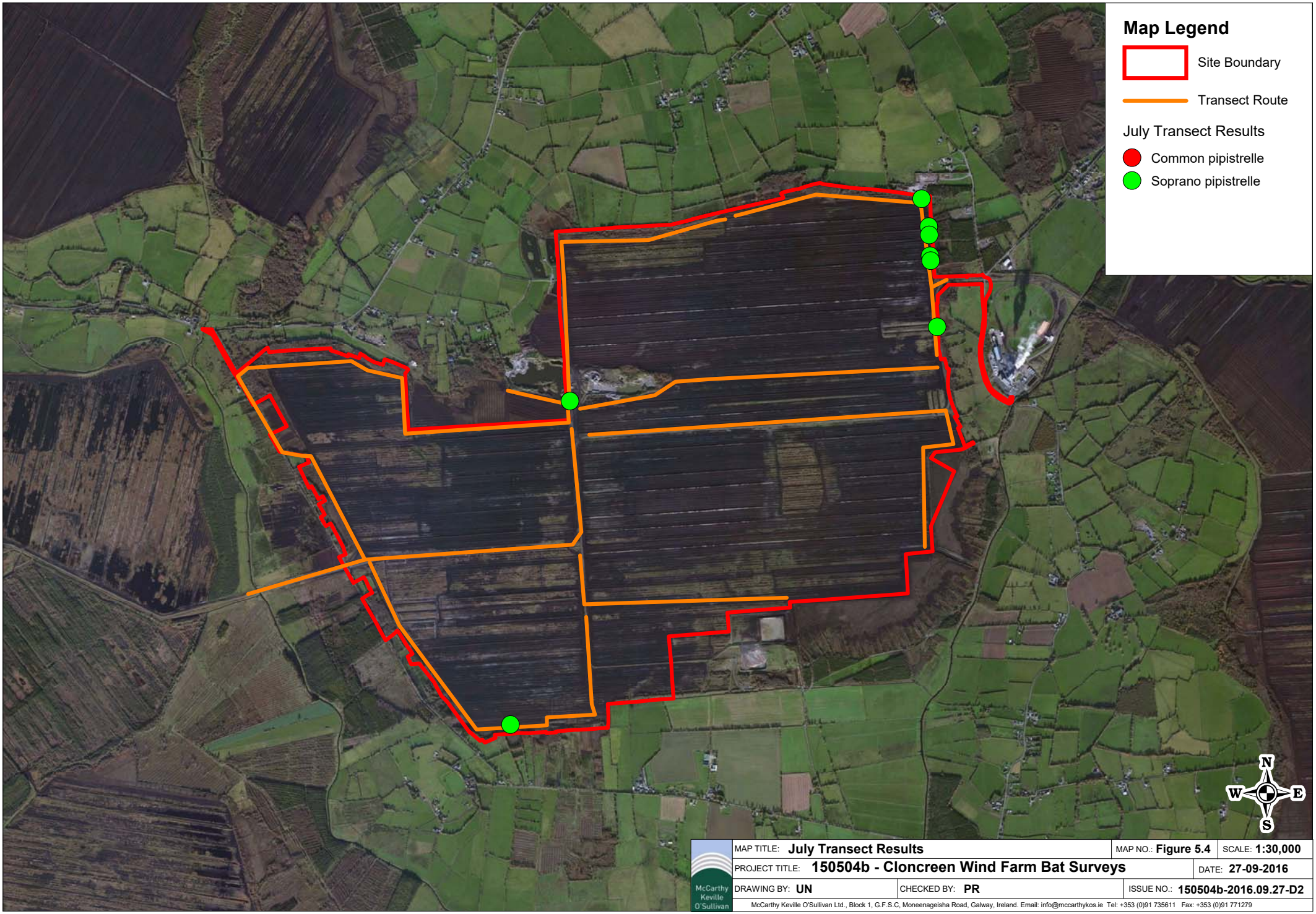

MAP TITLE: **July Transect Results**		MAP NO.: **Figure 5.4**	SCALE: **1:30,000**
PROJECT TITLE: **150504b - Cloncreen Wind Farm Bat Surveys**			DATE: **27-09-2016**
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MAP TITLE: **August Transect Results**		MAP NO.: **Figure 5.5**	SCALE: **1:30,000**
PROJECT TITLE: **150504b - Cloncreen Wind Farm Bat Surveys**			DATE: **27-09-2016**
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3.4.5 Fixed Point Surveys

Manual bat activity surveys provide a snapshot of activity across a site. In order to determine temporal variations in bat activity, automated bat detector systems were used to record activity in fixed locations over prolonged periods of time. The aim of fixed point surveys in 2016 were to identify bat fidelity to particular foraging areas and commuting routes and to allow comparison of temporal variation between open and edge habitats within the Study Area.

Automated bat detectors, the Song Meter SM3BAT (Wildlife Acoustics, Maynard, MA, USA) were used in fixed point surveys. Each detector was equipped with one SMM-U1 ultrasonic microphone (Wildlife Acoustics, Maynard, MA, USA. Detectors were deployed on four occasions, covering at least 5 consecutive nights in April, May, June, July and August 2016.

Locations of fixed point detectors were selected to represent favourable bat habitats as well as turbine locations (Figure 3.1). A single detector was deployed in April, in a favourable piece of edge habitat. In May, paired detectors were installed, one within the same favourable piece of edge habitat and one in a typical turbine location habitat, less favourable open cutover bog. The detectors were deployed for the same period of time, allowing direct comparisons. During the July deployment, one detector was set up at another turbine location habitat, in open bog scrub habitat. The locations of fixed point detectors are displayed in Figure 3.1 and are described in Table 3.2.

Table 3.2: Description of fixed point locations

ID	Survey Period	Grid Reference	Habitat Type
FP-1	28th April – 15th May 2016	258540, 224888	Bog woodland edge, adjacent to cutover bog.
FP-2	27th May – 15th June 2016	258540, 224888	Bog woodland edge, adjacent to cutover bog.
FP-3	27th May – 15th June 2016	258546, 226257	Open cutover bog
FP-4	28th July – 7th August 2016	257625, 225812	Cutover bog & scrub, adjacent to railway tracks

Recording schedules were set using the SM3 Configuration Utility (Wildlife Acoustics, Maynard, MA, USA). Settings used were those recommended by the manufacturer for bats, with minor adjustments in gain settings and band pass filters to reduce background noise when recording. All detectors were set to record from sunset to sunrise. The SM3BAT automatically adjusts sunset and sunrise times using the Solar Calculation Method when provided with GPS coordinates.

3.4.6 Bat Call Analysis

All recordings, collected during manual and fixed point surveys, were made in full spectrum, retaining all amplitude and harmonic information from the original signal for subsequent analysis, and were stored in WAV format. Recordings were later analysed using bat call analysis software, Kaleidoscope Converter and Viewer, v.3.1.7 (Wildlife Acoustics, Maynard, MA, USA). The acoustic scrubbing feature was used to filter false triggers, e.g. wind, rain, etc. All files were split to a maximum 15 s duration and were manually reviewed, using established call parameters, to identify individual species. In addition, any information on bat behavior contained within echolocation calls, e.g. social calls, feeding buzzes, were noted.

MAP TITLE: **Fixed Point Survey Locations**		MAP NO.: **Figure 3.1**	SCALE: **1:30,000**
PROJECT TITLE: **150504b - Cloncreen Bat Surveys**			DATE: **27-09-2016**
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A genus or species was identified from the overall shape of the call and measurements of start frequency, end frequency, frequency of maximum energy, call duration and inter-pulse interval (Russ, 2012). Pipistrelle bats, i.e. species within the genus *Pipistrellus,* were separated by peak frequency as described by Russ (2012). Calls with peak frequencies between 50 – 52 kHz were not identified to species level and were labelled 'Pipistrelle sp.'. Identification of bat species within the genus *Myotis* from echolocation alone is imprecise and all records were identified as 'Myotis sp.'.

Individual bats of the same species cannot be distinguished by their echolocation alone. Thus, 'bat passes' was used as a measure of activity (Collins, 2016). For the purposes of this study, a bat pass is defined as a recording of an individual species/species group's echolocation containing at least two echolocation pulses and of maximum 15s duration. All bat passes recorded in the course of this study follow this criteria, allowing comparison.

3.4.7 Survey Effort 2016

Manual transects were undertaken in April, May, June, July and August 2016. Table 3.3 describes survey effort with regard to manual transects, including the total number of hours spent manually surveying. Figures 5.1-5.5 show the transect routes undertaken each month.

Table 3.3: Summary of Manual Transects Survey Effort in 2016

Date	Surveyor	Type	Sunset/Sunrise (hh:mm)	Start-Finish (hh:mm)	No. hours (hh:mm)
28th/29th April 2016	Pat Roberts	Dusk	20:53	20:30-23:30	03:00
		Dawn	05:56	04:30-06:00	01:30
26th/27th May 2016	John Hynes	Dusk	21:39	21:10-00:20	03:10
		Dawn	05:11	03:45-05:15	01:30
	Laoise Kelly	Dusk	21:39	21:10-00:20	03:10
		Dawn	05:11	03:45-05:15	01:30
30th June/1st July 2016	John Hynes	Dusk	21:59	21:28-23:40	02:12
		Dawn	05:06	02:50-05:00	02:10
28th/29th July 2016	John Hynes	Dusk	21:29	21:00-23:45	02:45
		Dawn	05:41	04:05-05:40	01:35
	Laoise Kelly	Dusk	21:29	21:00-23:35	02:35
		Dawn	05:41	04:00-05:40	01:40
23rd/24th August 2016	John Hynes	Dusk	20:37	20:10-23:10	03:00
		Dawn	06:25	05:00-06:35	01:35
	Laoise Kelly	Dusk	20:37	20:10-23:10	03:00
		Dawn	06:25	05:00-06:35	01:35
Total Survey Time (hh:mm)					**35:57**

Fixed point detectors were deployed in April, May, June and July 2016. Table 3.4 outlines survey effort with regard to fixed point surveys, including total number of nights surveyed and total number of hours surveyed (accounting for varying sunset and sunrise times). Figure 3.1 presents the locations of fixed point detectors.

Table 3.4: Summary of Fixed Point Surveys in 2016

Location	Survey Period	Recording	Grid Ref.	No. Night	No. hours (hh:mm)
FP-1	28th April – 15th May 2016	Sunset-Sunrise	258540, 224888	18	152:31
FP-2	27th May – 15th June 2016	Sunset-Sunrise	258540, 224888	20	142:33
FP-3	27th May – 15th June 2016	Sunset-Sunrise	258546, 226257	20	142:33
FP-4	28th July – 7th August 2016	Sunset-Sunrise	257625, 225812	11	92:49
Total Survey Time				**69**	**530:26**

4 SURVEY LIMITATIONS

Survey design and effort was created in accordance with the most current best practice guidelines for surveying bats and wind farms (Hundt, 2012). The survey design was continually assessed to determine its appropriateness to the bat species diversity and level of activity encountered at the proposed site. Surveys repeatedly recorded low species diversity and low levels of activity. Therefore, the initial proposed survey design was maintained. The surveys carried out in 2016, when combined with previous bat survey results from 2013 and 2015, are considered more than sufficient to meet guideline standards.

The bat activity season lasts from April to September/October each year (Hundt, 2012). INIS Environmental Consultants carried out 3 bat surveys at Cloncreen Bog between June and September 2013. In addition, Malachy Walsh and Partners carried out 3 manual transect surveys in June, August and September 2015 as well as fixed point monitoring at 3 locations in July and September 2015. In 2016, MKO ecologists carried out transect surveys and fixed point monitoring monthly between April and August 2016. Data from 2013, 2015 and 2016 cover all aspects of the main bat activity period and therefore, no seasonal limitations have been identified.

No survey of hibernating bats was undertaken in 2016. However, no sites with hibernation potential were identified during the desktop and walkover surveys. In addition, previous survey work carried out by Malachy Walsh and Partners included winter roost surveys in November and December 2015. Surveyors found no evidence of hibernating bats.

No passive surveying at height was undertaken in 2016. However, in 2015, Malachy Walsh and Partners recorded bat activity at the top of the Cloncreen Met Mast for 55 nights and recorded just a single bat pass.

In general, manual transects were undertaken in optimal survey conditions i.e. no heavy rain or strong winds with dusk temperatures above 7 ˚C (BCI, 2012a). The April survey was an exception, with temperature at dusk recorded as 5 ˚C. However, a review of weather data held by Met Éireann for the nearest synoptic station at Mullingar, revealed temperatures throughout April 2015 were cool (average daily temperatures: 6.5 ˚C) compared to temperatures recorded in May – August (average daily temperatures: 11.7 – 14.9 ˚C) (www.met.ie). Therefore, the April survey is considered representative of site conditions that month.

Detection distances vary between species and method employed. For example, Leisler's bat has a much larger detection distance of 80 m compared to 25 m for Pipistrelle species (Barataud and Tupinier, 2012). This may lead to an overestimation of Leisler's activity when compared to pipistrelles. In addition, automatic detectors have a larger detection distance than manual detectors.

The analysis of bat data is subject to experience. All survey data collected in 2016 were analysed by one MKO ecologist, Úna Nealon (BSc, PhD), with extensive experience in bat call analyses. Species were identified according to Russ (2012). Where reliable identifications were not possible, bat calls were identified to genus level and not to species level. Criteria for species identification are described fully in Section 3.4.6.

5 SURVEY RESULTS

5.1 Consultation

A scoping and consultation exercise was undertaken as part of EIA. These results are described fully in the main EIS. However, the following recommendations were made, specifically in relation to bats, by the Department of Arts, Heritage and the Gaeltacht:

- Bat roosts may be present in trees, buildings and bridges. Bat roosts can only be destroyed under licence under the Wildlife Acts and a derogation under the Habitats Regulations, and such a licence would only be given if suitable mitigation measures were implemented. Where so-called bat friendly lighting is proposed as mitigation, it should be proven to work as mitigation.
- A bat survey will be required.
- EIS should identify any pre and post-construction monitoring which should be carried out. The applicant should not use any proposed post-construction monitoring as mitigation to supplement inadequate information in the assessment. Post-construction monitoring should include bird and bat strikes/fatalities including the impact on any such results of the removal of carcasses by scavengers. Monitoring results should be made available to the competent Authority and copied to this Department. A plan of action needs to be agreed at planning stage with the Planning Authority if the results in future show a significant mortality of birds and/or bat species.

BCI were invited to comment on the proposed development and potential impacts on bats. However, no response was received.

5.2 Desktop Study

5.2.1 Bat Survey Reports

INIS Environmental Consultants' Report

A baseline bat survey was carried out by INIS Environmental Consultants in 2013. No formal bat surveys had been undertaken in the area prior to this study and the aim was to establish indicative levels of bat activity within the Ballydermot/ Timahoe and Derrygreenagh Bog Groups and determine bat habitat use within 33 individual bogs, including Cloncreen Bog.

Three bat surveys were carried out at Cloncreen Bog between June and September 2013. These each comprised 5 transects, covering 6 km. These were designed to survey all available habitats, including open peat, scrub vegetation and well developed hedgerows.

Surveyors employed a combination of methods including:

- Walked transects using handheld heterodyne bat detectors (Batbox Duet)
- Fixed point recording using static bat detectors (Anabat SD1)
- Roost surveys within Bord na Móna land parcels and adjoining habitats

In total, 8 bat contacts were recorded. These included Common pipistrelle (n=5), Whiskered bat (n=2) and Leisler's bat (n=1). These results accounted for 1.3% of all bat records recorded across both Bog Groups. All bats were recorded along hedgerows at the north-western side of the site. One Common pipistrelle was found commuting and all other bat were recorded as foraging.

No bat roosts were identified within the site. However, one significant roost of Soprano pipistrelles was identified in a private dwelling near Clonsast bog, 2.5 km from Cloncreen Bog. The relevant extracts from the INIS Environmental report are provided as Annex 1 to this report.

Malachy Walsh and Partners' Report
Bat surveys were conducted by Malachy Walsh and Partners' between March and November 2015. Three forms of survey were implemented, including:

- Walked and driven transects (using an AnaBat detector).
- Automated bat surveys - at ground level and at height (using an SMZC detector)
- Roost surveys (daytime visual search and bat activity surveys within the Study Area)

On 3 nights in June, August and September 2015, 8 transects were completed at dusk, with a combined length of 11.40 km. Transects were designed to sample all available habitats within the Study Area. Species recorded included Soprano pipistrelle (n=27), Common pipistrelle (n=20), Leisler's bat (n=7) and Natterer's bat (n=1). In general, bat activity was considered low, confined to foraging and commuting along the vegetated fringes of the site.

Fifteen nights of automated bat surveys were undertaken at ground level. This included 5 consecutive nights at one location in July 2015 and at a further 2 locations in September 2015. Overall, Common pipistrelles were most frequently encountered, followed by Soprano pipistrelle, Leisler's bat and Natterer's bat. In general, bat activity was greatest early on survey nights (from approximately one hour after sunset), with little activity during the middle of the night and becoming active again before dawn. The level of bat activity was regarded as low, despite favourable conditions.

Fifty-five nights of automated bat surveys were carried out at height, from the top of the Cloncreen Met Mast. During this time period, just one bat contact was recorded, a single Leisler's bat. This level of activity was assessed as extremely low, particularly with regard to survey effort and favourable conditions.

Structures and trees within the Cloncreen Bog site and adjacent lands were assessed for roost potential across 12 dates between June and December 2015. In summary, no bat roosts were identified within the Cloncreen Bog site. Trees within the site were considered unsuitable to support roosting bats.

Outside the site boundary, two bat roosts in buildings and one in a bridge were identified. The BnM Workshop/Factory (Grid Ref: 253823, 226027) is located approx. 2.8 km from the site, where 9 bats were recorded during emergence surveys. In addition, a total of 8 bats were recorded during emergence surveys at a disused building, approx. 5.3 km away next to Rhode Bridge (Grid Ref: 253463, 231604). These bat roosts in buildings showed some potential as maternity or hibernation sites. Finally, the bat roost in Masonry Bridge (Grid Ref: 252588, 231184) lies approx. 5.5 km from Cloncreen Bog. Surveyors found a single bat and considered the bridge a temporary roost.

Overall, the vegetated linear banks that cut through the bog site showed the greatest use by foraging and commuting bats, albeit in low numbers. Bat activity decreased in the open cutover bogland habitat at the site. The Malachy Walsh and Partners report is presented in Annex 2.

5.2.2 National Bat Database of Ireland

A request was submitted to Bat Conservation Ireland to search the National Bat Database of Ireland for records of bat activity and roosts within a 10 km radius of the Study Area. A number of records have been recorded within 10 km of the proposed works. These included roosts (n=5), transects (n=5) and ad-hoc observations (n=11). The results of the database search are provided in Table 5.1.

Table 5.1: BCI data within 10km radius of Study Area

Survey Type	Location	Species	Survey	Designation
Roost	Carbury, Clonsat; Co. Kildare	**Roost type**: Unknown **Species** Brown Long-eared Bat (Droppings)	A survey for bat roosts in Church of Ireland Churches	Annex IV
	Disused Church Rahan, Edenderry Co Kildare	**Roost type**: Unknown **Species** Unidentified Bat (Droppings)	EIA survey – (Scott Cawley)	Annex IV
	Jonestown House, Edenderry, Co Offaly	**Roost type**: Unknown **Species** Unidentified Bat	Buildings At Risk Grant, The Heritage Council	Annex IV
	Morrissey Residence. Rhode, Co. Offaly	**Roost type**: Unknown **Species** Soprano Pipistrelle species	Bats in Houses Project	Annex IV
	Richard and Sarah Tyrell, Coolcor Carbury, Co. Kildare	**Roost type**: Unknown **Species** Brown Long-eared Bat (Droppings)	EIS Survey	Annex IV
Transect	5 No. Transects consisting of multiple individual surveys	Daubenton's Bat, Leisler's Bat, Soprano Pipistrelle, Common Pipistrelle, Unidentified bat	BCI Car Based Bat Monitoring Scheme, All Ireland Daubenton's Bat Waterway Survey	Annex IV
Other Observation	11 No. observation from multiple surveys	Daubenton's Bat, Leisler's Bat, Soprano Pipistrelle, Common Pipistrelle, Unidentified Pipistrelle, Natterer's Bat, Brown Long-eared Bat	BATLAS 2010	Annex IV

5.2.3 Designated Sites

Within Ireland, the Lesser horseshoe bat is the only bat species requiring the designation of Special Areas of Conservation (SACs) and the Study Area is situated more than 15 km outside the known range of this species. Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) may be designated for any bat species. A search of NHAs and pNHAs within a 15 km radius of the Study Area found no sites designated for the conservation of bats.

5.2.4 Habitat and Landscape

A review of mapping, photography and previous survey reports provided insight into the habitats and landscape features present at the proposed development site. In summary, the Study Area is dominated by cutover raised bog, with patches of scrub and is bordered by treelines and hedgerows. There are no rivers, streams or large watercourses within the Study Area. A bat habitat assessment is described in Section 5.3.1 and a full assessment of flora and habitats is included in the main EIS.

A search of the USBSS Cave Database for the Republic of Ireland found one cave in Co. Offaly. Mount Briscoe Cave is located approximately 10 km from the Study Area. Attributes of this cave include recreation, geology, archaeology, palaeo-environment and folklore. However, it has no known ecological significance. This includes no known use by bats. A review of the GSI online mapper did not indicate any suitable subterranean sites within the Study Area.

5.3 Field Survey 2016

5.3.1 Habitat Assessment

The Study Area is dominated by cutover raised bog and is typical of a milled peat bog. It is bordered by linear hedgerows and treelines and scrub vegetation occurs in small patches throughout. There are no rivers or large watercourses within the Study Area. However, there is a small stream along the northern boundary and standing water is present in drains and low-lying areas of cutaway and peat production bog. Drains flow into silt ponds surrounding the site. In addition, there is a rail network to facilitate the movement of milled peat, a former gravel pit, a telecommunications mast and meteorological mast, and a small building used as a 'Tea Centre'. Habitats are fully described in Chatper 5: Flora and Fauna, of the EIS.

Results from the desktop review and walkover surveys were used to assess habitats for their suitability to support foraging and commuting bats, and roosting bats, according to Collins (2016). Suitability categories, divided into *High*, *Moderate, Low* and *Negligible*, are described fully in Annex 5.

With regard to foraging and commuting bats, areas of scrub as well as vegetated drains and borders of the bog, were classified as *Low* suitability, i.e. habitat that could be used by small numbers of commuting or foraging bats. Cutover raised bog habitats which dominate the Study Area were considered *Negligible* suitability, i.e. negligible habitat features on site likely to be used by commuting or foraging bats.

With regard to roosting bats, habitats within the Study Area showed little potential to support roosting bats. The 'Tea Centre' building and several areas of woodland were subjected to preliminary roost assessments, described in the following Section 5.3.2.

5.3.2 Roost Surveys

One building within the site, the 'Tea Centre' (Grid Ref: 258224, 226887), was subject to a preliminary roost assessment (Collins, 2016). The exterior was inspected from ground level, with the aid of binoculars. The search included the ground, accessible windowsills, window panes, walls, eaves, slates, gutters, soffits, fascias, downspouts, lead flashing and the ridge beam. During inspections, surveyors searched for potential access points, roosting locations and any evidence of bats, including live and dead specimens, droppings, feeding remains, urine splashes, fur oil staining and noises. The 'Tea Centre' showed no evidence of bats and no potential access points. A previous bat emergence survey, carried out by Malachy Walsh and Partners in 2015, found no bats

entering or exiting the building. Therefore, this structure was assigned a *Negligible* suitability value for roosting potential (Annex 5).

The proposed development requires the removal of a number of semi mature ornamental trees including ornamental Maple (*Acer* sp.), Ash (*Fraxinus excelsior*), Elm (*Elmus* sp.) and Birch (*Betula* sp.) along the proposed transport route at Ballinagar (Grid Ref: 244160, 224130). In addition, tree removal is required along the local road L1003 at the proposed western entrance of the site, including semi-mature Ash (*Fraxinus excelsior*) and Birch (*Betula pubescens*). Trees were examined for evidence of bats and for the presence of suitable roosting features, including rot holes, hazard beams, cracks and splits, partially detached bark, knot holes, gaps between overlapping branches and any other potential tree roost features identified by Andrews (2013). All trees examined lacked suitable features likely to be used by bats and were assigned a *Negligible* value in relation to their suitability to support roosting bats (Annex 5).

5.3.3 Manual Transects

In total, 5 dusk and 5 dawn surveys, covering 35.95 hours were completed between April and August 2016. Table 5.2 presents weather conditions recorded during manual transects. In general, conditions were favourable for bat survey (see Section 4 for further details).

Table 5.2: Bat Survey Weather Data

Date	Type	Time	Temp.	Rain	Wind	Cloud
28th April 2016	Dusk	20:30	5˚C	Dry	Moderate breeze	Clear (0%)
29th April 2016	Dawn	04:30	2 ˚C	Dry	Moderate breeze	Clear (0%)
26th May 2016	Dusk	21:10	11 ˚C	Dry	Light breeze	Overcast (100%)
27th May 2016	Dawn	03:45	10 ˚C	Dry	Light breeze	Clearing (50%)
30th June 2016	Dusk	21:28	13 ˚C	Dry*	Moderate breeze	Overcast (85%)
01st July 2016	Dawn	02:50	9 ˚C	Dry	Light breeze	Clear (2%)
28th July 2016	Dusk	21:00	17 ˚C	Misty	Strong breeze	Overcast (100%)
29th July 2016	Dawn	04:05	14.5 ˚C	Drizzle	Light breeze	Overcast (100%)
23rd August 2016	Dusk	20:10	16.5 ˚C	Dry	Calm	Cloudy (85%)
24th August 2016	Dawn	05:00	11 ˚C	Misty	Calm	Overcast (100%)

*Survey abandoned at 23:40 when heavy rain started

In total, 72 bat passes were recorded during manual transect surveys in 2016. Common pipistrelle was encountered most frequently, followed by Soprano pipistrelle. Unidentified Pipistrelle species, Leisler's bat, Brown Long-eared bat and unidentified bat species were recorded less frequently. Table 5.3 presents manual transect results for individual bat species per survey night. Detailed manual transect results are available in Annex 6.

Table 5.3: Manual transect results per survey night, shown as total bat passes

ID	28/29 April 2016	26/27 May 2016	30 June/ 1 July 2016	28/29 July 2016	23/24 August 2016	Total
Common pipistrelle	0	31	6	1	6	44
Soprano pipistrelle	0	0	2	9	4	15
Pipistrelle sp.	0	3	0	0	1	4
Leisler's bat	0	5	0	0	1	6
Brown Long-eared	0	1	0	0	0	1
Unidentified bat	1	0	0	0	1	2
Total	**1**	**40**	**0**	**10**	**13**	**72**

Figures 5.1 – 5.5 present the spatial distribution of bat activity across all surveys. On all survey nights, bat activity was largely confined to foraging and commuting behaviour along the vegetated fringes bordering the bog, with only occasional bat passes recorded on transects bisecting the open bog. Bat activity on bog transects included Common pipistrelle and Leisler's bat during the May survey and Common pipistrelle, Soprano pipistrelle and Leisler's bat during the August survey. There is no apparent reason for differences in habitat use between survey nights but is most likely due to subtle differences in weather conditions.

In addition, survey results were calculated as total bat passes per hour (bpph) to account for any bias in survey effort between survey nights (Table 3.3). Table 5.4 presents these results for individual species per survey night.

Common pipistrelle was encountered most frequently, followed by Soprano pipistrelle. All other bat species were recorded less frequently (Figure 5.6). However, species composition and level of activity was not uniform over all survey nights and very high levels of Common pipistrelle activity can be attributed to the manual survey conducted in May (Figure 5.7).

Table 5.4: Manual transect results per survey night, calculated as bat passes per survey hour (bpph)

ID	28/29 April 2016	26/27 May 2016	30 June/ 1 July 2016	28/29 July 2016	23/24 August 2016
No. hour (h)	4.5	9.33	4.37	8.58	9.17
Common pipistrelle	0	3.32	1.37	0.12	0.65
Soprano pipistrelle	0	0	0.46	1.05	0.44
Pipistrelle sp.	0	0.32	0	0	0.11
Leisler's bat	0	0.54	0	0	0.11
Brown long-eared	0	0.11	0	0	0
Unidentified bat	0.22	0	0	0	0.11
Total	0.22	4.29	1.83	1.17	1.42

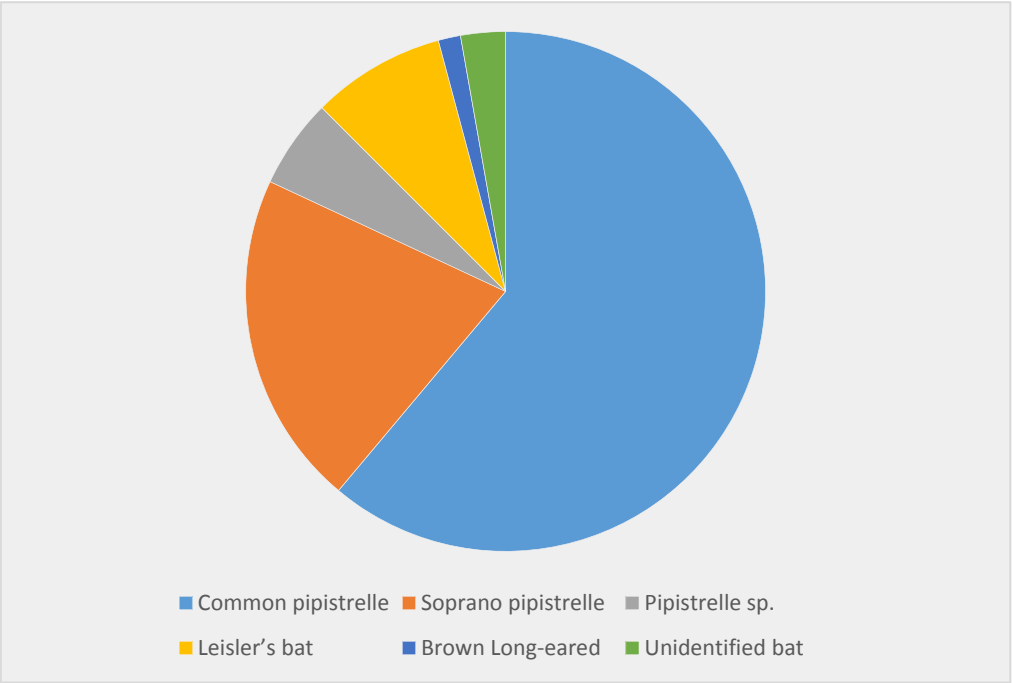

Figure 5.6: Manual transect results: Species composition (total bat passes)

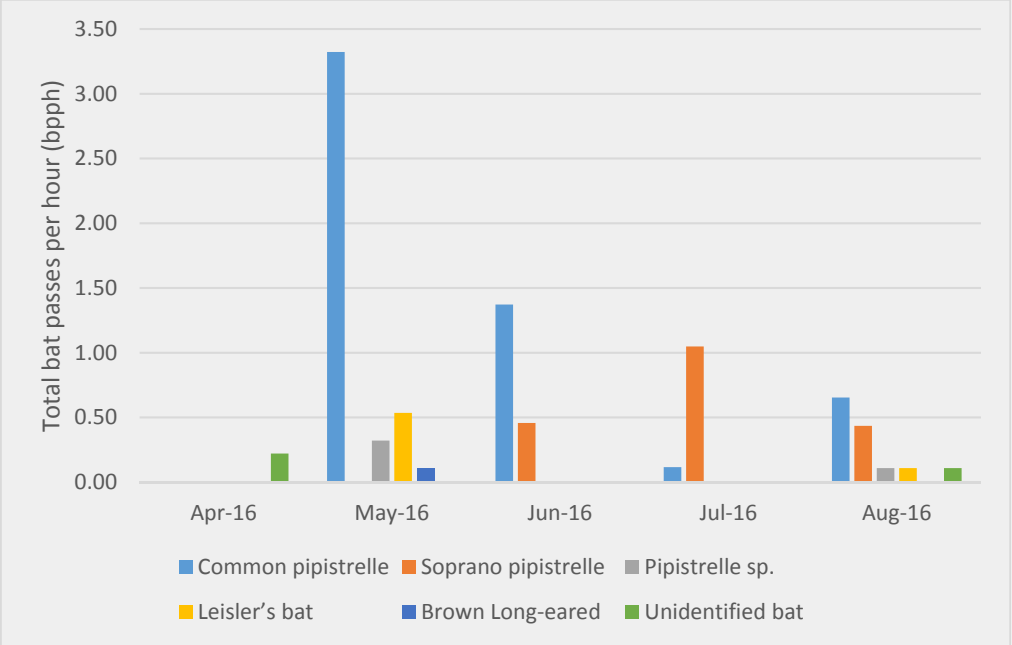

Figure 5.7: Manual transect results: Species composition per survey night (bpph)

5.3.4 Fixed Point Surveys

In total, 6,263 bat passes were recorded during 69 nights of fixed point monitoring in 2016. Most of this activity was attributed to Common pipistrelle, followed by Soprano pipistrelle. Unidentified pipistrelles and Leisler's bat were recorded less frequently and Myotis sp. and Brown Long-eared bat recorded only rarely (Table 5.5 and Figure 5.8). All individual bat records arising from fixed point monitoring are appended to this report as Annex 7.

Table 5.5: Fixed point survey results per location, shown as total bat passes

ID	FP-1	FP-2	FP-3	FP-4	Total
Common pipistrelle	1907	2095	0	20	4022
Soprano pipistrelle	1045	55	0	6	1106
Pipistrelle sp.	327	330	0	5	662
Leisler's bat	242	205	0	1	448
Myotis sp.	12	12	0	0	24
Brown Long-eared bat	0	1	0	0	1
Total	**3533**	**2698**	**0**	**32**	**6263**

Bat activity was calculated as total bat passes per hour (bpph) to account for survey effort bias, resulting from varying night lengths throughout the survey season (Table 3.4). Table 5.6 presents these results for each fixed point location. Bat activity was greatest at the edge habitat surveyed during deployments in April (FP-1) and May (FP-2) and was extremely low in the open cutover bog habitats installed in May (FP-3) and July (FP-4) (Figure 5.9). Two deployments at the same location (FP-1) and (FP-2) show a high fidelity to edge habitats for foraging and commuting. In addition, paired deployments at edge (FP-2) and bog habitats (FP-3) over the same time period show a preference for edge habitat with no bats recorded in the open bog, where wind turbines will be situated.

Table 5.6: Fixed point survey results per location, calculated as total bat passes per survey hour

ID	FP-1	FP-2	FP-3	FP-4
No. hours	152.52	142.55	142.55	92.82
Common pipistrelle	12.5	14.7	0	0.22
Soprano pipistrelle	6.85	0.39	0	0.06
Pipistrelle sp.	2.14	2.31	0	0.05
Leisler's bat	1.59	1.44	0	0.01
Myotis sp.	0.08	0.08	0	0
Brown Long-eared bat	0	0.01	0	0
Total	**23.16**	**18.93**	**0**	**0.34**

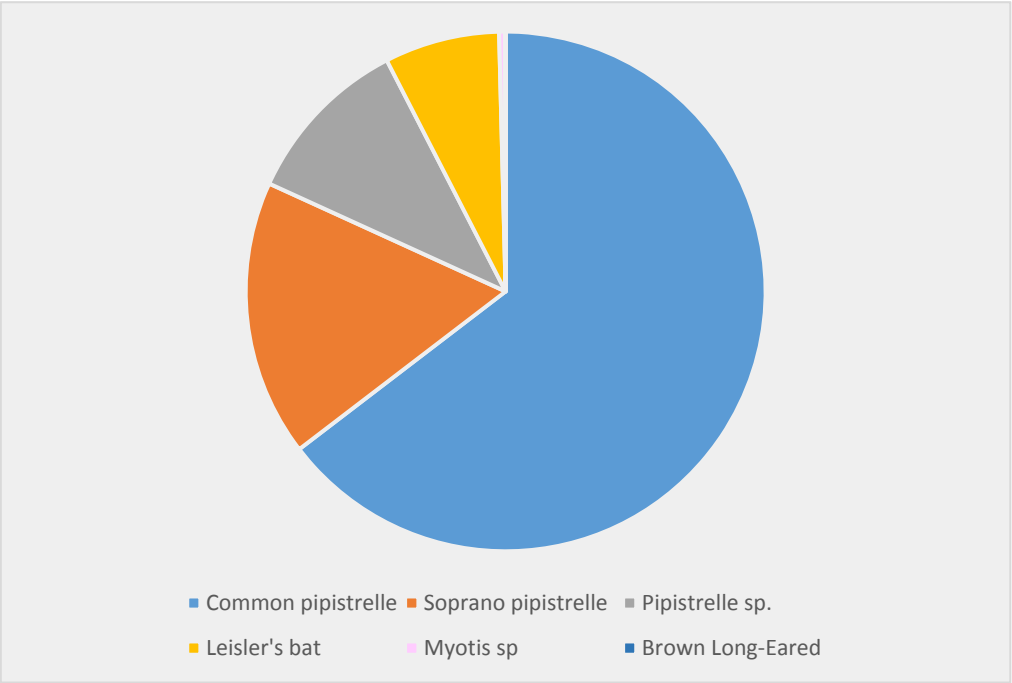

Figure 5.8: Fixed point survey results: Species composition (total bat passes)

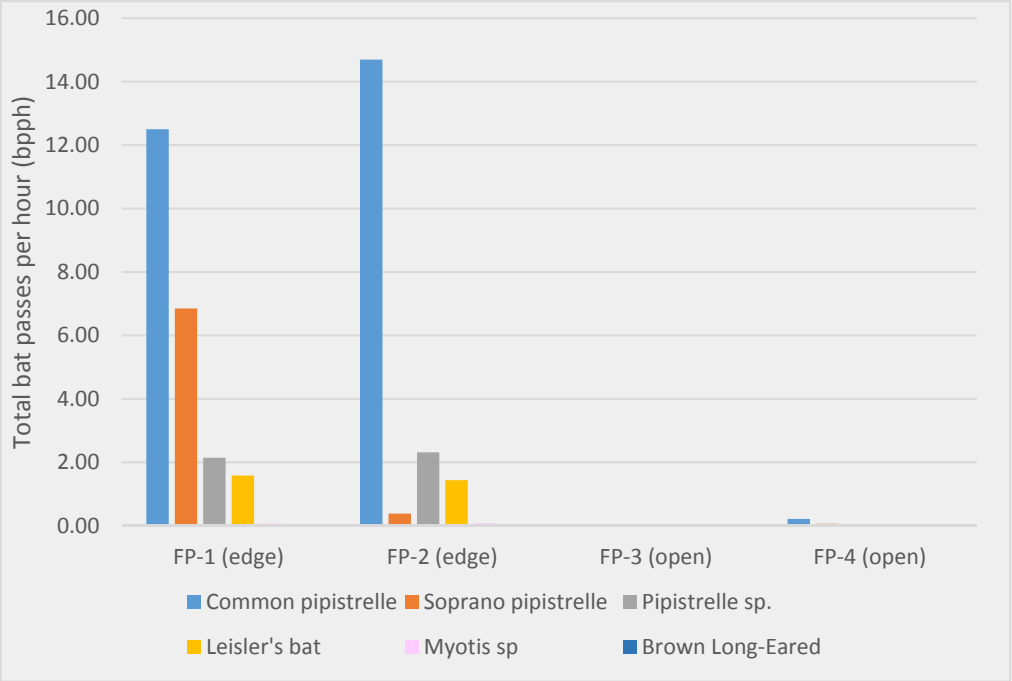

Figure 5.9: Fixed point survey results: Species composition per location (bpph)

6 EVALUATION AND IMPACT ASSESSMENT

6.1 Summary of Results

In 2013, INIS Environmental Consultants carried out 3 bat surveys comprising manual transects. In addition, surveyors screened for any potential roost sites within and adjacent to Cloncreen Bog. In 2015, Malachy Walsh and Partners completed 3 nights of manual transects and 15 nights of fixed point monitoring at 3 locations. In addition, 55 nights of fixed point monitoring at height was undertaken. Furthermore, surveyors carried out roost inspections and emergence surveys at all potential roost sites within and adjacent to the Study Area. In 2016, MKO ecologists carried out a habitat assessment and preliminary roost inspections within the Study Area. In addition, 5 nights of manual transects and 69 nights of fixed point monitoring at 3 locations was also carried out.

Linear woodland habitats and patches of scrub were classified as *Low* suitability for foraging and commuting bats., while cutover raised bog habitats were assessed as *Negligible* suitability (Annex 5). In general, all manual transects in 2013, 2015 and 2016, found bat activity was low and largely confined to the vegetated fringes of the bog. Fixed point monitoring confirmed a high fidelity to these areas with extremely low levels of activity recorded in open areas, where wind turbines will be sited. In addition, surveys at height recorded just a single Leisler's bat contact, despite substantial survey effort and favourable conditions.

Overall, Common pipistrelle, and to a lesser extent Soprano pipistrelle and Pipistrelle sp., were recorded most frequently during manual transects and fixed point monitoring at Cloncreen Bog. These species are frequently recorded as fatalities in mainland Europe (EUROBATS 2016) and estimated collision risk is medium (Table 2.2). These species are the most common and widespread in Ireland (Roche et al. 2014) and Irish populations are considered robust. Therefore, it would take large numbers of fatalities to seriously threaten the Irish population. In addition, as previously stated, these species were recorded in low numbers in the open sections of the site where the turbines are proposed.

Leisler's bat, was less frequently recorded at Cloncreen Bog. This species has shown large numbers of fatalities in mainland Europe (EUROBATS 2016) and is considered a high risk species (Table 2.2). Leisler's bat is widespread and common in Ireland (Roche 2014). However, the Irish population is considered of international importance due its limited distribution elsewhere (Marnell 2009). Again, this species was recorded in extremely low numbers in areas where wind turbines will be sites.

Brown long-eared bat and *Myotis* species were only occasionally recorded and are considered at low risk of collision (Table 2.2).

No roosts within the Study Area were identified by ecologists from INIS Environmental Consultants, Malachy Walsh and Partners or from McCarthy Keville O'Sullivan. In addition, habitats on site were assessed as having *Negligible* roosting potential (Annex 5).

Outside the Study Area, consultation with BCI identified 5 roost sites within a 10 km radius. In addition, four roost sites were identified by INIS Envorponmental Consultants and Malachy Walsh and Partners, within 6 km of the Study Area. The closest was found

2.5 km away. Three roosts of pipistrelle bats were found in buildings and one temporary roost for Daubenton's bat was found in a bridge.

6.2 Assessment of Collision Risk

The main impact associated with the operation phase of the proposed wind farm is injury or death to bats through direct collision or from the effects of barotrauma. At Cloncreen Bog, species at high, medium and low risk of collision were recorded. However, following a full and comprehensive survey over a number of seasons, activity levels were shown to be very low and were largely concentrated away from proposed turbine locations. Surveying at height found just a single bat pass across 55 nights of surveying.

Therefore, it is concluded that bats will only occasionally cross the open bog habitats where turbines will be sited. When they do, they tend not to fly at heights that place them at risk of collision. Therefore, the risk of bat collision is unlikely and a negative impact will not be significant.

6.3 Loss of Habitat

No roost sites were identified within the Study Area. In addition, structures and trees examined within the Study Area showed negligible roosting potential. Four roost sites were identified in structures outside the Study Area. These roost sites are not scheduled to be demolished or developed during construction of the proposed development. Therefore, given the position of these roosts, more than 2.5 km from the developable area, no significant effects on roosting bats are anticipated.

Other habitats identified within the Study Area have limited value for bats. The loss of cutaway bog will have negligible impacts on local bat populations while the loss of scrub and treeline habitats will only marginally reduce foraging and commuting opportunities. Given the abundance of more favourable habitats in the wider area and the small extent of their loss within the Study Area, their loss is not considered significant.

6.4 Disturbance

Bats may be disturbed by noise, vibrations or lighting, particularly during construction activities during the summer months. This may lead to temporary avoidance of the area during turbine erection and construction of access roads. However, it is expected that this effect would be short-term and would not extend beyond the construction phase. In addition, given that no roosts have been identified within the Study Area and the closest identified roost is 2.5 km away from the developable area, any impacts are not considered significant.

7 RECOMMENDATIONS

As previously outlined, the proposed wind farm at Cloncreen Bog is not assessed to lead to any ecologically significant impacts on bats. On a precautionary basis, only standard mitigation recommendations for potential operational effects on bats are therefore recommended.

7.1 Derogation Licence

It is illegal to damage or destroy a bat roost in Ireland. However, no roosts in trees, buildings or other structures were identified within the developable area. Therefore, there is no requirement for a derogation licence. However, should a bat roost be discovered once work has commenced e.g. during tree felling, work will cease immediately and advice sought from the NPWS.

7.2 Habitat Management

Habitats within the Study Area have limited value for bats at present. However, wind farm construction creates linear features and spaces around each turbine, which may provide favourable conditions for flying insects and foraging bats. It is recommended to avoid any planting around wind turbines or along access tracks leading to turbines, that may create suitable shelter for foraging bats or "funnel" commuting bats towards wind turbines. Any habitat management or enhancement programmes should, at a minimum, observe buffer distances recommended by Natural England (2014):

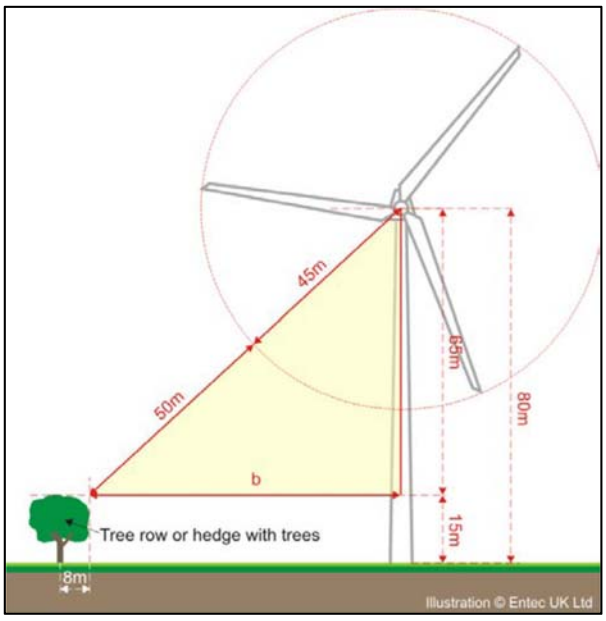

Figure 8.1: Calculation of buffer distances (from Natural England, 2014)

> *"To minimise risk to bat populations our advice is to maintain a 50 m buffer around any feature (trees, hedges) into which no part of the turbine intrudes. This means the edge of the rotor-swept area needs to be at least 50 m from the nearest part of the habitat feature. Therefore, 50m should be the minimum stand-off distance from blade tip to the nearest feature.*
>
> *It is incorrect to measure 50 m from the turbine base to habitat feature at ground level as this would bring the blade tips very close to the canopy of a tall hedgerow tree and potentially put bat populations at risk. Instead, it is*

necessary to calculate the distance between the edge of the feature and the centre of the tower (b) using the formula:

$$b = \sqrt{(50 + bl)^2 - (hh - fh)^2}$$

where: bl = blade length, hh = hub height , fh = feature height (all in metres). For the example above, b = 69.3 m" (Figure 8.1).

7.3 Post-construction Monitoring and Fatality Searches

In line with the consultation response received from the Department of Arts, Heritage and the Gaeltacht, post-construction fatality searches will be carried out during the operational phase of the development. Bat corpse searches can be conducted in conjunction with any bird corpse searches and will follow methods outlined by Rodrigues et al. (2015).

In accordance with best practice guidelines, a minimum of three years post-construction monitoring is recommended (BCI 2012a, Rodrigues et al. 2015). Due to the limited bat potential found at Cloncreen Bog during pre-construction surveys, monitoring the entire activity period is not considered necessary. Late summer and autumn has been previously identified as the highest collision risk period for bats (Mathews et al. 2016). Therefore, searches should be undertaken at monthly intervals between the end of July and the end of September in Years 1, 2 and 3 of the lifetime of the wind farm.

Bat corpses, due to their small size and dark colouring, are exceptionally difficult to detect in the field. Therefore, trained sniffer dogs should be employed in fatality searches. In keeping with consultation responses and best practice guidance, all fatality estimates must incorporate searcher efficiency and scavenger removal trials, specific to the site, as well as the impact of search plot size (BCI 2012a, Hundt 2012, Rodrigues 2015).

In accordance with best practice, post-construction activity surveys are recommended to be carried out in conjunction with fatality searches (BCI 2012a, Hundt 2012, Rodrigues 2015). A dusk and a dawn survey should be carried out on the night preceeding any bat fatality search. Activity surveys should comprise walked transects representative of all turbine locations and habitat features. The aim of post-construction activity surveys is to assess any changes in bat activity and habitat use on site and to provide context to fatality search results.

Results from post-construction monitoring, fatality searches and efficiency trials must be compiled each year and reported to the NPWS, and copied to the Department of Arts, Heritage and the Gaeltacht (as per consultation recommendations). If a significant negative impact on bats is observed, a plan of action must be determined with the NPWS without delay.

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Annex 1

Extract from INIS Environmental Consultants Bat Survey Report 2013

Bord na Mona Energy Ltd

Energy Hub Project

Baseline Bat Survey 2013

10th January 2013

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1. INTRODUCTION

Bord na Mona Plc and specifically Bord na Mona Energy Ltd have completed a high level feasibility study examining the potential for developing a large area of cutaway peat land and other adjacent areas as a single interconnected large scale wind farm. The energy generated by the development will be sent through one or two proposed interconnectors across the Irish Sea into the UK.

In order to inform the proposed development, a set of targeted baseline environmental surveys are required and have now been initiated. As part of these baseline environmental surveys, Bord na Mona (BnM) commissioned INIS Environmental Consultants Ltd to complete a baseline assessment of bat populations at two bog groups in the Midlands, namely Derrygreenagh and Ballydermot/Timahoe Bog Groups. These bog groups have never been surveyed for bats before and as such no background information exists on bat populations in these areas. The survey had to be designed taking many varied different site specifics into account most notably multiple survey sites over a very large geographical area, large areas of peat extraction and myriad different habitat types with access issues. There are 33 separate bogs located within these two Bog Groups and each of these was surveyed as part of this baseline assessment.

All surveys were carried out between the months of June and September 2013 with a total of 139 separate transects surveyed within the two bog groups; each of these transects were surveyed for bat activity three times. Remote monitoring using an Anabat SD1 device was carried out at all 33 bog locations. In addition to the Anabat, a GML1 Remote Download (GML) system was installed at one bog (Clonsast) to survey for bats over the entire survey period (69 days) on a constant basis, 7 days per week. The use of this GML technology is a first for Ireland and heralds the arrival of the most modern technology for surveying bats quantitatively in the world today.

Due to the prevalence of old buildings and other potential roost sites proximal to the bog groups a bat roost survey was completed at selected potential roost sites within and adjacent to the bog groups.

This report provides the results of the extensive baseline bat monitoring survey which was carried out and provides an insight into bat populations, foraging/commuting activity patterns and roost preferences. In conjunction with best practice methods used, the Chartered Institute of Ecology and

Environmental Management's (CIEEM) Code of Professional Conduct was adhered to throughout the consultation, surveying and report writing stages of this project.

2. METHODOLOGY

2.1. Guidelines and legislative context

This current survey constitutes a baseline assessment of the areas in question and has been prepared taking cognisance of the Environmental Protection Agency's (EPA) 'Guidelines on the Information to be contained in Environmental Impact Statements' (EPA, 2002) and 'Advice Notes on Current Practice (in the Preparation of Environmental Impact Statements)' (EPA, 2003) and the 'Guidelines for Ecological Impact Assessment' (Chartered Institute of Ecology and Environmental Management. 2006).

In addition the European Communities (Environmental Impact Assessment) Regulations, 1989 (S.I. No. 349 of 1989) and subsequent amendments have been reviewed and taken into account when preparing the surveys and resultant report.

The Habitats Directive 92/43/EEC was transposed into national law through the European Communities (Natural Habitats) Regulations 1997 (S.I. 94/97) and amended in 1998 and 2005. The EU Habitats Directive requires Member States to maintain or restore the favourable conservation status of the habitats and species listed in its annexes. The Directive specifies that the habitats of 25 species listed in Annex 2 must be designated as SACs. Thus designation of a site as an SAC has wide-ranging implications. Land use practices that may be affected include farming, aquaculture, grazing, sporting and turf-cutting rights. A further 33 species, requiring strict protection, are listed on Annex 4 (plant species listed on Annex 2 are also listed on Annex 4). Some species while not requiring a high level of protection need to be safeguarded against exploitation. These species are listed in Annex 5 of the Directive. The Habitat Regulations have been updated in 2011 as the European Communities (Birds and Natural Habitats) Regulations 2011 to bring the Irish transposition of these regulations into line with the requirements of the EU Habitats Directive (1992). Article 6 paragraphs 3 and 4 of the EU Habitats Directive (1992) state that:

- Article 6 Paragraph 3

  Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, whether individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the sites conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned, and if appropriate, after having obtained the opinion of the general public.

- Article 6 Paragraph 4

  If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary important for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interests.

The Third Schedule to the Wildlife Act 1976, was amended on the 6th December 1985, when the minister, in compliance with the European Communities Council Directive of 2 April, 1979 (No. 79/409/EEC), made regulations entitled the European Communities (Wildlife Act, 1976)(Amendment) Regulations, 1985 (No. 397 of 1985) removing the remaining twelve unprotected species from that schedule. As a consequence all wild birds are now protected throughout the state and careful assessment of their habitats must take place before any development is allowed. The Wildlife Act, 1976, is the principal national legislation providing for the protection of wildlife and the control of some activities, which may adversely affect wildlife. The Wildlife Act, 1976, came into operation on 1 June 1977. The aims of the Wildlife Act, 1976, are to provide for the protection and conservation of wild fauna and flora, to conserve a representative sample of important ecosystems, to provide for the development and protection of game resources

and to regulate their exploitation, and to provide the services necessary to accomplish such aims. As a consequence of the Wildlife Act all wild birds are now protected throughout the state and careful assessment of their habitats must take place before any development is allowed.

This act broadened the scope of the Wildlife Acts to include most species, including the majority of fish and aquatic invertebrate species, which were excluded from the 1976 Act. It also strengthened the provisions relating to the cutting of hedgerows during the critical bird-nesting period. It also strengthened the protective regime for Special Areas of Conservation (SACs) by removing any doubt that protection will in all cases apply from the time of notification of proposed sites. The act also gave specific statutory recognition to the Minister's responsibilities in regard to promoting the conservation of biological diversity, in light of Ireland's commitment to the UN Convention on Biological Diversity.

The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention, 1982) ensures that governments take into account the conservation needs of species during the formulation of planning and development policies. It also seeks the protection of endangered species and in relation to bats, it stipulates that all bat species and their habitats are conserved.

Department of Environment, Heritage and Local Government Planning Guidelines for Wind Development (2006) (DoEHLG) state that *"the designation of an area for protection of natural or built heritage or as an amenity area does not automatically preclude wind energy development. However, consideration of any wind energy development in or near these areas must be subject to Ireland's obligations under the Habitats Directive (92/43/EEC), the EU (Birds) Directive (97/409/EEC) and the Environmental Impact Assessment Directive. Planning authorities must ensure that a proposal which is likely to have a significant effect on an SAC or other designated area, is authorised only to the extent that the planning authority is satisfied will not adversely affect the integrity of the area. If necessary, they can seek changes to the development proposed or attach appropriate planning conditions."*

2.2. Desktop review

A desktop review was completed to identify features of ecological importance within the study area and surrounding region. This review included all designated areas and sensitive areas within the zone of potential around the study area. Important bat roost sites around the Bog Groups were

identified from information supplied by the National Parks and Wildlife Service (NPWS) of the Department of Arts, Heritage and the Gaeltacht. Prior to field surveys taking place, other potential sites of ecological importance and conservation interest were identified using orthophoto maps provided by Bord na Mona and also by examination of Ordnance Survey (OS) aerial photography and OS maps (1:50000, 1:10560 (6'') and 1:2500 scale).

Various literature sources, guidance documents and mapping tools were also consulted. These will be referenced in the text.

The list of literature used in all our bat surveys includes (list not exhaustive):

- **Hundt, L (2012) Bat Surveys: Good Practice Guidelines, 2nd Edition, Bat conservation Trust. Natural England Technical Information Note TIN051.** Bats and onshore wind turbines. 2nd Edition, February 2012.
- **Eurobats Publication No.3:** Guidelines for consideration of bats in wind farm projects.
- **Bat Survey Guidelines: Traditional Farm Buildings Scheme** (2008) Tina Aughney, Conor Kelleher & Donna Mullen. The Heritage Council, Áras na hOidhreachta, Church Lane, Kilkenny.
- **NRA Guidelines for treatment of Bats During Construction of National Road Schemes** (2005) NPWS, Natura, Tina Aughney.
- **A Conservation Plan for Irish Vesper Bats** (2006) Irish Wildlife Manuals, no. 20 McAney, K. NPWS, DoEHLG, Dublin.
- **Irish Bat Monitoring Programme** (2006) Tina Aughney, Steve Langton, Niamh Roche, Jon Russ and Phillip Briggs.
- **Identification of Bats in Flight** (1990) by Ingemar Ahlén. Swedish Society for Conservation of Nature, Stockholm, Sweden.
- **The World of Bats** (1996) by Michel Barataud. Sitelle, Alpha Copie, 38000 Grenoble, France.
- **Bat Detector Manual** (1994) by Colin Catto. The Bat Conservation Trust, 15 Cloisters House, 8 Battersea Park Road, London SW8 4BG, England.
- **Conservation status assessment for Species: S1303 - Rhinolophus hipposideros – Lesser horseshoe bat.** (2006) Second Report by the United Kingdom under Article 17 on the implementation of the Directive from January 2001 to December 2006.
- **Animal tracks and signs.** (2007) Preben Bang and Preben Dahlstrom. Oxford

Press.

- **How to find and identify mammals** (1997) by Gillie Sargent and Pat Morris. ISBN 0-906-282-34-9. The Mammal Society, 15 Cloisters House, 8 Battersea Park Road, London SW8 4BG, England.
- **Mammals of Britain and Europe** (1993) by David Macdonald & Priscilla Barrett. Collins Field Guide ISBN 0-00-219779-0. HarperCollins Publishers, 77-85 Fulham Palace Road, Hammersmith, London W6 8JB, England.
- **Observing British and European mammals** (1989) by Christian Bouchardy and François Moutou. ISBN 0-565-01095-6. British Museum (Natural History), Cromwell Road, London SW7 5 BD.

2.3. Field Survey Work

2.3.1. Health and Safety considerations

The bog groups include large expansive areas with soft ground conditions and many deep water filled trenches which presented significant health and safety issues. In order to carry out the surveys efficiently and safely, surveyors became familiar with all sites in daylight i.e. all planned locations of transects and timed searches. Surveys were conducted using pairs of surveyors or alternatively a buddy system was initiated. This Health and Safety methodology was followed at all times. A full risk assessment was prepared and followed by all INIS ecologists prior to surveys initiating.

2.4. Methods

Bat activity on the Bog Groups was surveyed using three different methods:

- Hand held heterodyne bat detectors (Batbox Duet) used for walked and driven **bat activity transects**;
- **Remote surveys**:
    1. ANABAT SD1 was used as a remote recording device throughout the different bogs (used as a static device but also during driven transects);
    2. GML system (ANABAT SD2) was installed in Clonsast bog;
- Bat **roost surveys**, both within Bord na Mona land parcels and adjoining lands (where necessary, permission was requested from private landowners before surveys).

These methods are recognised as being the most up to date, Best Practice methods for surveying bats. INIS ecologists obtained accurate results and species identification throughout all survey periods.

2.4.1. Bat activity surveys (transects)

Regarding transect surveys for bats there are a number of guidelines (Mitchell-Jones and McLeish 2004, Kelleher and Marnell 2006, Rodrigues *et al.* 2008, Bat Conservation Ireland 2012, Natural England 2012, Hundt 2012) that give detailed accounts of the best practice methods for surveying bats in large areas while incorporating the highest health and safety standards. These were all assessed and used to formulate our survey strategy.

Hundt (2012) suggests that when carrying out activity surveys, broadband bat detectors (frequency division or full spectrum) should be used with the guidelines also suggesting that all detectors should have the capacity to record or to be connected to a recorder; this should be considered a standard for bat surveys by professional ecologists, for the purposes of planning applications and impact assessment. This methodology ensures that all bat calls are recorded and can subsequently be analysed for identification to species or species group level.

Manual activity transect surveys were conducted with hand held bat detectors (Batbox duet) in addition to all calls being recorded on an Anabat SD1 device. Manual activity surveys were carried out at all 33 bogs within the two Bog Groups using walked and driven transects methodologies. The emphasis of these surveys was detecting important flight paths across the different bog sites and those likely to intersect with the turbine areas, as well as in depth surveys in the autumn time (September in this case) to account for migrating/swarming species (Mitchell-Jones and McLeish 2004).

As mentioned surveys focused on potential turbine areas but also habitat features that are close to these locations. Habitat features that required in depth surveys were those that had a medium/high foraging/commuting/connectivity factor for bats within the wider landscape (e.g. linear corridors, hedgerows, tree lines, watercourses/bodies, woodland) Hundt (2012).

Since there are numerous access roads to each of the bogs, driven transects were conducted to improve efficiency of this baseline survey allowing for more ground to be covered, increasing our

information base. As per the guidelines, driven transects were conducted at a speed of no more than 15 km per hour (Bat Conservation Ireland 2012).

Table 1. Description of best practice methods for surveying bats outlined in relevant guidelines (Rodrigues *et al.* 2008, Bat Conservation Ireland 2012, Hundt 2012)

Survey Type	Description of best practice
Dusk activity survey	Manual detector surveys should be designed to ensure that all areas and main features of the site are sampled within the time period. This survey can be used to determine the spatial distribution or abundance of bats, which features they are using and perhaps the extent to which activity changes over time. Environmental conditions should be recorded at regular intervals to determine if there is a change in bat activity attributable to temperature/rainfall/wind speed *etc*. This survey can be done through point counts or through walked/driven/boat transects.
Dawn activity survey	Pre-dawn surveys can be carried out in a similar fashion with similar results. However, they are particularly useful for locating roosts on or within a 200 meter radius of the site., and can be used in combination with dusk transect surveys

When conducting all bat activity surveys INIS ecologists conducted them in optimal weather conditions allowing the results to accurately reflect bat activity at all locations. Bat activity surveys were only carried out when the temperature was above 10 degrees Celsius (Kelleher and Marnell, 2006), no heavy rain and no strong winds (> Beaufort Force 5) (Bat Conservation Ireland 2012). (For static surveys it is impossible to say that these conditions can be met all the time but this information can be used to examine how environmental variables affect bat activity on site). Weather conditions this year were absolutely perfect with optimal temperatures being recorded throughout all surveys.

In accordance with best practice it is also important to survey for bats at the appropriate time of year and time of night/day. The times of all surveys adhered to the timing reflected in Tables 2 and 3. Another important factor in ensuring accurate results was surveying transects at different times i.e. that the three surveys of each bog didn't take place within the same time window on each survey date. We designed different survey times to confirm the correct bat activity patterns at each location.

Table 2: Best practice times to conduct bat surveys (Hundt 2012, Bat Conservation Ireland 2012)

Survey Type	Time Start	Time Finish
Bat Activity (Dusk surveys, all species)	½ hour before sunset	2-3 hours after sunset
Bat Activity (Dawn surveys, all species)	2 hours before sunrise	1/2 hour after sunrise
Swarming activity (all species)	Sunset	4 hours after sunset

Table 3: Shows best practice time of year is the most appropriate to survey for bat activity

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Hibernation roost survey			*	Summer roost emergence and activity surveys					*	Hibernation roost survey	
Potential roost and internal surveys. Tree roost Surveys are best conducted in Winter											

* Limited activity

Results of the transect surveys are presented in tabulated format within Appendix 4 and include a 10 figure grid coordinate for every bat contact recorded throughout the survey season.

2.4.2. Remote surveys

The most modern remote survey technology available in the world today was used to assess bats at the Bord na Mona sites and immediate surrounding areas. Developed by Titley Scientific, Anabat technology is the most advanced system to remotely record bat activity and is now used on every continent in the world by bat ecologists to survey bats.

2.4.2.1. AnaBat SD1

The AnaBat SD1/2 compact flash (CF) was launched by an Australian company and heralds a system that is extremely sensitive and accurate for identifying any different species present. It is currently difficult to separate out the *Myotis* group of bats using any of the bat detector types (time expansion and heterodyne) currently available however using field notes and observer experience in conjunction with Anabat graphs specific *Myotis* species can be identified. This is crucial to any bat survey for accuracy of results and identifying correct mitigation.

The Anabat SD1/2 CF incorporates the AnaBat II detector used in conjunction with the CF Storage ZCAIM and makes a powerful remote recording system for bats. Timer facilities are incorporated into the ZCAIM so it can be programmed to switch on and off at selected times.

The ZCAIM controls the power to the detector. Because of this and the systems use of compact flash memory cards, the system can be left remotely in the field for a week or more without changing batteries or CF cards. The Analook software for programming the ZCAIM, reading the memory card and extracting AnaBat files will now work on computers using any version of Windows. The software is supplied with the system. A CF memory card and CF reader/writer are required.

An AnaBat SD1 was used to survey for extended periods in all 33 different bogs throughout both Derrygreenagh and Ballydermot bog groups. The AnaBat was used to survey for either a dusk or dawn survey in each location. The dusk surveying periods comprise of leaving the device out for half an hour before dusk until 3 hours after. The dawn survey period comprised of leaving the device out for three hours before dawn until a half an hour after. In addition to the device being left out in each of the 33 bogs for the standard survey, we also completed an extra 12 hours of Anabat surveys in open peat habitat (includes both bare peat areas and active open peat extraction areas) in order to gain more comprehensive and robust bat activity data regarding this habitat type.

Throughout the surveys the AnaBat was left out in a variety of different habitats including mineral banks, hedgerows, open peat and adjacent to water bodies. This data can be used to quantify the relative importance of features and locations, and how bat activity changes over time within each bog group.

Results of the AnaBat SD1 surveys are presented in tabulated format within Section 8.3.1.

2.4.2.2. GML system

INIS installed a GML system on a building in the Clonsast factory complex on the 10/07/2013 and disconnected it on the 16/09/2013. This is the first time this state of the art system has been used in Ireland and heralds the most modern surveying technique ever used for surveying bats in Ireland. This system was used for the first time in Europe (Scotland) in July 2013.

INIS sees this GML system as being the one of the most efficient and cost effective means of mitigation for bats on large scale wind farms in the future.

There were a number of different habitats covered by the GML system including a water body, hedgerows and open areas of scrub vegetation. The system was programmed to turn on at 19.30 pm and switch off at 07.30 am, every day.

There are two types of division ratios used on AnaBat devices, 8 and 16; these represent the amount of data that is stored on the CF memory card. If division ratio 8 is used, a greater range of sound frequency is stored on the memory card within the device; it is important to stress that there is no impact on the quality of data being recorded. Division 8 is suitable for short term studies i.e. single nights etc. However for long term studies (e.g. one month) division ratio 16 is better to use as it means data can be collected over the long term and this is why a division ratio of 16 was used for this study. The use of division ratio 16 had no impact on the quantity or quality of the data for the purpose of this study. As the AnaBat also detects other ultrasonic sounds, such as those sounds made by insects, rain, and other sources the sensitivity of the device was remotely altered during the first few days of surveys in order to obtain the best results. In the end a sensitivity setting of 40 was used for this study. The calls were then recorded onto a CF memory card with large storage capacity.

In order to make the GML system waterproof they were placed inside a special metal case. All bat activity was recorded by the GML system and later downloaded through the internet. This data was then analysed using AnalookW software.

Results of the GML survey is presented in tabulated format within Section 8.3.2.

2.4.3. Roost surveys

For roost surveys it is important that surveys be undertaken by appropriately trained and experienced bat specialists to prevent roost abandonment and accidental injury or death to bats. All ecologists involved with this survey have extensive experience with bat surveys and have an advanced knowledge of bat ecology and roost survey techniques. Bat roost surveys were completed at 20 potential bat roosts within and adjacent to the bog groups including bridges, trees, buildings (inhabited and uninhabited) and workshops (derelict and active).

During this survey, potential roost locations were identified using both OS maps and field observations during the bat activity surveys. All of these locations were visited during daylight for an

initial inspection for roost potential and possible bat presence. The bat roost surveys were undertaken before September 15th because bats are most active in the months May - August.

The reason for daylight inspections was twofold:

1. To ascertain if there were any obvious signs of bat activity at the structure/potential roosting areas associated with the structure and
2. To ascertain if there were any health and safety hazards associated with the structure.

The initial daytime search involved a methodical search where the structure was examined using best practice techniques to locate droppings beneath gable ends, on windowsills, under hanging tiles, fascia's, on windows or on walls. In addition, the structure was examined for urine and oily residue stains, scratch marks and the remains of insect prey (moth wings etc.).

Following the external search we moved into the buildings where we searched all first floor areas for bat signs in the form of bat droppings and urine and oily residue stains. Following this investigation we moved into the second floor spaces and then attic spaces of all buildings, if it was required. This necessitated us entering through the attic doors with head torches and inspecting all floor space within the attic for bat droppings. We used head torches and a large hand held torch for this search.

The aims of the bat roost surveys at trees/buildings/ bridge structures were to:

- Determine if bats are currently present or have been present in the past
- Determine the bat species
- Determine the number of bats
- Determine the roost category or categories e.g. the purpose and therefore the importance of the structure/tree
- Determine the bats' entry and exit points within the structure(s)
- Determine the bats' roosting locations within the structure
- Determine the commuting corridors used by bats to and from their roost(s) with a description of any vegetation or other linear features of importance to bats (this will be especially important for these Bord na Mona surveys to assess linear features being used by bats to enter the bog groups)

Using the evidence gathered during the initial daylight site inspections at each potential roost, dawn/dusk roost surveys were then conducted. The dawn/dusk surveys were carried out in optimal weather conditions e.g. mild temperatures, light winds and no rainfall to maximise the results of the roost surveys.

These roost surveys, along with the National Parks and Wildlife Service roost data have allowed an excellent indicative baseline assessment of bat roosts in the study area to be made.

Results of the bat roost surveys are presented in tabulated format within Section 8.4.

3. CONSULTATION

The preparation of this section included consultation either directly or through publically-available information with:

- National Parks and Wildlife Service (NPWS) of the Department of Arts, Heritage and the Gaeltacht
- Bord na Mona (BnM)
- Offaly County Council
- National Biodiversity Data Centre (NBDC)
- Bat Conservation Ireland (BCI)
- Environmental Protection Agency (EPA)

A formal consultation response was received from NPWS regarding the distribution of bat roosts in the study area and within the region of the study area. This information was reviewed and assimilated into our report.

4. STAFF PROFILES

4.1. Howard Williams (Principal ecologist)

Mr Howard Williams is a senior ecologist with 17 years professional ecological management experience. He was the principal ecologist on the current assessment, designed all surveys and was responsible for the production of the final report. Mr. Williams is principal ecologist with INIS

Environmental Consultants Ltd and currently project manager on all INIS projects in the Republic of Ireland and the UK.

Mr Williams has formal training and CPD on bat surveying that is relevant to the current assessment. He is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and is a Chartered Environmentalist (CEnv) with the Society for the Environment (Soc Env) and a Chartered Biologist (CBiol) with the Society of Biology. He completed his B.Sc. in Biological Sciences, National University of Ireland Cork, in June 1997. Following his degree he worked as a senior ecologist with ESB Fisheries Conservation until 1999 and has been working as a private consultant since 2000. Mr. Williams has extensive experience of ecological surveys and ecological survey techniques. He has acted as lead ecologist on 34 wind farm developments in Ireland and the UK since 2000; in addition to this he has acted as lead ecologist on two major road infrastructure projects, one Combined Cycle Gas Turbine (CCGT) project and numerous other renewable energy projects. Howard has extensive expertise in managing Environmental Impact Statements and Appropriate Assessment work on major renewables projects for both private and public clients. Last year he was responsible for the management and production of the entire EIS for a wind farm in West County Clare from design phase right through to planning submission.

Mr Williams is considered by his peers and clients alike to be one of Irelands leading ecological site assessors and has been requested to complete in excess of 400 separate full ecology surveys in Ireland and the UK in the past 15 years. While birds are his primary expertise he has vast experience with surveying bats and non-volant mammals over the past 15 years and has held licenses to disturb bats and lesser horseshoe bats (Annex II) in particular. In relation to bats he has attended formal training in England with Bat Conservation Trust UK and is proficient in the use of all Anabat technology including Analook software.

4.2. Domhnall Finch (Ecologist)

Mr. Domhnall Finch, M.Sc., B.Sc., GradCIEEM, is an ecologist with INIS Environmental Consultants Ltd. Mr. Finch was awarded a first class honours M.Sc. in Biodiversity and Conservation from the University of Leeds completing his thesis on bats and an honours B.Sc. in Environmental Science from University College Dublin.

Mr. Finch is a bat specialist and has vast experience surveying bats in both Ireland and the UK working for private consultancies and universities on both large scale bat surveys for wind farm projects and private developments. Mr. Finch is capable of operating the advanced bat identification device i.e. the Anabat bat identification module. He has a license to capture bats using mist nets for scientific study and has vast experience catching and processing bats in the UK and Poland for scientific research.

Along with bats, Mr. Finch has excellent experience in conducting large scale bird surveys for wind farm projects and scientific research, including both terrestrial and marine species. Since leaving university Mr. Finch has also gained invaluable experience in surveying non-volant mammals and cetaceans. Mr. Finch is has completed an ArcView GIS course and is fully proficient in using ArcView GIS to analyses, model and digitise large data sets to create both current and predictive maps.

4.3. Anne Mullen (Ecologist)

Ms. Mullen received her primary degree in Environmental Science in the National University of Ireland, Galway in 2004 and completed a Masters in Ecological Assessment from University College Cork in 2012. She has worked in the scientific sector for a number of years including laboratory work in a number of industries. She has substantial experience with habitats surveying and mapping, species rich grasslands surveying, water quality assessment, site auditing. Anne completed all the GIS mapping for the current survey. Anne is an ecologist with INIS Environmental Consultants Ltd.

4.4. Andrew Dobson (Titley Scientific – principal ecologist)

In addition to the involvement of INIS staff, outside assistance was provided by experts from Titley Scientific in England and the United States of America. Titley Scientific manufacture the Anabat technology that is recognised around the world as the most advanced system for monitoring bats. This is the technology that INIS ecologists decided to use on the Bord na Mona project.

With reference to the Bord na Mona sites, ecologists from Titley Scientific travelled to Ireland to discuss the best survey products to suit onsite habitats, project scale and bat species. Titley provided the GML system to remotely record bat species at Clonsast and they also recommended different monitoring strategies for the expansive areas of peat.

No private or commercial Bord na Mona information was shared with any third parties as part of this work partnership.

5. LIMITATIONS OF CURRENT ASSESSMENT

Due to the physical characteristics of the survey areas certain limitations were recorded over the duration of the survey. These were as follows:

- Health & Safety dictated that some planned transects were abandoned or had to be redesigned due to deep ditches traversing sites, watercourses, unstable ground and inaccessibility due to heavy undergrowth.
- INIS ecologists identified many potential bat roosts that could not be surveyed due to the timing constraints of the present assessment. Surveying these as part of any further investigation on bats in the bog groups will be crucial to completing an in-depth bat assessment and to enable meaningful mitigation to be designed in future.

These limitations did not affect the study or the results thereof. The results are a true reflection of bat activity onsite.

6. RECEIVING ENVIRONMENT

6.1. Designated Areas

All designated sites of ecological importance; within 10 kilometres of the survey area and with relevance to the survey were considered for this survey. These included candidate Special Areas of Conservation (cSAC) and Natural Heritage Areas (NHA's). Special Protection Areas (SPAs) for birds were not reviewed as they relate directly to birds and as such, are outside the scope of this assessment.

Altogether there are 22 designated sites within 10km of these two bog Groups (Table 4). These include Special Area of Conservation (SAC) and Natural Heritage Areas (NHA).

No designated sites for bats exist proximal to the two bog groups under investigation.

as two BnM bogs to the south and west of its location. It is approximately 6 kilometres North West from the village of Clonbullogue and 6 kilometres south of Rhode.

7.3.2.3. Ballykeane

The boundaries of Ballykeane bog are surrounded largely by agricultural fields. Ballykeane bog is located in the southern part of Derrygreenagh Bog Group. The bog is less than 1 km west of Walsh's Island village and 4 kilometres north of Clonygown village. The site is approximately 4 km^2, with open peat extraction covering approximately 95% of the land cover. Along the edges of Ballykeane bog there are well defined linear hedgerows and mature tree lines within the boundaries of the bog.

7.3.2.4. Cavemount

This bog is situated near the centre of the Derrygreenagh Bog Group. It is connected to three separate bogs through BnM railway lines; however the immediate surroundings of this bog consist of large agricultural fields. The Grand Canal borders the northern side of this bog. Cavemount bog is approximately 4.5 km^2, open peat extraction occupies most of the land use within this bog (ca. 60% of land cover). Approximately 40% of the land is covered in large water bodies and scrub vegetation, with well-developed hedgerow around the edge of it there is very little vegetation within this bog.

7.3.2.5. Clonad

Clonad bog is approximately 3.5 km^2 and within it there are several different types of habitats. The main habitat is predominantly open peat extraction (ca. 85% of the land cover). There are well developed hedgerows along the periphery of this bog. Within these hedgerows there are some sections of well-developed mature trees (ca. 5% of the land cover). This bog is situated near the western side of the Derrygreenagh Bog Group complex and it is bordered by two BnM bogs to the east and North West of its location. It is only 2 kilometres south of Daingean town and it is approximately 2.5 kilometres north from the village of Geashill.

7.3.2.6. Cloncreen

The boundaries of Cloncreen bog are surrounded largely by agricultural fields. The bog is located in the eastern part of the central bogs of the Derrygreenagh Bog Group. The bog is less than 1 km east of Clonbullogue village and approximately 3 kilometres south west of Edenderry. The site is approximately 10 km^2, with open peat extraction covering approximately 90% of all land cover. Along the edges of Cloncreen bog there are well defined linear hedgerows and mature tree lines

within the boundaries of the bog. Scrub vegetation also occurs in patches throughout the bog (ca. 5% of land cover).

7.3.2.7. Clonsast

This bog is situated in the southern end of the Derrygreenagh Bog Group and it is largely surrounded by agricultural fields. Within the centre of this bog there is a private farm. Clonsast bog is approximately 19 km^2 and has several minor tracks and BnM railway lines running through and around the bog. Coniferous forest occupies most of the land use within this bog, approximately 95% of land cover. There is a workshop comprised of seven structures at the southern end of this bog. The River Cushina runs through the boundaries of this bog as well as developed hedgerow around the periphery of this bog.

7.3.2.8. Clonsast North

Clonsast North bog located 5 km to the west of Clonbullogue and 4 km to the north east of Walsh's Island is in one of the most central bogs within the Derrygreenagh Bog Group. Approximately 1.5 km^2 in area the majority of this bog (ca. 85% of the land cover) consists of scrub vegetation. There are several large water bodies within the centre of this bog along with some areas where open peat extraction used to occur (ca. 10% of the land cover). Well-developed hedgerows and mature deciduous trees exist around the periphery of this bog (ca. 5% of the land cover).

7.3.2.9. Croghan

Croghan bog is one of the smallest bogs within the Derrygreenagh Bog Group and it is less than 1 km^2. The main habitat is predominantly well developed hedgerows (ca. 90% of the land cover). These occur along the periphery of this bog. Within these hedgerows there are some sections of well developed mature trees (ca. 5% of the land cover). There is no open peat extraction taking place within this bog. This bog is situated near the centre of the Derrygreenagh Bog Group complex and it is bordered by two BnM bogs to the south and North West of its location. It is only 4 kilometres east of Daingean town and it is approximately 1 kilometres west from the village of Mountlucus village.

7.3.2.10. Daingean Derries

The boundaries of Daingean Derries bog are surrounded largely by agricultural fields. The bog is the most western bog in the Derrygreenagh Bog Group and it is 6 km west of Daingean town and approximately 6 kilometres east of Tullamore town. The site is approximately 4 km^2, with open peat

the western side of this bog. No bats were recorded in open peat habitats. One common pipistrelle was noted to be commuting along the mineral bank within this bog.

8.1.2.6. Cloncreen

Five transects were designed at Cloncreen bog and these covered approximately 6 kilometres in distance. These were designed to survey open peat, scrub vegetation and well developed hedgerow habitat in the same bog. Eight bat contacts were recorded throughout the survey season with three species present: common pipistrelle *Pipistrellus pipistrellus* (n=5), myotis whiskered/Brandt's *Myotis mystacinus/brandtii* (n=7), leisler's *Nyctalus leisleri* (n=1). These results accounted for 1.3% of all bat records for this survey in both Bog Groups. All bat records were from the linear features of well developed hedgerows at the north western side of this bog. Only a single common pipistrelle was recorded commuting, all other records were noted as foraging.

8.1.2.7. Clonsast

Of the 6 transects that were conducted within this bog 95% were along BnM tracks/railway lines cut through the coniferous forest. The 6 transects within this bog have a combined length of over 10 km. Sixteen bat contacts were recorded throughout the survey season with five species present: soprano pipistrelle *Pipistrellus pygmaeus* (n=7), common pipistrelle *Pipistrellus pipistrellus* (n=4), leisler's *Nyctalus leisleri* (n=3), myotis whiskered/brandt's *Myotis mystacinus/brandtii* (n=1), daubenton's *Myotis duabentonii* (n=1). These results accounted for 2.5% of all bat records for this survey in both Bog Groups. Most bat records were from the workshop and the Cushina River located at the southern end of this bog.

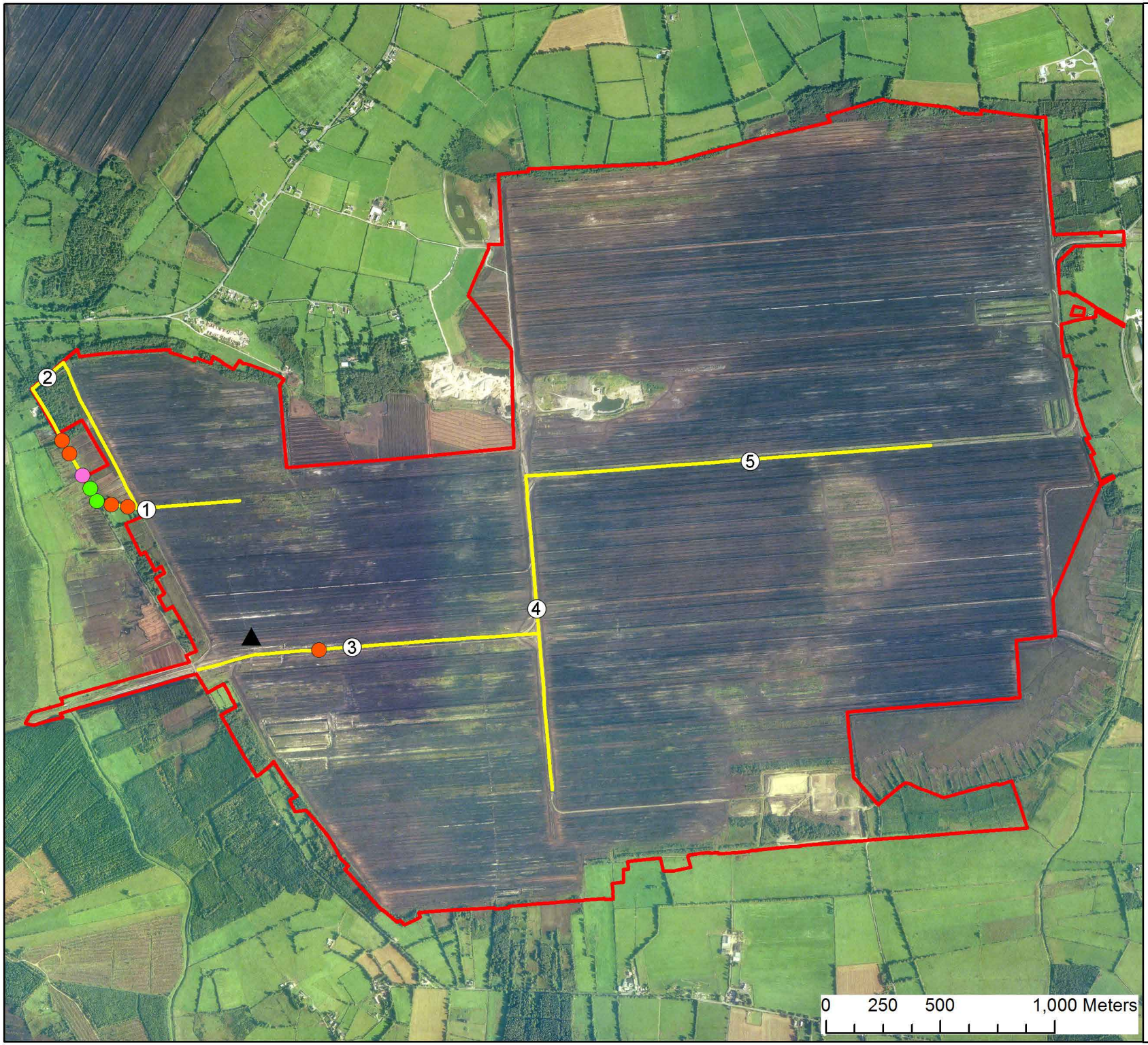
8.1.2.8. Clonsast North

Four transects were designed at Clonsast North bog and these covered approximately 2 kilometres in distance. Seven bat contacts were recorded throughout the survey season with five species present: soprano pipistrelle *Pipistrellus pygmaeus* (n=2), leisler's *Nyctalus leisleri* (n=2), common pipistrelle *Pipistrellus pipistrellus* (n=1), myotis whiskered/Brandt's *Myotis mystacinus/brandtii* (n=1), natterer's *Myotis natterreri* (n=1). These results accounted for 1.1% of all bat records in both Bog Groups. The majority of bat activity was recorded within either scrub vegetation or mature deciduous trees along the borders of this bog. Only one common pipistrelle and one soprano pipistrelle were recorded commuting within the scrub vegetation, all other records were of foraging bats.

Table 7. Tabulated results of the total number of bats recorded in each bog during all bat activity transect surveys

Name of Bog	Soprano pipistrelle	Common pipistrelle	Leisler's	Daubenton's	Myotis whiskered/Brandt's	Natterer's	Brown long-eared	Total number of species present	Total number of bat records	% of total bat activity
Ballydermot	10	13	1	2	1	-	-	5	30	4.8
Barnaran	8	11	-	-	-	-	-	2	19	3.0
Blackriver	27	33	12	3	7	1	2	7	85	13.5
Codd	10	6	4	-	2	-	-	4	22	3.5
Glashabaun North	-	-	-	-	-	-	-	0	0	0.0
Glashabaun South	14	19	2	2	1	-	-	5	38	6.0
Lodge	-	1	8	-	1	-	1	4	11	1.7
Lullymore	2	3	-	-	-	-	-	2	5	0.8
Ticknevin	10	23	-	-	3	-	-	3	36	5.7
Timahoe North	3	8	8	-	2	-	-	4	21	3.3
Timahoe South	6	14	11	5	3	-	-	5	39	6.2
Ballybeg	6	5	1	-	-	-	-	3	12	1.9
Ballycon	-	1	-	-	-	-	-	1	1	0.2
Ballykeane	-	2	1	-	-	-	-	2	3	0.5
Cavemount	4	2	1	1	-	-	-	4	8	1.3
Clonad	7	9	1	-	2	-	-	4	19	3.0

Cloncreen	-	5	1	-	2	-	-	3	8	1.3
Clonsast	7	4	3	1	1	-	-	5	16	2.5
Clonsast North	2	1	2	-	1	1	-	5	7	1.1
Croghan	7	4	-	-	-	-	-	2	11	1.7
Daingean Derries		2	-	-	-	-	-	1	2	0.3
Daingean Rathdrum	7	10	-	3	2	-	-	4	22	3.5
Derryarkin	9	12	-	6	3	-	1	5	31	4.9
Derrycricket	1	1	-	-	-	-	-	2	2	0.3
Derryhinch	3	2	1	-	-	-	-	3	6	1.0
Derrylea	4	10	1	-	1	1	-	5	17	2.7
Derryounce	23	16	6	9	5	-	-	5	54	8.6
Drumman	2	8	1	3	1	-	-	5	15	2.4
Esker	2	8	2	2	8	-	-	5	22	3.5
Garryhinch	7	16	10	4	-	-	-	4	37	5.9
Garrymore	3	1	-	-	-	-	-	2	4	0.6
Kinnegad	6	7	4	1	3	-	-	5	21	3.3
Torr	2	5	-	-	-	-	-	2	7	1.1



CLOONCREEN

BAT SURVEY MAP

N

Legend

- Common pipistrelle
- Leisler's
- Myotis spp.
- Transects
- Transect Number
- AnaBat Location
- Site Boundary

Inis
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Annex 2

Malachy Walsh and Partners Cloncreen Bat Survey Report 2015

Malachy Walsh and Partners
Engineering and Environmental Consultants

Baseline Bat Surveys
Cloncreen Bog

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1 INTRODUCTION

Malachy Walsh and Partners were commissioned by Bord na Móna to carry out a second year of baseline bat surveys on Bord na Móna lands, namely the Ballydermot/Timahoe and Derrygreenagh Bog Groups. The Cloncreen Bog is located within the Derrygreenagh Bog Group. This report gives the details of the bat surveys carried out at the Cloncreen Bog study area, and the results of the same.

Bat surveys included roost surveys, activity bat surveys and passive bat surveys. Bat roost surveys were conducted within and adjacent to the site. Bat transects were carried out at the site on three separate occasions, to identify the bat activity at the site. Passive bat surveys included monitoring from height (top of Cloncreen Met Mast) and remote monitoring at three different locations throughout the survey period.

This report provides the results of the baseline bat monitoring surveys conducted at the Cloncreen study area, and provides an insight into bat populations, foraging/commuting activity patterns and roost surveys at the study area.

2 BATS

2.1 BACKGROUND

In Ireland there are 10 known bat species of two families (*Rhinolophidae* and *Vespertilionidae*). These species are:

- ***Rhinolophidae*:**
  - Lesser Horseshoe bat (*Rhinolophus hipposideros*)
- ***Vespertilionidae*:**
  - Daubenton's bat (*Myotis daubentoni*)
  - Whiskered bat (*Myotis mystacinus*)
  - Natterer's bat (*Myotis nattereri*)
  - Nathusius' Pipistrelle (*Pipistrellus nathusii*)
  - Common Pipistrelle (*Pipistrellus pipistrellus*)
  - Soprano Pipistrelle (*Pipistrellus pygmaeus*)
  - Leisler's bat (*Nyctalus leisleri*)
  - Brown long-eared bat (*Plecotus auritus*)
  - Brandt's bat (*Myotis brandtii*)

2.2 LEGISLATIVE CONTEXT

2.2.1 The Wildlife Acts 1976 and 2000

All bat species are protected under the Wildlife Act (1976) and Wildlife [Amendment] Act (2000) which make it an offence to wilfully interfere with or destroy the breeding or resting place of these species; however, the Acts permit limited exemptions for certain kinds of development.

All species of bats in Ireland are listed on Schedule 5 of the 1976 Act, and are therefore subject to the provisions of Section 23, which make it an offence to:

- Intentionally kill, injure or take a bat;
- Possess or control any live or dead specimen or anything derived from a bat;
- Wilfully interfere with any structure or place used for breeding or resting by a bat ;
- Wilfully interfere with a bat while it is occupying a structure or place which it uses for that purpose

2.2.2 The Habitats Regulations 1997-2005

The EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive 1992(92/43/EEC)) seeks to protect rare and vulnerable species, including all species of bats, and their habitats and requires that appropriate monitoring of populations be undertaken. All species of bat found in Ireland are listed on Annex IV of the Directive, while the lesser horseshoe bat is further protected under Annex II. The latter Annex relates to the designation of Special Areas of Conservation (SACs). Inclusion on Annex IV ('European protected species') means that member states are required to put in place a system of strict protection as outlined in Article 12. The Habitats Directive is transposed into Irish law by the European Communities (Natural Habitats) Regulations 1997. These Regulations substantially strengthen the protection provided by the Wildlife Acts, and in particular they remove all of the exemptions provided in Section 23(7) of the Wildlife Act insofar as they relate to Annex IV species, including all species of bats. All bats species are listed on the First Schedule and Section 23 of the Regulations makes it an offence to:

- Deliberately capture or kill a bat;
- Deliberately disturb a bat;
- Damage or destroy a breeding site or resting place of a bat.

2.2.3 International Conventions

Across Europe, bats are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries. The Irish government has ratified both conventions.

2.3 CONSERVATION STATUS

The overall conservation status for all bat species is 'Good' as is the evaluation of the individual attributes assessed, namely, Range, Population, Suitable Habitat and Future Prospects (NPWS, 2008).

2.4 ECOLOGY AND HABITAT IN IRELAND

2.4.1 Introduction

Bats are long-lived mammals with a complex social life that have evolved a number of unusual biological and behavioural features. They have developed a highly sophisticated echolocation system that allows them to avoid obstacles and catch tiny insects in complete darkness. Bats need different roosting conditions at different times of the year in order to suit their metabolic and social requirements, and will often move around on a regular basis to find the condition that meets their needs. As a consequence, bats roost in a range of areas including: buildings, trees, highway structures, underground sites such as caves, cellars, mines, underground bunkers, culverts and underpasses, dry stone walls and rock fissures with different bat species preferentially selecting

different types of roosting sites. As a consequence individual bat species have different association with the various roosting habitat types.

Bats select different types of roosts at different times of the year for different phases in the breeding and life cycle. These include hibernation and winter roosts, summer and nursery roosts, temporary roosts, night feeding roosts and mating roosts/swarming sites. Bats hibernate to conserve energy during the winter months, when their insect food is in short supply. Hibernation roosts (hibernacula) may be in caves, underground, and other structures, buildings or trees, where there is low temperature variation and a high relative humidity. Bats may hibernate singly, or many bats may use the same roost site.

Female bats tend to be colonial during the summer months, congregating at nursery roosts mostly in trees or buildings to give birth (some give birth in tunnels, mines and caves). Bats are very faithful to their natal nursery colony and return year after year. Female bats give birth in the summer usually to only one young, averaging one birth every second year. For this reason bat population numbers do not increase rapidly, unlike other small mammal species such as rodents.

2.4.2 Roost Requirements

Because their metabolic and social requirements vary throughout the year, most bats will use a variety of roosts of different types. Many species of bats are closely associated with the built environment, both for breeding and hibernation and some species have rarely been recorded anywhere else. The majority of species form maternity roosts in the roofs of buildings to take advantage of the heat provided by the sun, as during this phase of their life-cycle breeding females are seeking areas with high temperatures to minimise the energy cost of maintaining a high body temperature. Some species, such as the Common pipistrelle, show a clear preference for confined roost sites, such as soffit-boxes, eaves or under hanging tiles, whereas others, such as the lesser horseshoe and long-eared bats are more typically associated with open roof voids that they can fly into. There are many exceptions and many species have been recorded from a wide range of situations. In winter, bats of most species have been recorded hibernating in various parts of buildings, such as inside cavity walls, around window frames, under ridge-tiles and in cooler areas with stable temperatures.

The lesser horseshoe bat has a particular affinity with underground sites. In winter, it is rarely found in any other type of site and the species has even been recorded breeding underground, though the great majority of maternity sites are now in the roof voids of buildings. Other species which are considered typical hibernators in underground sites are Natterer's bat, Daubenton's bat, whiskered bat, Brandt's bat and brown-long-eared bat.

While some species are particularly associated with tree roosts, others primarily use buildings and underground places; however, the majority use a range of roosts including trees, buildings and underground sites.

Table 1 below lists the bat species present in Ireland and different roost types. The table indicates the strength of association between each species, and with their use of trees as roosting sites. It is noted that only brown long-eared bats have strong association with tree roosting sites.

Table 1: Species associations with different roost types

Species	Trees		Buildings		Underground	
	Maternity	Hibernation	Maternity	Hibernation	Maternity	Hibernation
Lesser horseshoe bat	L	L	H	M	L	H
Brandt's bat	L	L	H	H?	N	H
Daubenton's bat	M?	L?	M	L	M?	H
Whiskered bat	M?	M?	H	L	N	H
Natterer's bat	M?	M?	H	L	L	H
Nathusius' pipistrelle			H?			
Common pipistrelle	M	M	H	H	N	L
Soprano pipistrelle	M	M	H	H	N	L
Leisler's bat	M	M	H	L	N	N
Brown long-eared bat	H	H	H	H	N	M

Trees- includes all types of crevice and hollow as well as bat-boxes attached to trees.
Buildings – above-ground areas, with an emphasis on roof voids and other areas warmed by the sun.
Underground – anywhere that provides cool humid conditions buffered against rapid temperature change. Includes caves, mines, tunnels, souterrains, fortifications, cellars, ice-houses, lime-kilns etc.

N – not recorded in recent times
L- low dependence; unusual, but has been recorded
M – some usage recorded, though perhaps not the most important type of site
H – the most frequently recorded type of site for this species/activity

Weak association with tree selection as roost site

Medium strength association with tree selection as roost site

Strong association with tree selection as roost site

(Adapted from Kelleher and Marnell, 2006)

2.4.3 Criteria for Bat Roosts of National or International Importance

There are no clear guidelines as to the nature of a bat roost of international importance. All of the largest roosts of lesser horseshoe bats in Ireland would be of international importance and it is anticipated that all large Leisler's bat roosts (in excess of 100) would also have international significance. The following table (Table 2) shows the working guidelines developed by the Bat Expert Panel of the Heritage Council in 2003 to provide a basis for comparing the importance of different building roosts nationally and internationally[1].

Table 2: Level of importance of different buildings roosts for bat species

Species	Indicator	Significance
Lesser Horseshoe Bat	Special Areas of Conservation (SACs) have been created for this species, throughout its European range.	Very significant
	If present	Significant
Whiskered	>10	Very significant
	If present	Significant
Natterer's	>10	Very significant
	If present	Significant
Daubenton's	Maternity roost	Very significant

[1]http://www.tii.ie/technical services/environment/planning/Best_Practice_Guidelines_for_the_Conservation_of_Bats_in_the_Planning_of_National_Road_Schemes.pdf

Species	Indicator	Significance
Leisler's	Maternity roost	Very significant
Common Pipistrelle	Maternity roost	Significant
Soprano Pipistrelle	Maternity roost	Significant
Brown Long-eared	Maternity roost	Significant

Adapted from (NRA, 2005): Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes

3 METHODOLOGY

3.1 DESK STUDY

A desk study was carried out to collate available information on the species to be surveyed and on the site's natural environment. This comprised a review of the following publications and datasets:

- Hundt, L (2012) Bat Surveys: Good Practice Guidelines, 2nd Edition, Bat conservation Trust.
- Natural England Technical Information Note TIN051. Bats and onshore wind turbines. 2nd Edition, February 2012.
- Natural England Technical Information Note TIN051.Bats and onshore wind turbines. 2nd Edition, February 2012
- Bat Survey Guidelines: Traditional Farm Buildings Scheme (2008) Tina Aughney, Conor Kelleher & Donna Mullen. The Heritage Council, Áras na hOidhreachta, Church Lane, Kilkenny.
- Eurobats Publication No. 3: Guidelines for consideration of bats in wind farm projects
- *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes* (National Road Authority (NRA, 2006a).
- Bat Conservation Ireland. Wind Turbine/Wind Farm Development, Bat Survey Guidelines (Version No. 2.8, December 2012)
- Kelleher, C. & Marnell, F. (2006) Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No. 25. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.
- Northern Ireland Environment Agency November 2011, Bat Survey – Specific Requirements of Windfarm proposals.
- Bat Mitigation Guidelines for Ireland. *Irish Wildlife Manuals*, No. 25 (National Parks and Wildlife Service 2006).
- NRA Guidelines for treatment of Bats During Construction of National Road Schemes (2005) NPWS, Natura, Tina Aughney.
- Bat Survey Guidelines: Traditional Farm Buildings Scheme (2008) Tina Aughney, Conor Kelleher & Donna Mullen. The Heritage Council, Áras na hOidhreachta, Church Lane, Kilkenny.
- *The Status Of EU Protected Habitats And Species In Ireland* (National Parks and Wildlife Service 2013),
- Previous Report/Baseline Bat Surveys, completed by INIS Environmental Consultants Ltd, conducted in 2013.
- OSI Aerial photography and 1:50000 mapping,
- National Parks and Wildlife Service (NPWS),
- Geological Survey Ireland (GSI) area maps,

- Bat Conservation Ireland publications and website,
- National Biodiversity Centre (NBDC) (on-line map-viewer).

A desktop review was completed to identify features of ecological importance within the study area and surrounding region.

3.1.1 Consultation (Data Request submitted to Bat Conservation Ireland)

A data search request was submitted to Bat Conservation Ireland (BCI) for a search of their database for all known records of bat species (both roosting sites and ad-hoc observations) retained by BCI within a radius of 10km of the Cloncreen Bog site. Irish Transverse Mercator (ITM) X, Y co ordinates were provided as a reference point from which the search radius extended.

3.1.2 National Biodiversity Data Centre (NBDC)

The NBDC online mapper includes a bat habitat suitability layer index. The index ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats. The index presented is for all species combined, in addition to each individual species indices. The suitability indices for each bat species are included in Table 5, Section 4.1.3 below. The reference area to which the indices relate comprises the Cloncreen Bog site area, and the geographical area extending away from it.

3.1.3 Previous surveys

A preliminary bat survey was carried out on two Bord na Móna bog groups in 2012/13, namely the Ballydermot/Timahoe Bog group, and the Derrygreenagh Bog group. The Cloncreen Bog site is included within the Derrygreenagh Bog group. The goal of these surveys was to establish indicative levels of bat activity within the two bog groups. No formal bat survey had been carried out within these areas prior to the preliminary study (apart from some project specific studies in a limited number of locations). Therefore the levels of bat activity within these areas were relatively unknown. A summary of these findings for the Cloncreen Bog site is included in section 4.1.6 below.

3.1.4 Designated sites

This desk study included all designated areas and sensitive areas within a 15km radius of the study area.

3.2 FIELD SURVEYS

3.2.1 Introduction

Bats in Ireland feed exclusively on insects and in the summer they generally emerge from their roosts at dusk to feed. The distances covered while foraging varies considerably between species. They are known to use a number of different foraging sites in the same night and move between them to locate areas of high insect density. They are also known to exhibit a level of site loyalty and will frequently return to the same foraging sites night after night (JNCC, 2001).

Information on bat activity at the study area was collated from a comprehensive set of field surveys conducted during the months of March, May, June, July and August 2015, and November 2015. Three forms of survey design were implemented and included;

1. Roost surveys (daytime visual search and bat activity surveys within the study area).
2. Bat activity surveys (bat transects), and
3. Automated bat surveys.

All bat surveys were undertaken by appropriately trained and experienced ecologists. In order to carry out the surveys efficiently and safely, surveyors became familiar with the site during daylight hours. All surveys were conducted using pairs of surveyors. This Health and Safety methodology was followed at all times.

Bat survey methods are described in the following sections.

3.2.2 Roosting habitat availability

3.2.2.1 Structure/tree survey (Visual daytime searching)

Daytime bat roost surveys were conducted at the study area in the months of March, May, June, July, August and September 2015. A daytime bat roost survey was also carried out on the 16th of November and the 15th of December, 2015.

The daytime surveys did not involve any activities which would require a National Parks and Wildlife Service handling license. The site and adjacent lands were searched for potential bat roost sites. Structures were examined for potential bat roosts, which included bridges adjacent to the Cloncreen Bog site, Bord na Móna buildings, and two private unused dwellings in proximity of the Cloncreen Bog. Trees within and adjacent to the site were checked for holes, cracks, crevices and openings in both living and dead trees. Trees were inspected from ground level using binoculars, for external signs of damage or evidence of the presence of holes or cavities. Where required, an endoscope was used to investigate cracks and crevices present on trees.

The daytime survey included the following;

- Communication with client and local landowners.
- External inspection of potential bat roost sites included, looking/searching for bat droppings on the ground, streaking on walls, suitable entry and exit points around eaves, soffits, flashing, crevices etc., at the Bord na Móna Tea Centre and other buildings, including the nearby wildlife sanctuary to the northwest of the site.
- Where required/access available, internal inspection of buildings were carried out.
- This part of the survey mainly focussed on areas which would provide appropriate environmental conditions for bats. This included checking joints, cracks and crevices on plastered walls, stone walls, wood and wooden beams. The floors, walls and structural elements were examined for droppings, streaking and other bat signs such as oily marks on walls from fur, the feeding remains such as moth wings or other insect parts, along with checking areas for corpses and skeletons of bats. Plastered areas and ridge beams were searched for scratch marks. Ledge areas such as window boards were searched for evidence of bats (urine stains, droppings remains of prey etc.).
- Bridges in the proximity of the Cloncreen Bog site were investigated for any evidence of bats. These were inspected using a high-powered torch and endoscope. Any crevices, holes, cracks and joints present at bridge structures were inspected, searching for evidence of bats.
- An endoscope was used to check cracks and crevices in old stone walls and cracks and crevices that are present in the workshop and bridge structures, and the more mature trees that occur within the study area.
- Trees occurring at the site were initially assessed for the potential of a roost site, looking out for holes, cracks and splits (in trunks and limbs), cavities formed by cracked stems or limbs,

peeling bark, crevices and deadwood. Also while conducting the survey trees were searched for any evidence of bats such as scratch marks, oil stains and droppings.

While conducting the daytime surveys, other habitats within the study area, and the immediate surroundings were noted. This was done to assess bat foraging habitat availability, and to record the presence of significant landscape features, particularly linear features that provide wildlife corridors for commuting bats.

3.2.2.2 Bat emergence survey

Bat emergence surveys were carried out at potential roost sites, identified during the daytime visual surveys and bat roost sites identified during previous baseline surveys at the site. The following was carried out while conducting the bat emergence survey at the site;

- The surveys began approximately 40 minutes before dusk.
- The potential roost sites were watched for 1 hour after dusk.
- Equipment used included Frequency Division AnaBat Detector System (AnaBat SD2 Flash Card Bat Detector), a hand-held heterodyne bat detector (the Batbox Duet) flash lights and hand held GPS.

3.2.3 Bat activity surveys (Transects)

Bat transect surveys conducted at the site consisted of walked and driven transects. Surveys included previous transect routes, carried out at the site (for a continuation of baseline surveys), with additional transects also included. The transect routes were designed to comprehensively survey the proposed development area and intersected/followed the foraging and commuting habitats present within it, particularly those associated with linear features such as roadside margins, vegetated linear strips, scrub, woodland edges, and hedgerows.

The transects at the site were repeated three times, completed during the following nights visits;

- **Bat transect survey 1:** carried out on the 24th June 2015.
- **Bat transect survey 2:** carried out on the 19th of August 2015.
- **Bat transect survey 3**: carried out on the 10th of September 2015.

The repeated transects were undertaken in opposite directions on another occasions, where possible, from different points/times along the route. Transect times were spread throughout the survey nights, to provide a more complete overview of the bat activity/usage at the site, throughout the survey period.

The activity survey was conducted using the Frequency Division AnaBat Detector System (AnaBat SD2 Flash Card Bat Detector) in conjunction with the BatNav KML Generator which generates GPS co ordinates for each bat pass recorded. The AnaBat detector records bat ultrasonic calls on a continuous basis, and stores the information onto an internal CF card. Frequency Division is a technique used to convert the inaudible bat echolocation calls to audible sounds. The AnaBat unit also uses Zero-Crossing Analysis (ZCA) to make the real-time recorded calls visible for display purposes. It is these sonograms (2-d sound pictures) that are digitally stored on the CF card, and downloaded for analysis. Each time a bat is detected, an individual time-stamped (date and time to the second) file is recorded. The GPS location of each call is also recorded.

Walked transects were conducted within the study area, which were not suitable for vehicle access. Driven transects were carried out with the use of a four by four vehicle. The Anabat detector was connected to a specially adapted microphone, mounted to the roof of the vehicle.

Post survey, the species of each individual bat pass is identified, and the recording is labelled. If sufficient calls are recorded the GPS location is appended to each call and the distribution mapping of bat activity along the survey route can be generated on GIS platforms and on Google Earth. These formats provide easy and quick access to detailed distribution mapping of any activity recorded. Repeated surveys can be overlaid, or multiple surveyors' results can be plotted to visualise a large site.

A hand-held heterodyne bat detector (the Batbox Duet) was also utilised, to enable identification of individual species in the field in real time. The frequency detection dials were rotated so that there was frequent scanning of the frequencies between 20 kHz and 120 kHz.

The bat transect surveys conducted at the Cloncreen Bog site, were conducted by experienced bat ecologists. Surveys were carried out during periods where weather conditions meet the requirement set out in standard survey methodology guidance documents (Bat conservation Ireland 2012[2]; Hundt, 2012[3]; Mitchell-Jones and Mcleish 2004[4]). Recommended guidelines state that surveys are appropriate when nocturnal temperatures are greater than 7°C, avoiding prolonged or heavy precipitation. Prior to survey, each transect was walked during daylight hours, to make note, and to be avoid potential hazards during surveys. A hand held 'Sat Map' navigational device, which incorporated aerial photography of the study area transect routes, further aided in the navigation during darkness.

Transect routes can be viewed in Figure 1 below.

3.2.4 Passive bat survey

An unmanned automated bat survey was completed at three locations, in July (one location), and early September 2015 (two locations). The Song Meter SMZC Bat Recorder was deployed at locations that were selected for their proximity to habitats, or features potentially valuable to bats, at strategic locations at the site. This was carried out as to provide a good representative coverage of the survey area. The song meters were set at three different locations for a minimum five consecutive nights, once in July 2015, and two locations in early September 2015. The detectors were set from half an hour before sun set, to half an hour after sunrise.

Calls emitted by bats that passed in the proximity to the SMZC detectors were recorded and their calls stored for later analysis. The SMZC detector system records bat ultrasonic calls on a continuous basis and stores the information onto internal SD cards. The bat detector is effectively used as a bat activity data logger.

Passive bat survey locations can be viewed in Figure 1 below.

[2] Bat Conservation Ireland (2012) Wind turbine / windfarm development bat guidelines, Version 2.8, December 2012.

[3] Bat Surveys: Good Practice Guidelines, 2nd Edition, Bat conservation Trust.

[4] The Bat Workers' Manual, 3rd Edition. JNCC, Peterborough.

3.2.5 Automated bat surveys from height

Recent guidance on good practice for bat surveys at proposed on-shore windfarm sites (Bat Conservation Thrust 2011) recommends that where possible, static automated bat detectors be installed at turbine height (or as close as possible).

An automated bat survey from height was conducted at the Cloncreen Met Mast, for a period of 55 consecutive nights, to provide a sample of the bat activity at turbine height over the survey period.

A weather-resistant SMM-U1 ultrasonic microphone was attached to a bird deterrent unit, and fixed to the Cloncreen Met Mast, at a height of approximately 95m, above ground level. An electronic cable, connected to an SM3BAT Bat Song Meter, at ground level. The SM3BAT Song Meter unit was installed, and secured, on the 24th of June 2015, and was removed on the 18th of August 2015. Prior to deployment, the SM3 Bat detector was calibrated with an ultrasonic calibrator, to ensure that the microphone and the detector were performing properly. The SM3 Bat detector was equipped with secured digital (SD) memory cards to store call data. The detector was programmed to record both zero-crossing and full spectrum call files simultaneously. Following the survey period the data was downloaded using Kaleidascope and Analook software, to view/analyse any bat sonograms (see following section, Section 3.2.6). The unit was checked frequently during the survey period, replacing batteries at regular intervals and making sure the device was working appropriately.

3.2.6 Download analysis of data

The data was downloaded and analysed using Kaleidascope and Analook software. Each time-stamped bat file was analysed and the species of bat recorded noted as a bat pass. A single sound file can have bat passes from more than one species as well as calls from more than one bat of the same species. Where this occurs a bat pass was noted for each species. (e.g. two species identified in a time-stamped file).

The sound files collected were converted from .wac format to .wav and zero crossing for sound analysis within Kaleidoscope software. This software can automatically sort sound files that contain only non-bat 'noise' from sound files that contain bat passes. The software can also 'tag' each call with a potential identification, according to similarities in call shape to archetypal call clusters within the database. This approach allows identification of bats to genus level for Myotis species, and to species level for other bats found in Ireland. Separation of Myotis species is complicated by the high degree of overlap between call characteristics.

Following Kaleidascope download, the bat tags were then checked using Analook software, and confirmed or corrected manually, since automatic classification is not yet accurate enough to rely upon in isolation for most species (Waters & Barlow, 2013). The manual identification was carried out by comparison with call parameters as set out in Russ (2012) and Barataud (2015).

Species identification of recordings was determined independently, by a minimum of two observers, if calls were not characteristic, and easily identifiable.

From analysing the sonograms produced during surveys, in combination with communications with Tina Aughney (BCI), made it was possible to separate Natterer's bat, from other Myotis species.

3.2.7 Summary of bat surveys carried out at study area

The location of the automated survey from height at the Cloncreen Met Mast can be viewed in Figure 1 below.

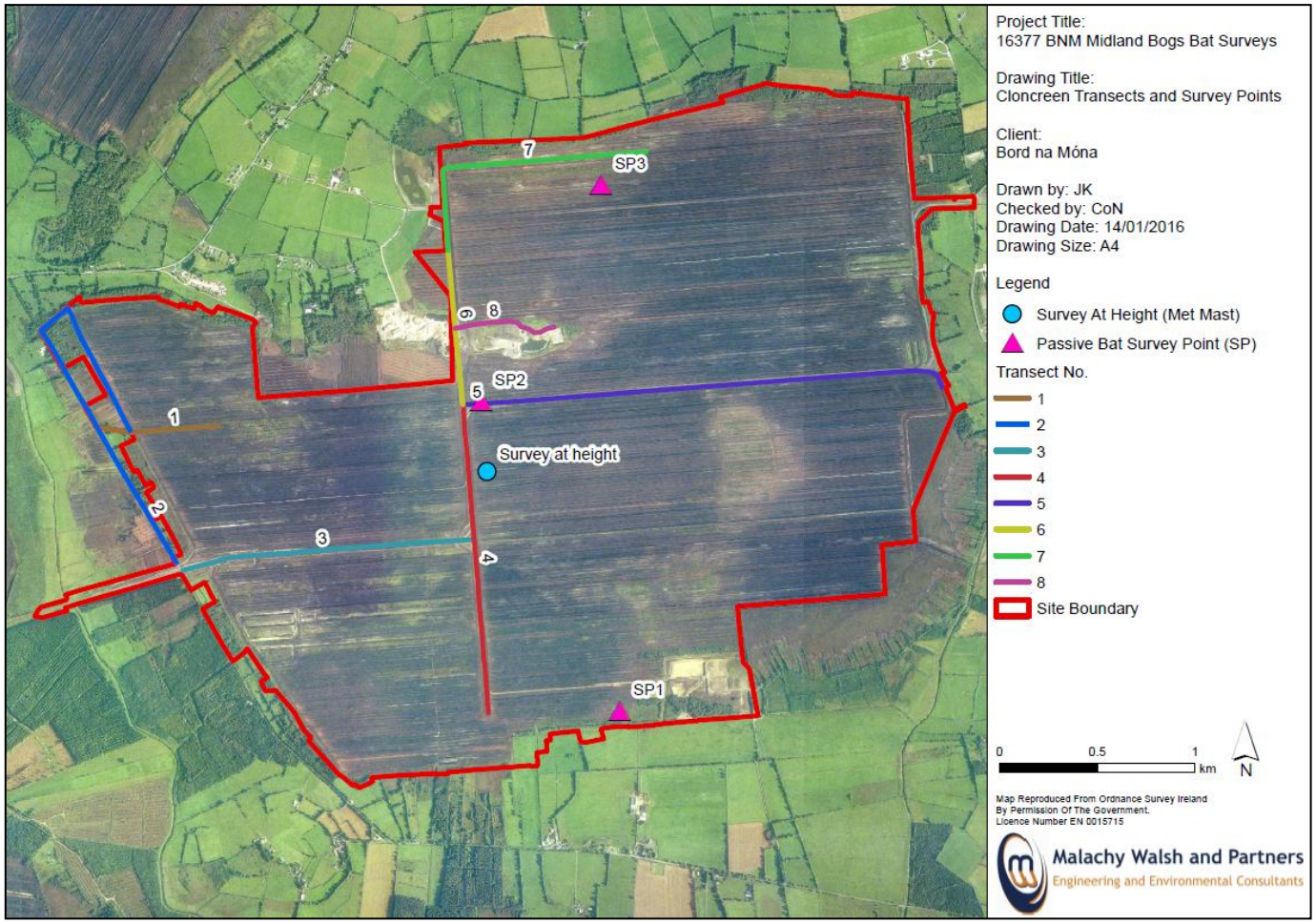


Figure 1: Location of bat surveys at the study area

4 RESULTS

4.1 DESK REVIEW/STUDY

4.1.1 Consultations (Records retained by Bat Conservation Ireland)

On the 13th of November 2015, BCI replied to a request for information regarding any known bat activity within a 10km radius of the Cloncreen Bog site.

The results of the BCI search indicated six records of bat roosts within the 10km search radius specified, with an additional bat roost, just outside the search area. Species included brown long-eared bat, whiskered bat, Leislers' bat, Common pipistrelle and Soprano pipistrelle. Following consultations with BCI, the closest known bat roost site, is in Edenderry, approximately 5.5km to the northeast of the Cloncreen Bog site (unidentified bat species). Adhoc observations, included Daubentons bat, recorded during transects, carried out at a number of bridges within a 10km radius of the Cloncreen Bog site, the closest of which is approximately 7km to the northeast. Consultations with BCI can be viewed in Appendix 1.

4.1.2 Summary of Habitats Associations of Irish Bats

Table 3: Summary of habitat associations of Irish bats

Species	Foraging habitat	Roost habitat
Brown long eared bat	Foraging habitat includes broad-leaved woodlands, tree lines, scrub, conifer plantations, gardens with mature trees, parkland, and orchards	Roosts in close association with foraging habitats, but avoids roosting in mixed agricultural areas, bog, marsh, heath and natural grassland. In Ireland, large open attics, tree holes, ruins, houses, churches and farm buildings.
Common pipistrelle/Soprano pipistrelle	Broad foraging niches (Russ 1999) which reflect their widespread occurrence in Ireland. Highly adaptive to changing landscape conditions and can occupy a range of different habitat types from urban areas to woodlands.	Houses, although they also roost in other locations such as tree holes, can be found in most habitat types except for very exposed areas. Confined areas in houses, behind hanging tiles, soffit boards or between roofing felt and roof tiles, rather than the main attic space.
Nathusius' Pipistrelle	Mainly forest dwelling bat species. Forests including deciduous woodlands to dry coniferous forests. Use parks, farmland and woodland edges, rarely seen in urban settlements than other bat species. Prefer lowland areas.	Often recorded roosting in crevices and have been found in cracks in walls, under soffit boards, fissures in rocks and tree hollows.
Lesser horseshoe bat	Sheltered valleys near wooded countryside. Distribution in the west is strongly linked with broadleaved and mixed woodland and it usually forages in woodland and scrub.	Mainly in roofs of old houses or in outhouses, stables or old cottages. In winter this species hibernates in caves, disused cellars, mines and underground structures.
Leisler's bat	Forages over a range of habitat types including over pasture, rivers, lakes, canals and forestry. It also hunts around streetlights and floodlights.	In Ireland, nursery roosts are chiefly located in attic spaces of buildings. There are also a few records of nursery roosts in trees.
Daubenton's bat	Surface of lakes, slow-moving rivers and canals.	Usual roost sites are under stone bridges, in ruins, canal tunnels, trees and damp caves.
Natterer's bat	Can be found in woodland, mature hedgerows and pasture habitats.	Usual roost sites are in tree holes, old stone buildings such as churches and barns, and under bridges.
Brandt's bat/Whiskered bat	Typically forages along forest tracks, or near water	Can be found roosting in attics of old buildings. Very few confirmed roosts in Ireland. It is also sometimes found roosting in crevices under stone bridges and in trees.

A study carried out by Lundy et al (2011), revealed some consistent patterns across bat species associations with habitat types. In general, bog, marsh and heath have negative associations, while broadleaf woodland, mixed forest and riparian habitats have positive associations with bat occurrence. Table 4 below, provides a summary of key land cover associations and the most relevant spatial scale of these associations for each bat species.

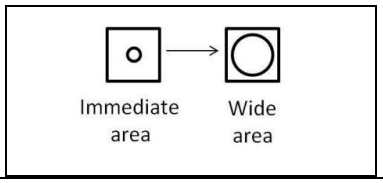
Table 4: Summary of the habitat associations of bats

A summary of habitats associations of Irish bats: Two elements of habitat association are identified; direction of association (positive or negative) and scale of association (fine scale or broad scale).

Direction of association:
The colour of the box identifies the direction of association. Three relationships are identified; a positive association, a negative association and an intermediate association. An intermediate association reflects that a species is positively associated with a small area ofthis habitat but as this area increases this association becomes negative. A non-filled box signifies that this habitat is not an important predictor of that species occurring.

Positive association
Intermediate association
Negative association

Scale of association:
The size of the circle identifies the scale of the habitat that is most important – a small circle identifies that this habitat is important in the immediate area whereas a large circle reflects an association with that habitat at a wider landscape scale.



	Arable	Bog	Broadleaf forest	Mixed forest	Pasture	Riparian habitats	Scrub	Urban	Freshwater	Altitude
Brown long eared bat										
Common pipistrelle										
Lesser horseshoe										
Leisler's										
Daubenton's										
Nathusius' Pipistrelle										
Natterer's bat										
Soprano Pipistrelle										
Whiskered										

Adapted from: (Lundy et al 2011) Landscape conservation for Irish bats and species specific roosting characteristics. Bat Conservation Ireland

4.1.3 Bat habitat suitability index at National Biodiversity Data Centre (NBDC)

The NBDC online mapper bat habitat suitability layer index was viewed on the 21st of November 2015. The results outlined in Table 5 below, indicate that the habitats within the majority of the site are of relatively low value to bats in general, with a rating of 21.56 for the category 'All bats'. The rating for the very southern end of the site is slightly higher, with a rating of 29.22 for the category 'All bats'. Within the majority of the site two species have a rating of lower than 10, namely lesser horseshoe bat (*Rhinolophus hipposideros*) (n=0) and Nathusius' Pipistrelle (*Pipistrellus nathusii*) (n=2). Common pipistrelle (*Pipistrellus pipistrellus*), has the highest habitat suitability index, with a rating of 38, followed by Soprano pipistrelle (*Pipistrellus pygmaeus*) and Leisler's bat (*Nyctalus leisleri*), both with a rating of 33. For the most part, the habitat suitability index rating increases by approximately 15% for the very southern part of the site.

Table 5: Bat habitat suitability index rating for the general location of the Cloncreen Bog site

Species	Bat Suitability Index	
	Majority of site	Very southern end of site
All bats	21.56	29.22
Common Pipistrelle	38	46
Soprano Pipistrelle	33	43
Leisler's bat	33	40
Brown long-eared bat	27	39
Natterer's bat	23	39
Daubenton's bat	22	30
Whiskered bat	16	25
Nathusius' Pipistrelle	2	2
Lesser Horseshoe bat	0	0

4.1.4 National Biodiversity Data Centre

The on-line mapping resource of the National Biodiversity Data Centre (NBDC)[5], allows users to search almost 2 million records available across 80 datasets. Data analysis tools enable users to refine data base searches by selecting 1km, 2km or 10km grid squares on the interactive map. All species records for the selected grid square, retained at the NBDC, are then available for download in 'Excel' spreadsheet format. The study area, is situated within two OSI 10km grid squares, namely N52 (western and central part of the site) and N62 (eastern end of the site). The results of a search of the area within 10km squares N52 and N62 are outlined in Table 6 below.

Table 6: Records retained at the National Biodiversity Data Centre

Species	Record Retained for Grid Square N52	Record Retained for Grid Square N62
Common pipistrelle	No	Yes
Soprano pipistrelle	No	Yes
Leisler's bat	No	No
Brown long-eared bat	No	Yes

[5] Available at : http://maps.biodiversityireland.ie/#/Map [accessed 21/08/2014]

Species	Record Retained for Grid Square N52	Record Retained for Grid Square N62
Natterer's bat	No	No
Daubenton's bat	No	No
Whiskered bat	No	No
Nathusius' pipistrelle	No	No
Lesser horseshoe bat	No	No
Brandt's bat	No	No

4.1.5 Current Distribution

4.1.5.1 National Parks and Wildlife Service Mapping

Current species distribution mapping is included in the Department of the Environment, Heritage and Local Government's most recently published report to the European Commission on the Conservation Status in Ireland of Habitats and Species listed in the European Council Directive on the Conservation of Habitats, Flora and Fauna 92/43/EEC (NPWS 2013). The following tables (Table 7 and Table 8), show the current known, or estimated distribution for bat species, within the 10km OSI grid squares that include the Cloncreen Bog site.

Table 7: Species distribution for OSI Grid Square N52, records from NPWS 2013.

Species	Current Distribution[6] includes Grid Square N52	Current Range[7] includes Grid Square 52[8]
Common pipistrelle	No	Yes
Soprano pipistrelle[9]	Yes	Yes
Leisler's bat	No	Yes
Brown long eared bat	No	Yes
Natterer's bat	No	Yes
Daubenton's bat	No	Yes
Whiskered bat	No	No
Nathusius' pipistrelle	No	No
Lesser horseshoe bat	No	No

Table 8: Species distribution for OSI Grid Square N62, records from NPWS 2013.

Species	Current Distribution[10] includes Grid Square N62	Current Range[11] includes Grid Square 62[12]
Common pipistrelle	Yes	Yes
Soprano pipistrelle[13]	Yes	Yes
Leisler's bat	No	Yes
Brown long eared bat	Yes	Yes
Natterer's bat	No	Yes

[6] Based on the known or best estimate of distribution (NPWS, 2013)

[7] A mapping convention whereby the smallest polygon size containing all grid squares where distribution is indicated is mapped (NPWS, 2013).

[8] The proposal site considered in this document is located within this 10km grid square.

[9] Based on the known or best estimate of distribution (NPWS, 2008)

[10] Based on the known or best estimate of distribution (NPWS, 2013)

[11] A mapping convention whereby the smallest polygon size containing all grid squares where distribution is indicated is mapped (NPWS, 2013).

[12] The proposal site considered in this document is located within this 10km grid squares.

[13] Based on the known or best estimate of distribution (NPWS, 2008)

Species	Current Distribution[10] includes Grid Square N62	Current Range[11] includes Grid Square 62[12]
Daubenton's bat	Yes	Yes
Whiskered bat	No	No
Nathusius' pipistrelle	No	No
Lesser horseshoe bat	No	No

4.1.5.2 Summary

Table 9 below summarises the data from Tables 6, 7, and 8 above, which relates to the 10km^2 area covered by OSI 10km grid squares N52, and N62, which includes the study area. The species are colour coded, on the basis of the extent to which overlap occurs between the records retained by the National Parks and Wildlife Service and the National Biodiversity Data Centre. The following assessment is an indicator only, of the potential for presence, or absence of species based solely on the information obtained during the desk study.

Table 9: Potential for presence within Grid squares S14

Species	Record Retained for Grid Square N52 & N62	Current Distribution[14] includes Grid Square N52 & N62	
Lesser horseshoe bat	No	No	Less likely
Brandt's bat	No	No	
Whiskered bat	No	No	
Nathusius' pipistrelle	No	No	
Nattere's bat	No	Yes	More likely
Leisler's bat	No	Yes	
Daubenton's bat	Yes	Yes	
Brown long-eared bat	Yes	Yes	
Soprano pipistrelle	Yes	Yes	
Common pipistrelle	Yes	Yes	
No positive indicator across the headings (Extremely unlikely to be present) One positive indicator across the headings(Potential to be present) Two positive indicators across the headings (Potentially/possibly present)			

Table 3 above highlights the different habitats associated with foraging and roosting bat. Table 4 above indicates that bat species show consistent patterns of associations with different habitat types. In general, bog, marsh and heath have negative associations, while woodland (broadleaf, and mixed species moreover), and riparian habitats, have positive associations with bat occurrence. In general, bats show an avoidance of anthropogenically modified areas, such as areas of agriculture and conifer forestry (Lundy *et al*, 2011). The habitat quality at a site, like the density of resources may significantly influence the density of bats using a particular area. The complex nature of the bat species habitat requirements, and the occurrence of bats are dependent on a combination of broad landscape patterns, local roosting conditions and the character of a roost. Studies have shown that bat activities correlate with a high insect abundance, but in addition, depend on the spatial

[14] Based on the known or best estimate of distribution (NPWS, 2008)

heterogeneity of the available habitat (Kusch *et al*, 2004). Open cutover bog, is by far the dominant habitat type at the Cloncreen Bog site, with vegetated fringes, and some linear vegetated strips, separating the bog fields. In general open cutover bog does not provide optimum habitat for foraging and roosting bats. However, areas outside this habitat at a particular site should not be discounted as unimportant. The occurrence of bat species in an area/greater area may be reliant on small fragments of favourable habitats, which are vulnerable to any environmental change. Therefore individual sites/locations within greater areas should be assessed for bats, on their own merit.

4.1.6 Previous surveys

A preliminary bat survey was carried out in the Ballydermot/Timahoe Bog group and the Derrygreenagh Bog group in 2013. The Cloncreen Bog site is included within the Derrygreenagh Bog group.

Bat activity surveys

During bat activity surveys (2013) at the study area (transect surveys), eight bat passes were recorded throughout the survey period, with three species present. These were, Common pipistrelle (n=5), whiskered/Brandt's (*Myotis mystacinus/brandtii*) (n=7), Leisler's bat (n=1). All bat records were from the linear features of well developed hedgerows at the north western side of the Cloncreen Bog, as defined in INIS Baseline Report, 2013. Only a single Common pipistrelle was recorded commuting, all other records were noted as foraging.

Passive surveys

The results of the remote surveys carried out in 2013, at the two bog groups (Ballydermot/Timahoe Bog group and Derrygreenagh Bog group), showed that bats recorded at the site preferred the 'Other habitats', including hedgerow and scrub, rather than the dominant open bog habitats throughout the overall study area.

Bat roost surveys

During preliminary bat surveys carried out in 2013, no significant bat roost sites were identified, within the Cloncreen Bog site.

4.1.7 Designated sites

4.1.7.1 Sites of International Importance

Special Areas of Conservation

Candidate Special Areas of Conservation are protected under the European Union (EU) 'Habitats Directive' (92/43/EEC), as implemented in Ireland by the European Communities (Natural Habitats) Regulations, 1997. There are three SACs within 15km of the Cloncreen Bog site. See Table 10 below.

Special Protection Areas

Special Protection Areas were initially designated under Directive 79/409/EEC, The Directive on the Conservation of Wild Birds ('The Birds Directive'), and are now protected as Natura 2000 Sites under the EU 'Habitats Directive'. There are no SPAs within 15km of the Cloncreen Bog site.

4.1.7.2 Sites of National Importance

Sites of National Importance in the Republic of Ireland are termed, Natural Heritage Areas (NHA) and proposed Natural Heritage Areas (pNHA). While the Wildlife (Amendment) Act 2000 has been passed into law, pNHAs will not have legal protection until the consultative process with landowners has

been completed; this process is currently ongoing. Three NHA sites and four pNHA sites are situated within 15 km of the Cloncreen Bog site boundary. Two of the four pNHA sites are co-located with a similarly named SAC site. See Table 10 below. The qualifying interests of these designated sites can be viewed in Appendix 1.

Table 10: Designated sites within 15km of Cloncreen Bog site

Site Name	Site Code	Proximity to the study at its closest point
Grand Canal pNHA	002104	Approximately 3.45km to the north
The Long Derries, Edenderry SAC and pNHA	000925	Approximately 4.9km to the northeast
Black Castle Bog NHA	000570	Approximately 6.3km to the north
Daingean Bog NHA	002033	Approximately 10km to the west
Carbury Bog NHA	001388	Approximately 10.90km to the northeast
Raheen Lough pNHA	000917[15]	Approximately 11.55km to the southwest
River Barrow and River Nore SAC	002162	Approximately 12.5km to the south
Raheenmore Bog SAC and pNHA	000582	Approximately 12.5km to the northwest

Summary of designated sites

The conservation objectives for the nearby designated sites include peatlands, bird species', including wildfowl and waders, aquatic and semi aquatic habitats and species. Bat species are not included in the conservation objectives of any of the designated site listed in Table 10 above.

4.2 RESULTS OF FIELD SURVEYS

4.2.1 Activity surveys (Transects)

Walked and driven bat transects were carried out at the study area. Bat transects conducted at the site can be viewed in Figure 1 above, Section 3.2. Bat transects were carried out in three phases. Phase one was conducted on the night of the 24th of June 2015. Phase 2 was carried out on the 19th of August 2015. And phase 3 was carried out on the 10th of September, 2015. Due to low temperatures during late night/early morning, no bat transect surveys, were carried out pre dawn. Summary results of the bat transects carried out at the study area are shown in table 11 below.

[15] A Review of Natural Heritage Area Protection in Ireland (An Taisce)

Table 11: Cloncreen bat activity survey results

Cloncreen Bat Transect Survey							
Date	Time	Temp	Rain	Cloud	wind	Bat activity (passes)	Other comments
Phase 1							
24/06/2015	1.48 - 2.40	12°C	No	5/8	No/calm	Commom pipistrelle: 11 Soprano pipistrelle: 2 Leisler's bat: 7 Natteres bat: 1	Some moth activity. Bright night.
Phase 2							
19/08/2015	12.41 - 2.29	13°C - 15°C	No	2/8	No/Calm	Soprano pipistrelle: 12 Common pipistrelle: 5	Good moth activity. Dark night
Phase 3							
10/09/2015	21.45 - 23.45	14°C	No	4/8	Slight E/SE breeze (<F1)	Soprano pipistrelle: 13 Commom pipistrelle: 4	Good moth activity noted

In total 8 transects were carried out, with a combined length of approximately 11.40km. Transects followed Bord na Móna access tracks, railway tracks, open cutover bog, and public road. The surveys were designed to include the spread of habitats throughout the site, with open cutover bog being by far, the dominant habitat type at the Cloncreen Bog site. Habitats surveyed included cutover bog, drainage ditches, and vegetated linear strips between open cutover bog, scrub, conifer plantation, treeline/hedgerow, and woodland edges. Each survey phase had similar results. Phase 1, had a total of 21 bat passes. Phases 2 had 3 both had a total of 17 bat passes. Species recorded throughout the overall survey period included, Soprano pipistrelle (total bat passes: n=27) (49%), Common pipistrelle (total bat passes: n=20) (36%), Leisler' bat (total bat passes: n=7) (13%), and Natterers bat (n=1) (2%).

During phase 1 transects, there were single passes of commuting bats, for the most part along the broken linear vegetated strips adjacent to the railway tracks towards the centre of the site (see Appendix 4 Figure 4-1).

During transects carried out in August, 2015 (Phase 2), bat activity was confined to foraging and commuting pipistrelle species. For the most part, the bat activity was recorded along the well developed hedgerow adjacent to the local public road, outside of the site, to the northwest of the Cloncreen Bog (see Appendix 4 Figure 4-2).

During phase 3 transects, bat activity was again mostly confined to the north western part of the study area, with bat species, mainly commuting and foraging, along the well developed roadside hedgerows. A single bat pass of Soprano pipistrelle was made towards the northern part of the Cloncreen Bog, commuting over willow scrub, in-front of woodland, with open cutover bog extending to the south (see Appendix 4, Figure 4-3).

Figure 2, below shows the breakdown of the percentage of bat activity recorded during bat transects at the Cloncreen study area.

Figure 3, below shows the percentage breakdown of bat activity over the main habitats at the Cloncreen study area during bat activity surveys.

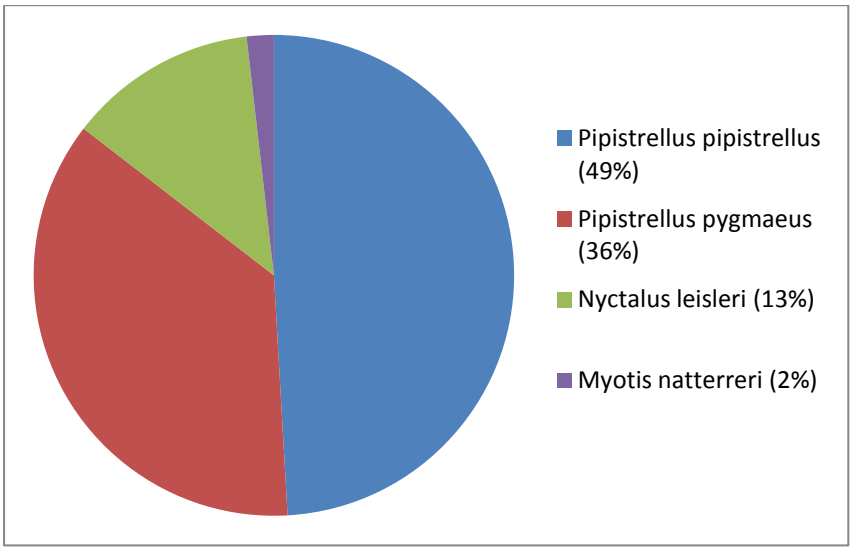


Figure 2: Percentage of bat activity (by species), recorded during activity surveys at study area

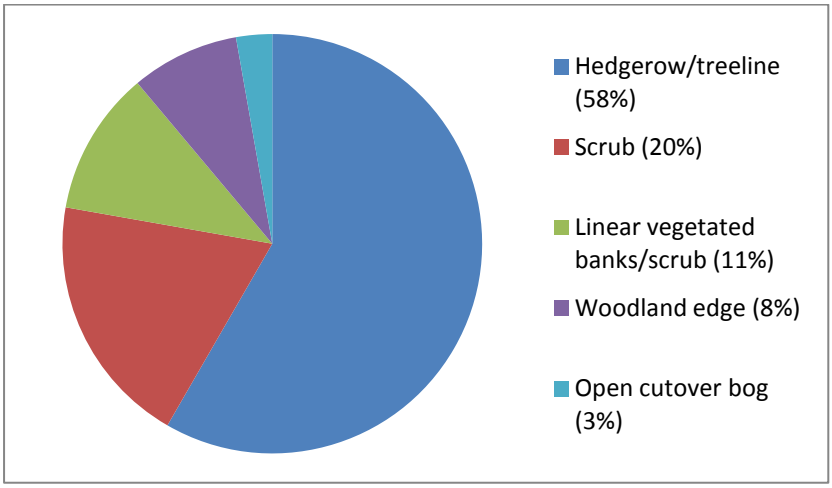


Figure 3: Habitat usage of bat activity, recorded during bat activity surveys at study area

4.2.2 Passive bat survey (Unmanned automated bat survey)

An unmanned automated bat survey was completed at three locations. Site 1 was completed in July, 2015, with sites 2 and 3 completed in early September, 2015. The following tables (Table 12, Table 13 and Table14), summarises the results of these surveys, they include the locations where the SMZC bat detectors were placed, and the durations of the deployment at each location. Figure 1, Section 3.2.7 above, shows the locations of surveys. Bat activity data during passive bat surveys can be viewed in Appendix 3, Table 3-1.

Table 12: Passive bat survey at Site No.1

Cloncreen Bog Passive Bat Survey (Site 1)				
SMZC Grid Ref.	**Dates surveyed**	**Habitats**	**Summary of results (Bat passes)**	
N59055, 24997	21st of July 2015 - 26th of July 2015	Cutover bog, willow dominated scrub. Woodland to the east towards the location of the ash repository. Grassland extending to the south.	Soprano pipistrelle	16
			Common pipistrelle	37
			Pipistrelle species	2
			Leisler's bat	16
			Natteres bat	5
			MYsp	9
Total bat passes				**87**

Bat acoustic survey session dates and weather				
21/07/2015	22/07/2015	23/07/2015	24/07/2015	25/07/2015
12°C	11°C	12°C	8°C	10°C

The approximate time of sunset over the survey nights was 21.40 and sunrise was approximately 05.30 hrs. The weather during the survey period was broadly typical for the location[16] and did not pose a significant constraint to the survey. Warm, calm weather is good for flying invertebrates, and therefore good for bats foraging. No significant rainfall/wind speed was recorded. Temperatures dropped to 8°C on the night of the 24th of July, however this temperature is still within optimal survey conditions for bats.

Table 13: Passive bat survey Site No.2

Cloncreen Bog Passive Bat Survey (Site 2)				
SMZC Grid Ref.	**Dates surveyed**	**Habitats**	**Summary of results (Bat passes)**	
N58345, 26585	2nd of Sept 2015 - 7th of Sept 2015	Linear strip of scrub on peat bank between cutover bog fields.	Soprano pipistrelle	44
			Common pipistrelle	33
			Leisler's bat	5
			Myotis sp.	2
			No ID	2
Total bat passes				**87**

Bat acoustic passive survey session conditions				
02/09/2015	03/09/2015	04/09/2015	05/09/2015	06/09/2015
7°C	9°C	10°C	9°C	8°C

The approximate time of sunset over the survey nights was 20.10hrs and sunrise for the location was approximately 06.45hrs. The historic low temperature for the general location of Daingean for the survey period is 9°C. On the night of the 4th/5th, some rainfall and wind speeds of approximately, Beaufort scale 5 were recorded in the greater area. For the remainder of the survey nights, no significant rainfall or wind speeds were recorded. Therefore, for the most part, the weather during the survey period was broadly typical for the location[17] and did not pose a significant constraint to survey.

[16] http://www.accuweather.com/en/ie/daingean/210701/july-weather/210701?monyr=7/1/2015&view=table
[17] http://www.accuweather.com/en/ie/daingean/210701/july-weather/210701?monyr=7/1/2015&view=table

Table 14: Passive bat survey Site No.3

Cloncreen Bog Passive Bat Survey (Site 3)				
SMZC Grid Ref.	**Dates surveyed**	**Habitats**	**Summary of results (Bat passes)**	
N58960, 27694	2nd of Sept 2015 - 7th of Sept 2015	Edge of willow dominated scrub, and cutover bog. Semi natural woodland further to north of scrub.	Soprano pipistrelle	12
			Common pipistrelle	242
			Leisler's bat	19
			Natteres bat	17
			MYsp	10
Total bat passes				**300**
Bat acoustic survey session dates and weather				
02/09/2015	03/09/2015	04/09/2015	05/09/2015	06/09/2015
7°C	9°C	10°C	9°C	8°C
The approximate time of sunset over the survey nights was 20.12 hrs and sunrise for the location was approximately 06.43 hrs. The historic low temperature for the general location of Daingean for the survey period is 9°C. On the night of the 4th/5th of some rainfall, and wind speeds of approximately Beaufort scale 5, were recorded in the greater area. For the remainder of the survey nights, no significant rainfall, or wind speeds were recorded. Therefore, for the most part the weather during the survey period was broadly typical for the location[18], and did not pose a significant constraint to survey.				

The SMZC bat detectors at the Cloncreen Bog site recorded the following species: Soprano pipistrelle, Common pipistrelle, and Leisler's bat, Natterer's bats, and Myotis species. Over the nights of passive monitoring survey, 3 grid reference locations were monitored. In relation to data collection at each of the sites, bat activity was recorded at all stations, and ranged from 83 and 86 bat passes at site 1 and site 2 respectively, to 300 bat passes at Site 3. Five nights of passive survey were carried out at each location, which resulted in a total of 469 bat passes. Common pipistrelle was the most common recorded species, with 312 passes (67%), followed by Soprano pipistrelle, with 71 bat passes (15%). Lesisler's bat had 39 bat passes (8.3%) and Natterer's bat had 22 passes (4.6%), while 21 passes were identified to Myotis species (4.3%).

The following figures (Figure 4 and Figure 5) include a summary graph, to further illustrate the results of the passive bat surveys and bat activity behaviour. The results are discussed without any visual observations during the night's surveys. These are extrapolated opinions, referring to likely behaviour, in relation to commuting/foraging bats.

[18] http://www.accuweather.com/en/ie/daingean/210701/july-weather/210701?monyr=7/1/2015&view=table

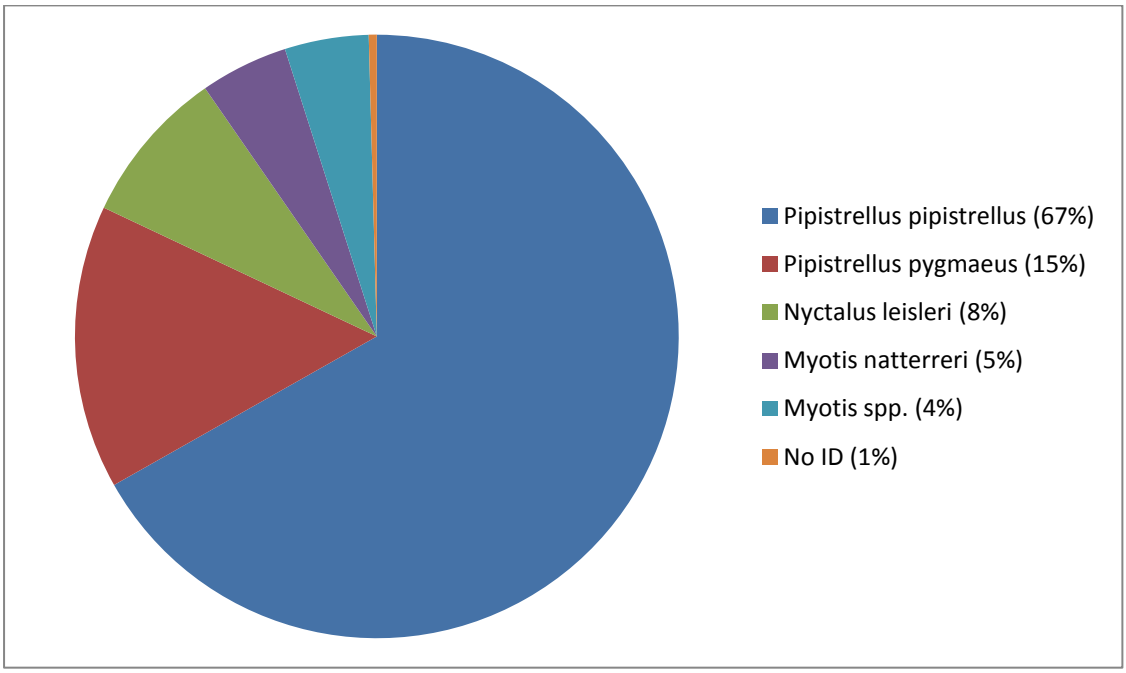


Figure 4: Species percentage of bat activity recorded at all monitoring sites during passive surveys at Cloncreen Bog site

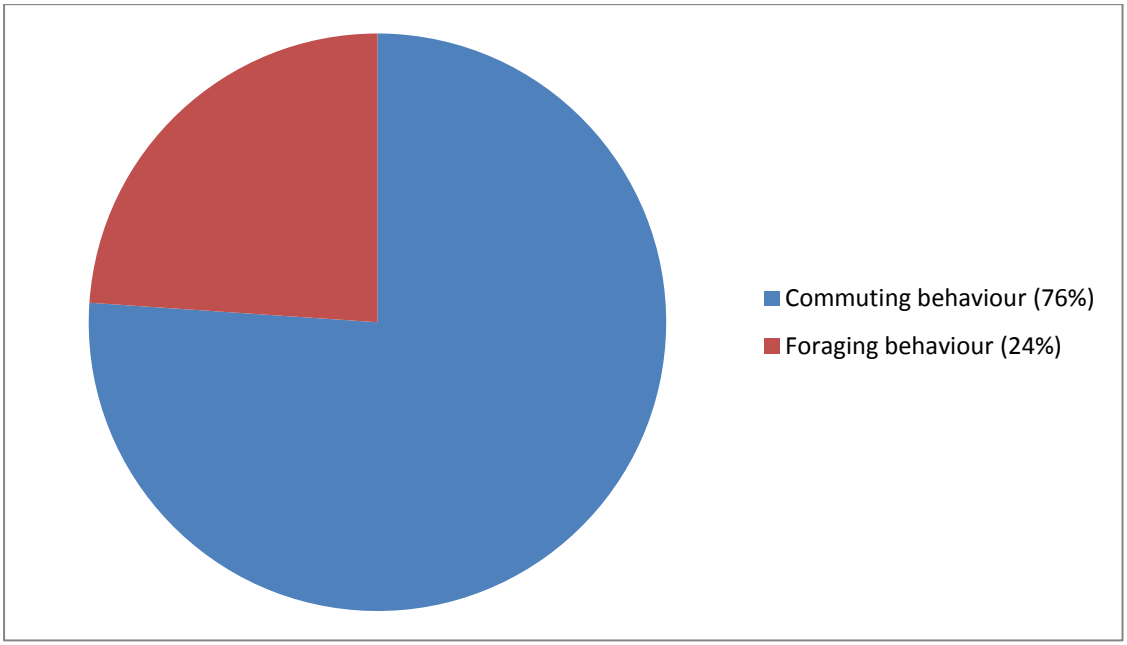


Figure 5: Percentage of bat behaviour recorded during passive bat surveys at the Cloncreen Bog site

Site 1

Site 1 is situated towards the southern end of the Cloncreen Bog site, approximately 1.4km to the southeast of the Cloncreen mat mast. The bat detector unit was deployed, just to the west of willow (*Salix* spp.) dominated scrub, with open cutover bog extending to the north. To the east, bare ground and sections of recolonising bare ground occurs in the Ash Repository, with sections of birch (*Betula* sp.), and conifer woodland. Hedgerow and broken stretches of treeline bound the access track allowing access to the ash repository/south eastern end of the bog site.

SMZC bat detector at Site 1, looking towards the location of deployment

During the survey period at site 1, sunset was approximately 21.40 hrs, while sunrise was approximately 05:30 hrs.

Bat activity was recorded during all of the five nights of survey. Overall bat activity was relatively low during the five nights of survey at Site 1, with a total of 87 bat passes recorded. For the most part bat activity began a little over one hour after sunset (commuting bats), with some scattered clusters of calls (foraging and commuting bats), throughout the middle of the survey nights. The latest bat pass recorded at this site was at 04.55 hrs on the 23rd of July, 2015. This was a single pass of a commuting Leisler's bat. For the remaining survey nights, bat activity ceased approximately one hour prior to sunrise (see Appendix 3, Table 3-1 for bat activity data during passive bat surveys at the site). Species recorded included Common pipistrelle (n=37), Soprano pipistrelle (n=16), Leislers' bat (n=5), Natterers bat (n=4) and Myotis species (n=10).

Site 2

Site 2 is situated towards the centre of the Cloncreen Bog, approximately 50m to the north of the Cloncreen Met Mast, just to the south of the Bord na Móna railway line. The bat detector unit was deployed, just to the east, of an end point of a linear vegetated strip, best described as recolonising bare ground, going on to scrub. This location would be sometimes used by machinery to commute, from east to west through the centre of the site. The vegetated strip separates open cutover bog fields. Dominant species included grey willow (*Salix cinerea*), birch saplings (*Betula* sp.), bramble (*Rubus fruticosus*), purple Moor-grass (*Molinia caerulea*), willow herb (*Epilobium* spp.), and horsetail (*Equisetum* sp.).

SMZC bat detector at Site 2, looking northeast.	SMZC bat detector at Site 2, looking west

During the survey period sunset was approximately 20:10 hrs, while sunrise was approximately 06:45 hrs.

Overall bat activity was relatively low during the five nights of survey at Site 2, with a total of 83 bat passes recorded. Bat activity was recorded during all of the five nights of survey. Only one bat pass was recorded on the night of the 4th/5th of September, 2015. This is likely due to poor weather conditions on this particular night, and Site 2 is situated in an open area, prone to the elements. For the most part, bat activity began approximately one hour after sunset, with little, to no bat activity between 00.00 hrs and 05.00 hours for nights 1, 2, and 4. For night 5 bat activity began at 20.48 hrs and continued through the night, with the last bat pass recorded at 06.20hrs (see Appendix 3, Table 3-1, for bat activity data during passive bat surveys at the site). Species recorded included Common pipistrelle (n=33), Soprano pipistrelle (n=44), Leislers' bat (n=5), a species of Myotis (n=2), and 2 bat passes which were not identified.

Site 3

Site 3 is situated towards the north centre part of the Cloncreen Bog site, approximately 1km to the northeast of the Bord na Mona Tea House. The bat detector unit was deployed, just in-front (to the south of) a linear strip of willow dominated scrub, with cut over bog extending to the south. The scrub is beginning to form semi natural woodland further to the north. Dominant species included grey willow, juvenile birch, Soft rush (*Juncus effuses*) and purple Moor-grass.

SMZC bat detector at Site 3, looking northwest.	SMZC bat detector at Site 3, looking west

The passive monitoring at Site 3 was carried out during the same time as Site 2. During the survey period sunset was approximately 20:12 hrs, while sunrise was approximately 06:43 hrs.

Bat activity was recorded during all of the five nights of survey, with a total of 300 bat passes recorded. During any of the survey nights, there was no bat activity until approximately 30 minutes after sunset. Where bat activity occurred late night night/early morning, it ceased approximately half an hour before sunrise. Night 2, and night 5 had the most bat activity, with 88 passes and 182 passes respectively. Again, night 3 had the least bat activity recorded, likely due to poor weather conditions (see Appendix 3, Table 3-1, for bat activity data during passive bat surveys at the site). Species recorded included Common pipistrelle (n=241), Soprano pipistrelle (n=13), Leislers' bat (n=19), Natterer's bat (n=17) and Myotis species (n=10).

Summary

The level of bat activity recorded is relatively low, particularly given that the survey effort was conducted nightly, from half an hour before sunset, to half an hour after sunrise, over five consecutive nights, during which time weather conditions were favourable far bat activity.

Overall, Common pipistrelle bats were the most active bat species during the passive bat surveys, becoming active, for the most part approximately one hour after sunset. They became more active as the nights progressed, with activity ceasing, approximately 1 hour before sunrise. Similar to Common pipistrelle, Soprano pipistrelle bats became active approximately one hour after sunset, but were less active through the night, with calls ceasing over one hour and fifteen minutes before sunrise. For the most part, where Leisler's bat activity occurred, it began early in the survey nights, with little, to no activity throughout the night, and became active again towards the end of the survey nights. Natterer's bats became active later during survey nights, showing more foraging behaviour, where they were recorded, with activity of this species ceasing a couple of hours before sunrise.

4.2.3 Automated Bat Surveys from Height

In total 55 nights of automated bat survey was carried out from the top of the Cloncreen Met Mast. Surveys were carried out between the 24th of June and the 18th of August, 2015.

Over the survey period, one bat pass was recorded. On the 2nd of July 2015, at 04.05.58 hrs, a single pass of a Leisler's bat was recorded.

The level of activity recorded was extremely low, particularly given that the survey effort was conducted nightly, over a sustained seven week plus period, during which weather conditions were suitable for commuting/foraging bats.

Microphone and cable attached to bird deterrent	Workers ascend the Cloncreen Met Mast with bat equipment
Microphone fixed to top of met mast	SM3 Bat Detector set up and secured

4.2.4 Roost surveys

As part of the 2015 bat surveys conducted at the Cloncreen Bog site, ecologists surveyed the land area within, and adjacent to the Cloncreen bog site.

Bat roost surveys were carried out at the Cloncreen Bog site, and adjacent lands on the following dates;

16th, 21st and 24th, of June 2015,
7th and 19th of August 2015,
2nd, 4th, 7th, 10th 17th of September 2015, a
16th of November 2015, and the
15th of December 2015

Buildings surveyed included, the Bord na Móna Tea House within the Cloncreen Bog site, the buildings associated with the Wildlife Sanctuary, located adjacent to the northeastern part of the site, the Bord na Móna Workshop/Factory at Ballycon, a dilapidated building in agricultural land, situated to the south of the Cloncreen Bog site, and a disused building, approximately 5.3km to northwest of the Cloncreen Bog site. The Bridges adjacent/in close proximity to the site, were also investigated throughout the survey period.

During site walkovers the wooded areas, and the individual trees at the site were investigated, checking for evidence of bats. The plantations/wooded areas include small sections of semi natural woodland, located towards the northern part of the site and planted areas towards the western and northwester end of the site. The following table (Table 15) summarises the bat roost surveys carried out at the study area.

Bat labelling of bat roosts/potential roosts, identified during previous baseline surveys at the site remain the same, with new bat sites labelled/named with the following asterisk; (A).

Table 15: Summary of surveys carried at potential bat roost sites (NPWS-BnM sensitive information)

Cloncreen Bog Potential Bat Roost Surveys									
BR Site	**Description**	**Distance from Cloncreen Bog site**	**GPS coordinates**	**Dates**	**Roost (Yes/No)**	**Species**	**Species recorded in general area**	**Active during previous surveys**	**Need for further investigation**
1	BnM Workshop/Factory	Approximately 2.8km to the west	N5 2	26/03/2015 07/08/2015 04/09/2015 15/12/2015	Yes	9 bats (Leisler's & Common pipistrelle)	Common pipistrelle Soprano pipistrelle *Myotis* sp.	Yes	**Yes** If any future development would result in potential impacts on this location. Then further assessment would have to be carried out at this site.
2(A)	BnM Tea Centre	Within site	N58224, 26887	16/06/2015 16/11/2015	No	N/A	Leislers bat Common pipistrelle Soprano pipistrelle	N/A	No
3	Single arch masonry bridge	Approximately 5.5km to the northwest	N5 ,3	22/06/2015 10/09/2015 15/12/2015	Yes	1unidentified bat (Likely Daubenton's bat)	Common pipistrelle Soprano pipistrelle Daubenton's bat	Yes	No
4(A)	Buildings associated with nature conservation area	Adjacent to north western end of the site	N58065, 27592	16/06/2015	No	N/A	Leislers bat Common pipistrelle Soprano pipistrelle	N/A	No
5(A)	Dilapidated	Approximately 1km to	N59877, 24273	16/06/2015	No	N/A	Common pipistrelle	N/A	No

Cloncreen Bog Potential Bat Roost Surveys									
BR Site	**Description**	**Distance from Cloncreen Bog site**	**GPS coordinates**	**Dates**	**Roost (Yes/No)**	**Species**	**Species recorded in general area**	**Active during previous surveys**	**Need for further investigation**
	house	the south		16/11/2015					
6(A)	Cloncreen Bridge. Triple arch masonry bridge	Approximately 1.3km to the southeast	N60511, 23992	21/06/2015 16/11/2015	No	N/A	Pipistrelle spp.	N/A	No
7(A)	Kilcumber Bridge Double arch stone bridge	Approximately 1.7km to the southeast	N61061, 26817	21/06/2015 16/11/2015	No	N/A	Pipistrelle spp.	N/A	No
10	Rhode Bridge. Single arch masonry bridge	Approximately 5.3km to the northwest	N53477, 31637	16/06/2015 17/09/2015 15/12/2015	No	N/A	Pipistrelle spp.	No	No
11(B)	Two mature trees	Approximately 280m to the east	N60829, 27723	15/12/2015	No	N/A	Pipistrelle spp. Lesiler's bat *Myotis* spp.	N/A	No
13	Building	Approximately 5.3km to northwest	N5[redacted], 3[redacted]	21/06/2015 17/09/2015 15/12/2015	Yes	8 Common pipistrelle	Common pipistrelle	No	Yes (If any future development would result in potential impacts on this location. Then further assessment would have to be carried out at this site.
15	Double concrete culvert	Approximately 1.2km to the east	N61776, 27899	15/12/2015	No	N/A	N/A	No	No

4.2.4.1 Structures

The Ballycon Workshop/Factory (BR1) is situated approximately 2.8km to the west of the Cloncreen Bog site. On the 4th of September 2015, prior to emergence surveys, bat droppings were observed at the top of the western wall of this factory (see Table 5-1, and Table 5-2 Appendix 5). During bat emergence surveys carried out at this location, nine bats were observed emerging from a void space underneath the sloped corrugated roof, and the top of the northern wall. During this survey, no bats were observed emerging from the other buildings within the site.

Within the Cloncreen Bog site, potential roost habitat available for bat species includes the Bord na Móna Tea House (BR2 (A)) towards the north central part of the site, approximately 500m to the north of the existing met mast. This site was investigated during the summer and winter survey periods (on the 16th of June 2015 and 16th of November 2016) (daytime visual surveys). No evidence of bats was observed during either of these surveys. During bat activity surveys at this location, no bat activity was observed at this location, nor was there bats observed emerging from this structure See Table 5-3, Appendix 5 for summary of survey and photographs of this site.

An old disused stone wall building (BR13) is situated approximately 5.3km to the northwest of the Cloncreen bog site. This is a two storey building and is somewhat dilapidated. The A roof is finished with slate, but some slates are missing from areas, and many voids/slates lifting in the existing roof. Some of the windows and doors have fallen away, with some having been boarded up for security. A great deal of the pointing in the stone work has deteriorated, and voids/crevices occur in the stonework. For health and safety reasons, and access issues to the site, the interior of the building was not investigated. During a bat emergence survey at this location, on the 21st of June 2015, eight Common pipistrelle bats were observed emerging from this structure. When this site was revisited on the 17th of September 2015, five Common pipistrelle bats were observed emerging from this building. On both occasions the bats were observed emerging from an upstairs window located on the eastern gable. During surveys at this location, bats were observed foraging and commuting along the good quality hedgerows that bound the adjacent grassland fields to the south, and the bounding R400 public road to the east of the building. Some mature treeline bounds the adjacent road, and the Grand Canal, situated approximately 40m to the north of the building. No bats were observed emerging from the adjacent Rhode Bridge (BR Site No.10), nor was there evidence of bats during daytime visual searches at this bridge. See Table 5-12, Appendix 5 for summary of survey, and photographs of this site.

A single masonry arch bridge (BR3) (spanning the Grand Canal) occurs approximately 1km downstream of Rhode Bridge (BR 10.). This site is approximately 5.5km to the northwest of the Cloncreen Bog. On the 10th of September, 2015, during the visual search of this structure, prior to the emergence survey, a single bat was observed in a crevice in the stone work, underneath the arch, on the southern side of the Grand Canal. The bat could be observed without the use of an endoscope. The endoscope was not used, as this potentially could have disturbed the bat. The bat could be seen moving within the void space (see Table 5-4, for summary of survey, and photographs of this site). During the emergence survey the bat did not exit the void space, and no other bats were observed emerging from the remaining voids/crevices at this bridge. Bat activity noted in the

general area during the emergence survey at this location included a single pass of a Daubenton's bat, Common pipistrelle, and Soprano pipistrelle. On the 16th of September, 2015, this site was revisited, with the bat still present. During winter roost surveys carried out in November, and December 2015, the bat was not present, or there was no evidence that bats were using the other crevices/void spaces at this structure.

During winter and summer (2014/15) bat roost surveys, there was no evidence that bats were using the remaining bridges adjacent/in close proximity to the site (see Table 15 above).

4.2.4.2 Potential Bat Roosts in Trees

Mature trees offer bat roost sites/resting places for different bat species. This varies between different bat species. Mature trees can provide roosting sites for Leisler's bats all year round. Other species that use trees, mostly during the summer months, include brown long-eared bat, Daubenton's bat, Natterer's bat, and pipistrelle species[19].

Within the Cloncreen bog site, mature trees are not present in large numbers, and where they do occur, they do not provide optimal habitat for roosting bats. One such location is just to the west of the Tea Centre, adjacent to the access area into the bog site (GPS: N58219, 26895). Six lodgepole pine trees (*Pinus contorta*) occur at this location. During surveys it was noted that there was no/little ivy (*Hedera hibernica*) growth present. Some holes occur, where limbs have broken away, however these holes are very open, making them unsuitable as roost sites. Also during surveys, it was noted that the location where these trees occur, is very open, which would make them susceptible to poor weather conditions.

During roost surveys adjacent to the site, it was noted that the number of mature trees potentially available to roosting bats was very limited. The woodland occurring within/adjacent to the site is not mature enough to provide optimum habitat for roosting bats (young trees, with no holes/crevices/peeling away bark). Some mature oak, ash, sycamore trees line the Local Road (L1003 running northwest/southeast), to the west of the site. Trees were investigated along this stretch of road. While some trees had some level of cover of ivy, no evidence of bats was observed. A treeline (GPS: N56585, 26105) running opposite to the local road (L1003), to the west of the site, into the Cloncreen Bog site was surveyed on the 16th of November 2015. Again no evidence of bats was observed. Broken stretches of treeline and some individual trees, line the local road (L5006) to the north east of the Cloncreen Bog site. During surveys at along this stretch of local road, on the 5th of December 2015, a light cover of ivy was noted on some of the trees; however the trees present were not very mature, and had no evidence of bats. A hazel (*Corylus avellana*)-alder (A*lnus glutinos*a)-birch treeline, line a sitka spruce (*Picea sitchensis*) plantation located adjacent to the northeastern boundary of the Cloncreen Bog site. Towards the eastern end of this treeline (GPS point: N60829, 27723), two of the more mature trees could potentially harbour bats (BR11A), with holes and cracks present on the trunk and limbs. A daytime visual survey was carried out on these trees on the 15th of December 2015. This survey, which included investigating the void spaces with an endoscope, did not find any evidence of bats using these trees. See Table 5-11 for summary of survey, and photographs of this site.

[19] http://www.batconservationireland.org/wp-content/uploads/2013/09/BCI_Guidelines_waterways.pdf

Bat roost survey locations, associated with the Cloncreen Bog study area can be viewed in Figure 6 below. Description of bat roost surveys carried out at each site can be viewed in Appendix 5.

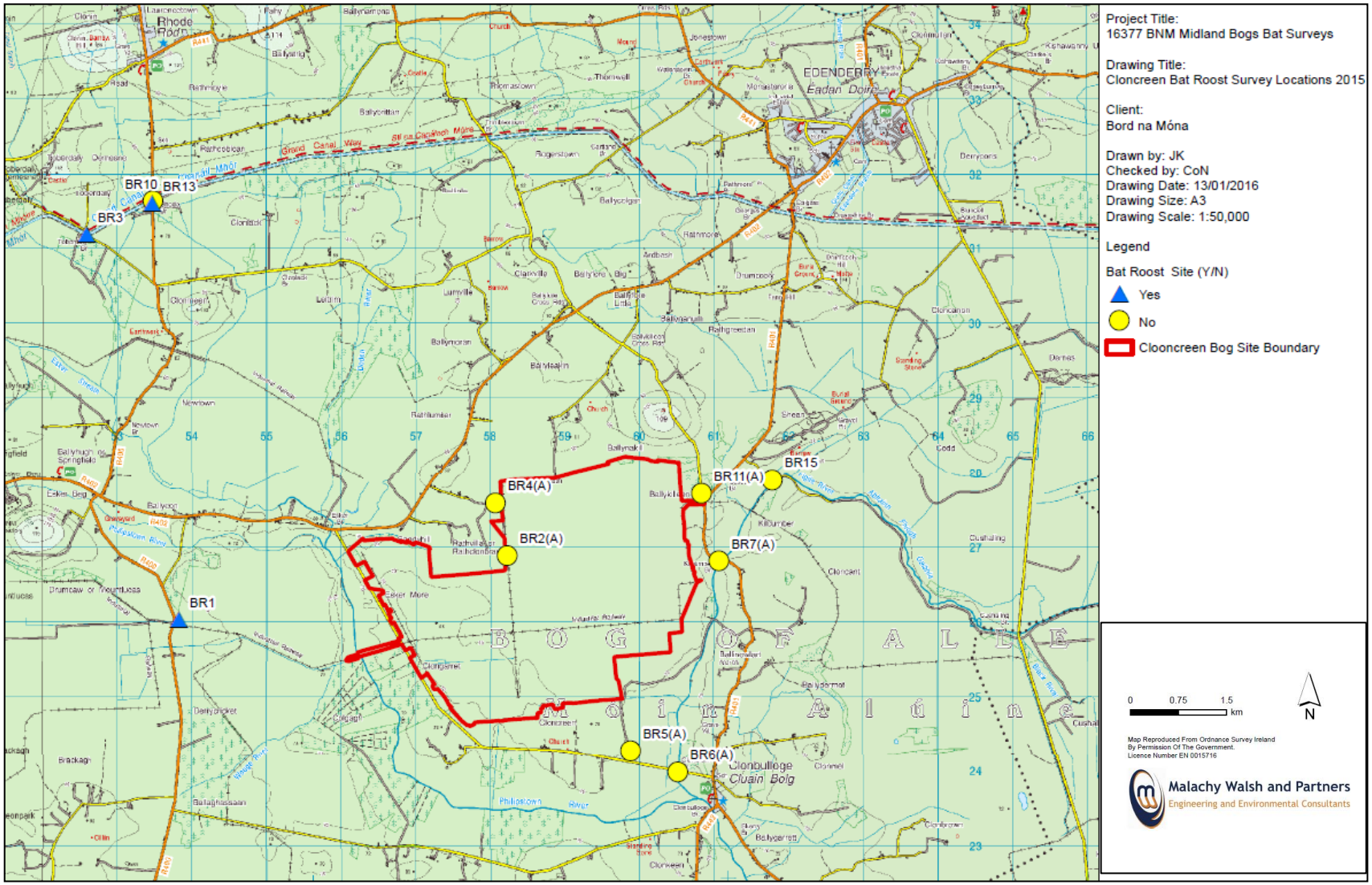


Figure 6: Bat roosts survey locations

4.2.5 Other Species

While carrying out bat surveys at the study area other species of note were recorded. The following table (Table 16) lists, and describes other species observations encountered during bat surveys at the study area;

Table 16: Other species observed during bat surveys at the study area

Other species				
Common name	**Scientific name**	**Date**	**Location**	**Comments**
Bird				
Whooper swan	*Cygnus cygnus*	16/11/2015	N57670, 24807	Adult and juvenile birds foraging and loafing in standing water towards the western end of the bog.
Cormorant	*Phalacrocorax carbo*	2/09/2015	N58111, 27774	Adult bird commuting west to east over northeastern part of site. Landed in pond in Nature Area adjacent to the site. (<10m 40S) (10m-20m 20S)
Mammal				
Pine martin	*Martes martes*	21/07/2015	N58559, 26833	Droppings on bare ground between pond at gravel borrow pit and willow scrub.
		15/12/2015	N52590, 31196	Dropping underneath single arch bridge (BR Site No.3).
Red squirell	*(Sciurus vulgaris)*	19/08/2015	N58192, 22741	An adult observed on road verge and entered woodland. Approximately 2km to the south of the Cloncreen site.
Fish				
Roach	*Rutilus rutilus*	10/09/2015	N52588, 31184	Observed rising in Grand Canal during bat roost survey at Bat Roost Site No.3
Perch	*Perca fluvialtilis*	10/09/2015	N52588, 31184	Observed rising in Grand Canal during bat roost survey at Bat Roost Site No.3
Moth				
Large Emerald	*Geometra papilionaria*	21/07/2015	N56288, 26968	Observed during bat transects towards north western end of bog site (Transect T2)

4.2.6 Discussion

Baseline bat surveys were carried out at the study area to identify the level of bat activity using the Cloncreen Bog site, and how the bat species encountered are using the habitat types present at the study area. The dominant habitat by far, is open cutover bog. Linear strips of vegetation and drainage ditches often separate the bog fields. The vegetated, scrubby fringes of the site are sometimes forming semi-natural wooded areas. Some planted wooded areas, also occur at the perimeter of the site, with hedgerow and treeline bounding the grassland fields, and the public roads outside the site.

Bat transects described in Section 4.2.1 above, were carried out at the site to give a snapshot of the level of bat activity along chosen routes at a particular time, with the survey phases (3 phases)

spread throughout the optimal survey period, and survey nights. The automated monitoring (outlined in Section 4.2.2 and Section 4.2.3 above), allowed for surveys to be carried out over extended periods of time, and results gave a more complete level of bat usage at three locations at ground level, as well as the level of bat activity over the site, at the Cloncreen Met Mast. The combination of these survey methods provides a more detailed picture of the level of bat usage at the site.

The species recorded during bat surveys in 2015 at the Cloncreen Bog site included Common pipistrelle, Soprano pipistrelle, Leisler's bat, Natterers bats and Myotis species. Previous surveys at the Cloncreen Bog site identified Common pipistrelle, Myotis species (whiskered/Brandt's bat) and Leisler's bat (Inis, 2013). During bat emergence surveys, a single pass of a Daubenton's bat was recorded.

The results of the passive monitoring system yielded the highest amount of bat passes, due to the greater survey effort using this system. The passive survey at Site No.3, by far had the most bat activity, with a total of 300 bat passes, over the five nights of survey. The birch and willow scrub to the north of this location provides good commuting and foraging habitat for bat species. It must be noted that while 300 bat passes were recorded, many of the passes occurred within a very short time frame, which would suggest that a good number of the bat passes were from an individual bat, or a small number of bats. The passive monitoring survey at Site No. 1, and Site No. 2 had similar results, with 87 bat passes at both locations throughout the survey periods. Again these units were deployed in vegetated areas, with Site No. 2 more centrally located within the bog site, with open cutover bog extending to the north and to the south of the linear vegetated bank. Prior to the survey at Site No. 1, located towards the southern end of the site, one would expect a higher level of bat activity, with good foraging and commuting habitat at this location. The weather during time of survey was also within the optimal conditions for bats. However, the results show that the bat usage at this location was relatively low during time of survey. The pattern of the bat passes throughout each of the passive monitoring survey nights gives a better understanding of the bat movements through the site, at each of the passive monitoring locations. Single bat passes were more frequently recorded towards the beginning and end of each of the night's surveys, indicating commuting bats. For the most part, bat activity began approximately one hour after sunset, and ceased approximately one hour before sunrise. On a number of occasions there were periods of high levels of bat activity, recorded within a short time frame. This activity and sonogram analysis would indicate foraging bat activity at these locations. During the passive monitoring bat survey, this activity predominantly occurred at site No.3, mainly on night two and night five, with the level of this activity decreasing towards the central (Site No.2), and southern parts of the site (Site No.1). Results of the passive bat survey show, that during time of survey, all three locations were used by foraging and commuting bats, with a higher level of foraging bat activity at Site No.3, towards the northern end of the Cloncreen Bog site.

Leisler's bat is classified as a high risk species in relation to wind turbines, as it is a high flying bat (Carlin and Mitchell-Jones 2009). Leisler's bat travels considerable distances between roosts and foraging areas. Distances of up to 13.4km have been recorded in Ireland (Shiel et al. 1999). This species is also known for fast flying speeds (Dietz et al. 2007). Therefore, the species is less manoeuvrable as a result. Throughout the 55 nights of automated surveys from height, from the top of the met mast, one bat pass of a Leisler's bat was recorded. This would indicate that during the

survey period, there was a minimal level of bat activity, over the Cloncreen site, at the met mast. Passive bat surveys from ground level, which were carried out at the same time as the survey from height (Site No. 1, approximately 1.2km to the southeast of the mast), indicated that there was low level of bat activity at ground level at this location, during that survey period. Overall, Leisler's bat was the third most common species recorded during activity and passive bat surveys at the site. Single bat passes of this species were recorded during passive bat surveys, indicating commuting bats. During activity surveys, this species was observed foraging, in a scrub area, lining a railway track towards the centre of the site. Even though both baseline bat surveys at the site indicated low levels of Leisler's bat activity, including some foraging and commuting behaviour, any proposed development would have to consider any potential impacts on high flying bats.

During bat activity surveys the majority of the bat activity was towards the vegetated fringes of the site, with very little bat activity/to no bat activity, within the open cutover bogland. The majority of the activity encountered during transects at the study area, was outside the site boundary, to the northwest of the site. The well developed hedgerows and some broken treeline adjacent to the local country road (Transect No. 2), provides good foraging and commuting habitat for bat species. No bat activity was encountered along transect No.1, which leads out into open bogland to the west of Transect No.2. While some bat activity was recorded along the vegetated banks, which follow rail lines within the site and separate open cutover bog fields, these were limited to the infrequent single bat passes. Surprisingly, no bat activity was encountered at the pond towards the centre of the site, which has formed as a result of gravel extraction. The perimeter of the pond is surrounded by willow and birch scrub, and provides excellent foraging habitat for bats. Although not directly connected to any linear vegetated feature, peat mounds and vegetated linear banks in close proximity to this area would provide access routes for bats.

Overall bat activity was relatively low within the Cloncreen Bog site, during passive and activity surveys carried out in 2015. These results confirm previous baseline bat survey results at the site. The scrub, hedgerows and woodland edges towards the fringes of the bog site, moreover the hedgerows/treeline bounding the L1003 Local road, just to the northwest of the Cloncreen Bog site (outside the Cloncreen Bog site), exhibited a higher level of activity at times during the survey period, showing their significance for bat species. These habitats provide some good foraging and commuting habitats for bats, and are important for the populations of bats in the greater area. Some low level bat activity was recorded within the vegetated linear strips/banks that occur within the bog site. These vegetated liner strips that traverse through the site, sometimes with adjacent drainage ditches, often begin towards the more vegetated margins/fringes of the site, allowing bats to take advantage, and commute and forage through the site, albeit in low numbers. It must be noted that these linear vegetated banks that traverse through the site, separating open cutover bogland, would be subjected more to the elements, in turn, reducing the quality of the habitat for bats.

Consultations with BCI identified seven bat roost sites within 10km of the Cloncreen Bog site. The closest of these to the Cloncreen Bog site is located at Edenderry, approximately 5.5km to the northwest. Previous bat roost surveys at the site identified one significant roost for Soprano pipistrelle, near Clonsast bog. This roost is located within a private dwelling, less than 500 metres outside Bord na Móna lands at Clonsast Bog, which is situated approximately 2.5km to the southwest of the southern end of the Cloncreen Bog.

There is very little potential for bats to roost within the Cloncreen bog site. The Bord na Mona Tea Centre, within the site would provide optimal temperatures to harbour bats, however the building is well sealed, and no evidence of bats was observed during visual daytime searches at this location. Communications with Bord na Móna personnel, that work at the Cloncreen Bog site, did not highlight any bat activity at this location. During activity surveys at this location, no bats were observed entering, or exiting the structure. During roost surveys at the bridges that are situated immediately adjacent of the Cloncreen Bog site, there was no evidence that bat species were using these structures during the survey period, with one bat observed using a bridge further to the northeast of the site.

Table 2 Section 2.4.3 above, shows the level of significance that may be given to bat roosts that may occur at any particular site. Previous baseline surveys, and the results of surveys included in this report, highlight the potential for buildings in the general area of Cloncreen Bog site, including commercial and private dwellings/farmhouses, to provide roost sites for bats. The bat roost at the Ballycon Factory (BR1) (9 bats during emergence survey), and the disused building (BR13) (8 bats during emergence survey), over 5km to the northwest of the Cloncreen Bog, were active during the summer months, and are potentially maternity roost sites. Bat roost Site No.3, is likely a temporary/commuting roost that is used periodically by a Daubentons bat. The conclusions of both baseline bat surveys and consultations carried out with BCI/NPWS highlight that any proposed development would have to consider any potential impact to buildings, and bridges in the proximity of the study area.

4.3 CONCLUSION

- The following species were identified during secondary baseline bat surveys carried out at the Cloncreen Bog Site; Common pipistrelle, Soprano pipistrelle, Leisler's bat, Natterers bats, Daubenton's bat and Myotis species.
- Baseline bat surveys did not identify any large populations of bats using the Cloncreen Bog site.
- Overall the level of bat activity at the Cloncreen Bog site was low, with the majority of the bat activity occurring towards the vegetated fringes of the site.
- Automated bat surveys from height did not identify a high level of bat activity over the site at the Cloncreen Met Mast.
- The vegetated linear banks that cut through the bog site are used by foraging and commuting bats, albeit in low numbers.
- Bat activity decreased in the open cutover bogland habitat at the site. This altered habitat is by far the dominant habitat type at the study area.
- Within the Cloncreen bog site, there is little potential for roosting bats.
- The trees within the wooded areas that bound the Cloncreen Bog do not provide optimal conditions, to harbour bats.
- Previous bat roost surveys, and roost surveys carried out as part of this report, identified three bat roost sites in buildings, and one bat roost located in a bridge within 5km of the Cloncreen Bog site.
- No bat roosts were identified within the Cloncreen Bog site.

5 REFERENCES

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Appendix 1

Consultations with BCI

Consultation letter (Data Request)

Bat Conservation Ireland Ltd., Ulex House, Drumheel,
Lisduff, Virginia, County Cavan

www.batconservationireland.org info@batconservationireland.org

Bat Conservation Ireland Data Sharing Agreement

Name and address of 3rd party Company/Organisation:

Malachy Walsh and Partners, Reen Point, Blennerville, Tralee, County Kerry.

What they intend to use the data for:

To inform on a proposed windfarm (Cloncreen Windfarm in County Offaly.

Data requested (please list Irish Grid References or Counties/Landscape area):

Location of project; The site is located approximately 7.5 km to the south/southwest of Edenderry and approximately 12km to the east of Daingean in County Offaly. [ITM co-ordinates; X, 659006E, Y, 726534N] [ING co-ordinates; N59068, 26506, (ING full co-ordinates; 259068, 226506)].

A 10km radius search of the co-ordinates above.

The site is situated within OSI 10km grid squares N52 and N62.

Contact name and telephone details:

Caoimhin O'Neill (Tel No. 066-71-23404) (Mobile No. 087-0523312).

This person will take responsibility for

- The appropriate use of data for the stated duration of the project.
- The **return of the bat data collated** on completion of the project for BCIreland database.
- A declaration that such data covered by the agreement is removed from all databases directly or indirectly relating to the project.

The data covered by the Bat Conservation Ireland Data Sharing Agreement will be removed from all databases directly or indirectly related to the project on completion of the project.

Print: Caoimhin O'Neill

Sign:

Date: 21/10/2015

Correspondences with BCI (Data Request)

Morning,
I will get this processed for you asap.
THanks
Tina .

Bat Conservation Ireland Ltd.
Company Registration No. 494343

Ulex House, Drumheel,
Lisduff, Virginia, Co. Cavan

www.batconservationireland.org
info@batconservationireland.org
00353 (0) 86 4049468

Subject: Data request

Hi Tina,

We are doing the second year of baseline bat surveys for Bord na Mona's Ballydermot - Derrygreenagh Bogs. I am contacting you in order to request any records/bat roosts Bat Conservation Ireland may have for the area surrounding (10km radius) one particular site (Cloncreen bog).

Attached, please find the signed data request form.

Billing:
Can you invoice for the fees as follows:
under project number 16377

Our Office Administrator will raise Purchase Orders at this end so that payment can be made.

Our billing address :
Malachy Walsh and Partners, of Reen Point, Blennerville, Tralee, County Kerry.

Best regards,
Caoimhin O'Neill
Ecologist

Appendix 2

Qualifying Interests of nearby designated sites

Site Name (Site Code)	Qualifying Interests	Proximity to the study at its closest point
Grand Canal pNHA (002104)	• Bog/ calcareous grassland/ reed/ • scrub/woodland/diversity of spps • Hedgerow/ calcareous grassland/ • reed fringe/ open water/ • scrub/woodland	Approximately 3.45km to the north
The Long Derries, Edenderry SAC and pNHA (000925)	• Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210]	Approximately 4.9km to the northeast
Black Castle Bog NHA (000570)	• Peatlands [4]	Approximately 6.3km to the north
Daingean Bog NHA (002033)	• Peatlands [4]	Approximately 10km to the west
Carbury Bog NHA (001388)	• Peatlands [4]	Approximately 10.90km to the northeast
Raheen Lough pNHA (000917)[20]	• Lake/ wildfowl/ • waders/typical marshland • veg/scrub/ woodland/ • Warblers/ birds	Approximately 11.55km to the southwest
River Barrow and River Nore SAC (002162)	• Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • *Salicornia* and other annuals colonising mud and sand [1310] • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] • Mediterranean salt meadows (*Juncetalia maritimi*) [1410] • Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] • European dry heaths [4030] • Hydrophilous tall herb fringe communities of plains and of	Approximately 12.5km to the south

[20] A Review of Natural Heritage Area Protection in Ireland (An Taisce)

Site Name (Site Code)	Qualifying Interests	Proximity to the study at its closest point
	the montane to alpine levels [6430] • Petrifying springs with tufa formation (*Cratoneurion*) [7220] • Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] • Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (A*lno-Padion, Alnion incanae, Salicion albae*) [91E0] • *Vertigo moulinsiana* (Desmoulin's Whorl Snail) [1016] • *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] • *Austropotamobius pallipes* (White-clawed Crayfish) [1092] • *Petromyzon marinus* (Sea Lamprey) [1095] • *Lampetra planeri* (Brook Lamprey) [1096] • *Lampetra fluviatilis* (River Lamprey) [1099] • *Alosa fallax fallax* (Twaite Shad) [1103] • *Salmo salar* (Salmon) [1106] • *Lutra lutra (*Otter) [1355] • *Trichomanes speciosum* (Killarney Fern) [1421] • *Margaritifera durrovensis* (Nore Pearl Mussel) [1990]	
Raheenmore Bog SAC and pNHA (000582)	• Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the *Rhynchosporion* [7150]	Approximately 12.5km to the northwest

Appendix 3

Bat activity data during passive bat surveys

Table 3-1: Bat activity during passive bat survey

Site 1		
Date	Time	Bat activity
Night 1		
21/07/2015	22.47.38	NYLE
21/07/2015	22.53.34	PIPI
21/07/2015	22.53.45	PIPI
21/07/2015	23.21.46	PIPI
21/07/2015	23.26.55	MYsp
21/07/2015	23.27.03	MYsp
21/07/2015	23.27.24	PIPI
21/07/2015	23.43.10	PIPY
21/07/2015	23.49.34	MYNA
22/07/2015	00.13.37	PIPI
22/07/2015	03.41.57	PIPY
Night 2		
22/07/2015	22.44.27	NYLE
22/07/2015	22.54.27	PIPI
22/07/2015	23.16.56	PIPI
23/07/2015	02.20.53	MYNA
23/07/2015	03.16.16	NYLE
23/07/2015	04.22.34	PIPY
23/07/2015	04.22.49	PIPY
23/07/2015	04.55.41	NYLE
Night 3		
23/07/2015	22.39.36	PIPI
23/07/2015	22.44.06	NYLE
23/07/2015	22.44.21	NYLE
23/07/2015	22.45.24	PIPI
23/07/2015	22.46.42	NYLE
23/07/2015	22.57.57	PIPI
23/07/2015	22.59.30	NYLE
23/07/2015	23.02.45	PIPI
23/07/2015	23.03.02	NYLE
23/07/2015	23.03.51	PIPI
23/07/2015	23.04.37	PIPI
23/07/2015	23.07.17	PIPI
23/07/2015	23.10.54	PIPY
23/07/2015	23.12.48	PIPI
23/07/2015	23.18.09	PIPY
23/07/2015	23.27.12	PIPI
23/07/2015	23.27.34	PIPI

Site 1		
23/07/2015	23.33.04	PIPI
23/07/2015	23.36.43	PIPY
23/07/2015	23.45.29	PIPY
23/07/2015	23.49.53	MYsp
23/07/2015	23.54.06	MYsp
23/07/2015	23.54.22	MYsp
23/07/2015	23.59.51	PIPY
24/07/2015	01.03.22	NYLE
24/07/2015	01.36.53	MYsp
24/07/2015	02.23.39	MYsp
24/07/2015	02.37.47	PIPI
24/07/2015	03.08.57	PIPI
24/07/2015	03.10.47	PIPI
24/07/2015	03.10.58	PIPI
24/07/2015	03.32.23	NYLE
24/07/2015	03.35.33	PIPI
24/07/2015	03.43.03	PIPI
24/07/2015	03.51.15	PIPI
24/07/2015	03.51.23	PIPI
24/07/2015	03.55.27	PIPY
24/07/2015	03.55.41	PIPY
24/07/2015	03.57.53	PIPY
24/07/2015	03.58.56	PIPY
24/07/2015	04.30.17	PIPI
24/07/2015	04.30.39	PIPI
24/07/2015	04.33.41	PIPI
24/07/2015	04.33.49	PIPI
24/07/2015	04.34.10	PIPI
Night 4		
24/07/2015	22.33.55	PIsp
24/07/2015	22.35.36	PIsp
24/07/2015	22.40.02	PIPI
24/07/2015	22.51.51	PIPI
24/07/2015	23.56.30	MYsp
25/07/2015	00.19.19	PIPY
25/07/2015	00.26.23	MYsp (MYNA)
25/07/2015	00.59.36	PIPI
25/07/2015	00.59.49	PIPI
25/07/2015	01.25.45	NYLE
25/07/2015	01.39.13	PIPY
Night 5		
25/07/2015	22.26.00	PIPI

Site 1		
25/07/2015	22.44.33	NYLE
25/07/2015	22.47.13	NYLE
26/07/2015	00.14.19	PIPY
26/07/2015	00.51.45	PIPI
26/07/2015	01.02.59	NYLE
26/07/2015	01.19.51	Mysp.
26/07/2015	03.01.10	MYNA
26/07/2015	03.01.25	MYNA

Site 2		
Date	Time	Bat activity
Night 1		
02/09/2015	20.56.03	PIPI
02/09/2015	20.56.18	PIPI
02/09/2015	21.58.11	PIPI
02/09/2015	22.21.00	PIPI
03/09/2015	05.11.03	PIPI
Night 2		
03/09/2015	21.37.14	PIPI
03/09/2015	22.15.28	MYsp
03/09/2015	23.25.13	PIPI
04/09/2015	00.08.45	MYsp
00.10.51	00.10.51	MYsp
04/09/2015	04.52.53	PIPY
04/09/2015	04.53.24	PIPY
04/09/2015	04.53.34	PIPY
04/09/2015	04.53.50	PIPY
04/09/2015	04.57.43	PIPY
04/09/2015	04.57.58	PIPY
04/09/2015	04.59.45	PIPI
04/09/2015	04.59.58	PIPI
04/09/2015	05.11.39	PIPI
04/09/2015	05.19.19	PIPY
Night 3		
04/09/2015	21.47.12	PIPI
Night 4		
05/09/2015	21.00.06	PIPI
05/09/2015	21.01.47	PIPI
05/09/2015	21.55.08	NYLE
05/09/2015	21.58.32	PIPI
05/09/2015	22.04.03	PIPI

Site 2		
05/09/2015	23.44.35	NYLE
05/09/2015	23.44.42	NYLE
06/09/2015	00.03.34	PIPI
06/09/2015	05.25.17	NoID
Night 5		
06/09/2015	20.48.28	PIPY
06/09/2015	20.52.22	PIPI
06/09/2015	21.11.28	NYLE
06/09/2015	21.11.34	NYLE
06/09/2015	21.36.17	PIPI
06/09/2015	21.41.51	PIPY
06/09/2015	21.45.15	PIPY
06/09/2015	22.03.14	PIPY
06/09/2015	22.07.09	PIPI
06/09/2015	22.18.53	PIPY
06/09/2015	22.20.17	PIPY
06/09/2015	23.10.08	PIPY
07/09/2015	00.53.49	PIPY
07/09/2015	00.54.31	PIPY
07/09/2015	00.54.45	PIPY
07/09/2015	00.55.08	PIPY
07/09/2015	00.56.14	PIPY
07/09/2015	00.59.55	PIPY
07/09/2015	01.00.08	PIPY
07/09/2015	01.00.18	PIPY
07/09/2015	01.01.31	PIPY
07/09/2015	01.03.16	PIPY
07/09/2015	01.04.31	PIPY
07/09/2015	01.06.18	PIPY
07/09/2015	01.11.12	PIPY
07/09/2015	03.05.52	PIPY
07/09/2015	03.29.45	PIPI
07/09/2015	03.40.55	PIPI
07/09/2015	03.43.38	PIPI
07/09/2015	03.45.47	PIPI
07/09/2015	03.58.48	PIPI
07/09/2015	04.09.12	PIPI
07/09/2015	04.47.12	PIPY
07/09/2015	04.48.06	PIPY
07/09/2015	04.48.40	PIPY
07/09/2015	04.48.52	PIPY
07/09/2015	04.49.37	PIPY

Site 2		
07/09/2015	04.49.48	PIPY
07/09/2015	05.12.57	PIPY
07/09/2015	05.13.07	PIPY
07/09/2015	05.18.03	PIPI
07/09/2015	05.21.23	PIPY
07/09/2015	05.25.11	PIPY
07/09/2015	05.29.02	PIPY
07/09/2015	05.29.11	PIPY
07/09/2015	05.34.42	PIPI
07/09/2015	05.46.02	PIPI
07/09/2015	05.46.36	PIPY
07/09/2015	05.50.16	PIPI
07/09/2015	05.50.33	PIPI
07/09/2015	05.50.54	PIPI
07/09/2015	05.51.18	PIPI
07/09/2015	05.51.43	PIPI
07/09/2015	05.52.20	PIPI
07/09/2015	05.52.45	PIPY
07/09/2015	05.54.18	PIPY
07/09/2015	06.02.13	PIPY

Site 3		
Date	**Time**	**Bat activity**
Night 1		
02/09/2015	20.29.49	NYLE
02/09/2015	20.30.04	NYLE
02/09/2015	20.30.20	NYLE
02/09/2015	21.23.49	NYLE
02/09/2015	21.36.10	PIPY
02/09/2015	21.47.31	PIPY
02/09/2015	21.56.29	PIPI
02/09/2015	22.00.35	PIPI
02/09/2015	22.11.50	MYsp
02/09/2015	22.11.58	MYsp
02/09/2015	22.16.12	MYNA
02/09/2015	22.18.02	MYNA
02/09/2015	22.33.52	NYLE
03/09/2015	02.26.30	MYNA
03/09/2015	02.26.34	MYNA
03/09/2015	02.26.54	MYNA
03/09/2015	02.27.19	MYNA
03/09/2015	02.51.37	PIPI

Site 3		
03/09/2015	03.26.17	MYNA
03/09/2015	04.02.55	MYNA
03/09/2015	04.24.37	MYsp
03/09/2015	05.24.51	PIPY
03/09/2015	06.12.57	NYLE
03/09/2015	06.14.37	NYLE
Night 2		
03/09/2015	21.10.55	NYLE
03/09/2015	21.30.14	PIPI
03/09/2015	21.49.51	NYLE
03/09/2015	23.54.03	MYNA
03/09/2015	23.54.25	MYNA
04/09/2015	00.14.09	MYsp
04/09/2015	00.14.26	MY sp
04/09/2015	01.46.50	MY sp
04/09/2015	02.52.24	MY sp
04/09/2015	03.06.04	PIPI
04/09/2015	03.06.44	PIPI
04/09/2015	03.07.08	PIPI
04/09/2015	03.07.38	PIPI
04/09/2015	03.08.01	PIPI
04/09/2015	03.09.26	PIPI
04/09/2015	03.09.46	PIPI
04/09/2015	03.10.10	PIPI
04/09/2015	03.11.02	PIPI
04/09/2015	03.46.01	PIPI
04/09/2015	04.02.27	PIPI
04/09/2015	04.02.46	PIPI
04/09/2015	04.03.15	PIPI
04/09/2015	04.03.43	PIPI
04/09/2015	04.04.02	PIPI
04/09/2015	04.04.22	PIPI
04/09/2015	04.08.05	PIPI
04/09/2015	04.08.37	PIPI
04/09/2015	04.10.10	PIPI
04/09/2015	04.10.59	PIPI
04/09/2015	04.11.36	PIPI
04/09/2015	04.11.57	PIPI
04/09/2015	04.12.10	PIPI
04/09/2015	04.12.30	PIPI
04/09/2015	04.18.51	PIPI
04/09/2015	04.19.14	PIPI

Site 3		
04/09/2015	04.19.38	PIPI
04/09/2015	04.20.10	PIPI
04/09/2015	04.20.30	PIPI
04/09/2015	04.20.49	PIPI
04/09/2015	04.21.19	PIPI
04/09/2015	04.21.40	PIPI
04/09/2015	04.21.52	PIPI
04/09/2015	04.22.13	PIPI
04/09/2015	04.24.48	PIPI
04/09/2015	04.24.57	PIPI
04/09/2015	04.25.15	PIPI
04/09/2015	04.25.49	PIPI
04/09/2015	04.26.09	PIPI
04/09/2015	04.26.39	PIPI
04/09/2015	04.28.07	PIPI
04/09/2015	04.28.30	PIPI
04/09/2015	04.29.09	PIPI
04/09/2015	04.29.27	PIPI
04/09/2015	04.29.44	PIPI
04/09/2015	04.43.32	PIPI
04/09/2015	04.44.34	PIPI
04/09/2015	04.45.39	PIPI
04/09/2015	04.46.03	PIPI
04/09/2015	04.47.32	PIPI
04/09/2015	04.47.44	PIPI
04/09/2015	04.48.34	PIPI
04/09/2015	04.49.38	PIPI
04/09/2015	04.51.42	PIPI
04/09/2015	04.52.02	PIPI
04/09/2015	04.53.02	PIPI
04/09/2015	04.53.21	PIPI
04/09/2015	04.54.08	PIPI
04/09/2015	04.54.18	PIPI
04/09/2015	04.54.33	PIPI
04/09/2015	04.55.01	PIPI
04/09/2015	04.56.38	PIPI
04/09/2015	04.57.17	PIPI
04/09/2015	04.57.57	PIPI
04/09/2015	04.58.34	PIPI
04/09/2015	04.58.51	PIPI
04/09/2015	04.59.03	PIPI
04/09/2015	04.59.58	PIPI

Site 3		
04/09/2015	05.00.52	PIPI
04/09/2015	05.02.44	PIPI
04/09/2015	05.03.17	PIPI
04/09/2015	05.08.02	PIPI
04/09/2015	05.08.12	PIPI
04/09/2015	05.08.30	PIPI
04/09/2015	05.08.40	PIPI
04/09/2015	06.12.48	NYLE
04/09/2015	06.18.14	NYLE
04/09/2015	06.19.01	NYLE
04/09/2015	06.19.30	NYLE
Night 3		
04/09/2015	20.50.26	NYLE
04/09/2015	21.02.22	PIPI
04/09/2015	21.12.07	PIPY
04/09/2015	21.38.53	PIPY
Night 4		
05/09/2015	21.01.03	PIPI
05/09/2015	21.01.58	PIPI
05/09/2015	21.02.08	PIPI
05/09/2015	21.02.22	PIPI
05/09/2015	21.12.07	PIPY
05/09/2015	21.16.29	PIPI
05/09/2015	21.25.46	PIPY
05/09/2015	21.32.57	PIPI
05/09/2015	21.37.00	NYLE
05/09/2015	21.41.27	PIPY
05/09/2015	21.51.55	MYNA
05/09/2015	22.59.56	MYNA
05/09/2015	23.00.11	MYNA
06/09/2015	03.36.21	MYsp
Night 5		
06/09/2015	20.34.12	NYLE
06/09/2015	20.42.01	NYLE
06/09/2015	20.42.29	PIPI
06/09/2015	20.53.32	NYLE
06/09/2015	21.01.55	PIPI
06/09/2015	21.06.08	PIPY
06/09/2015	21.38.44	PIPI
06/09/2015	21.47.43	NYLE
06/09/2015	22.02.01	PIPI
06/09/2015	22.02.25	PIPI

Site 3		
06/09/2015	22.03.11	PIPI
06/09/2015	22.03.36	PIPI
06/09/2015	22.04.32	PIPI
06/09/2015	22.05.51	PIPI
06/09/2015	22.06.45	PIPI
06/09/2015	22.07.08	PIPI
06/09/2015	22.08.02	PIPI
06/09/2015	22.08.27	PIPI
06/09/2015	22.09.01	PIPI
06/09/2015	22.11.35	PIPI
06/09/2015	22.11.52	PIPI
06/09/2015	22.12.40	PIPI
06/09/2015	22.13.07	PIPI
06/09/2015	22.14.35	PIPI
06/09/2015	22.16.23	PIPI
06/09/2015	22.16.58	PIPI
06/09/2015	22.17.21	PIPI
06/09/2015	22.39.31	PIPI
06/09/2015	22.41.04	PIPI
06/09/2015	23.47.09	PIPI
06/09/2015	23.47.30	PIPI
06/09/2015	23.47.41	PIPI
06/09/2015	23.47.58	PIPI
06/09/2015	23.48.12	PIPI
06/09/2015	23.50.45	PIPI
06/09/2015	23.50.52	PIPI
06/09/2015	23.51.10	PIPI
06/09/2015	23.51.38	PIPI
06/09/2015	23.51.58	PIPI
06/09/2015	23.52.25	PIPI
06/09/2015	23.52.53	PIPI
06/09/2015	23.53.18	PIPI
06/09/2015	23.53.45	PIPI
06/09/2015	23.54.12	PIPI
06/09/2015	23.54.41	PIPI
06/09/2015	23.55.10	PIPI
06/09/2015	23.55.55	PIPI
06/09/2015	23.56.23	PIPI
06/09/2015	23.57.30	PIPI
07/09/2015	00.03.32	MYsp
07/09/2015	00.03.59	PIPI
07/09/2015	00.09.21	PIPI

Site 3		
07/09/2015	00.20.04	PIPI
07/09/2015	00.20.33	PIPI
07/09/2015	00.21.02	PIPI
07/09/2015	00.22.01	PIPI
07/09/2015	00.22.32	PIPI
07/09/2015	00.22.54	PIPI
07/09/2015	00.23.08	PIPI
07/09/2015	00.23.47	PIPI
07/09/2015	00.24.35	PIPI
07/09/2015	00.25.02	PIPI
07/09/2015	00.25.05	PIPI
07/09/2015	00.25.25	PIPI
07/09/2015	00.26.19	PIPI
07/09/2015	00.27.17	PIPI
07/09/2015	00.27.51	PIPI
07/09/2015	00.28.18	PIPI
07/09/2015	00.29.16	PIPI
07/09/2015	00.30.09	PIPI
07/09/2015	00.30.25	PIPI
07/09/2015	00.30.33	PIPI
07/09/2015	00.31.04	PIPI
07/09/2015	01.00.28	MYsp
07/09/2015	01.45.31	PIPI
07/09/2015	01.45.46	PIPI
07/09/2015	01.46.09	PIPI
07/09/2015	01.46.42	PIPI
07/09/2015	01.47.33	PIPI
07/09/2015	01.48.25	PIPI
07/09/2015	01.48.59	PIPI
07/09/2015	01.50.01	PIPI
07/09/2015	02.24.31	PIPI
07/09/2015	02.25.35	PIPI
07/09/2015	02.26.01	PIPI
07/09/2015	02.26.43	PIPI
07/09/2015	02.27.20	PIPI
07/09/2015	02.27.47	PIPI
07/09/2015	02.28.13	PIPI
07/09/2015	02.28.35	PIPI
07/09/2015	03.53.17	PIPI
07/09/2015	03.54.50	PIPI
07/09/2015	03.55.16	PIPI
07/09/2015	03.55.47	PIPI

Site 3		
07/09/2015	03.56.33	PIPI
07/09/2015	03.56.10	PIPI
07/09/2015	03.57.32	PIPI
07/09/2015	03.57.54	PIPI
07/09/2015	03.58.23	PIPI
07/09/2015	03.58.46	PIPI
07/09/2015	03.59.06	PIPI
07/09/2015	04.00.18	PIPI
07/09/2015	04.00.34	PIPI
07/09/2015	04.00.55	PIPI
07/09/2015	04.01.17	PIPI
07/09/2015	04.02.06	PIPI
07/09/2015	04.02.25	PIPI
07/09/2015	04.02.46	PIPI
07/09/2015	04.03.05	PIPI
07/09/2015	04.03.43	PIPI
07/09/2015	04.04.30	PIPI
07/09/2015	04.04.49	PIPI
07/09/2015	04.05.04	PIPI
07/09/2015	04.05.25	PIPI
07/09/2015	04.07.39	PIPI
07/09/2015	04.07.58	PIPI
07/09/2015	04.08.37	PIPI
07/09/2015	04.09.11	PIPI
07/09/2015	04.09.31	PIPI
07/09/2015	04.09.51	PIPI
07/09/2015	04.10.12	PIPI
07/09/2015	04.10.31	PIPI
07/09/2015	04.11.05	PIPI
07/09/2015	04.11.30	PIPI
07/09/2015	04.12.06	PIPI
07/09/2015	04.12.31	PIPI
07/09/2015	04.12.53	PIPI
07/09/2015	04.13.17	PIPI
07/09/2015	04.14.04	PIPI
07/09/2015	04.14.44	PIPI
07/09/2015	04.15.05	PIPI
07/09/2015	04.15.28	PIPI
07/09/2015	04.15.50	PIPI
07/09/2015	04.16.13	PIPI
07/09/2015	04.16.34	PIPI
07/09/2015	04.17.10	PIPI

Site 3		
07/09/2015	04.20.33	PIPY
07/09/2015	04.24.29	MYNA
07/09/2015	04.24.48	PIPI
07/09/2015	04.25.42	PIPI
07/09/2015	04.26.16	PIPI
07/09/2015	04.26.39	PIPI
07/09/2015	04.26.57	PIPI
07/09/2015	04.27.16	PIPI
07/09/2015	04.27.44	PIPI
07/09/2015	04.28.25	PIPI
07/09/2015	04.28.51	PIPI
07/09/2015	04.29.11	PIPI
07/09/2015	04.29.32	PIPI
07/09/2015	04.29.51	PIPI
07/09/2015	04.30.25	PIPI
07/09/2015	04.30.51	PIPI
07/09/2015	04.32.32	PIPI
07/09/2015	04.32.54	MYsp
07/09/2015	04.33.40	PIPI
07/09/2015	04.45.03	PIPI
07/09/2015	04.45.36	PIPI
07/09/2015	04.46.09	PIPI
07/09/2015	04.46.28	PIPI
07/09/2015	04.47.10	PIPI
07/09/2015	04.47.14	MYsp
07/09/2015	04.47.29	MYsp
07/09/2015	04.47.46	PIPI
07/09/2015	04.48.44	PIPI
07/09/2015	04.48.56	PIPI
07/09/2015	04.49.18	PIPI
07/09/2015	05.00.18	PIPI
07/09/2015	05.11.37	PIPI
07/09/2015	05.20.00	MYsp
07/09/2015	05.33.45	PIPI
07/09/2015	05.46.12	PIPI
07/09/2015	05.46.43	PIPI
07/09/2015	05.47.06	PIPI
07/09/2015	05.47.53	PIPI
07/09/2015	05.48.20	PIPI
07/09/2015	05.49.56	PIPI
07/09/2015	05.50.25	PIPI
07/09/2015	05.51.03	PIPI

Site 3		
07/09/2015	05.57.06	PIPY
07/09/2015	05.57.19	PIPY
07/09/2015	05.57.28	PIPY

Appendix 4

Bat activity surveys (Figures)

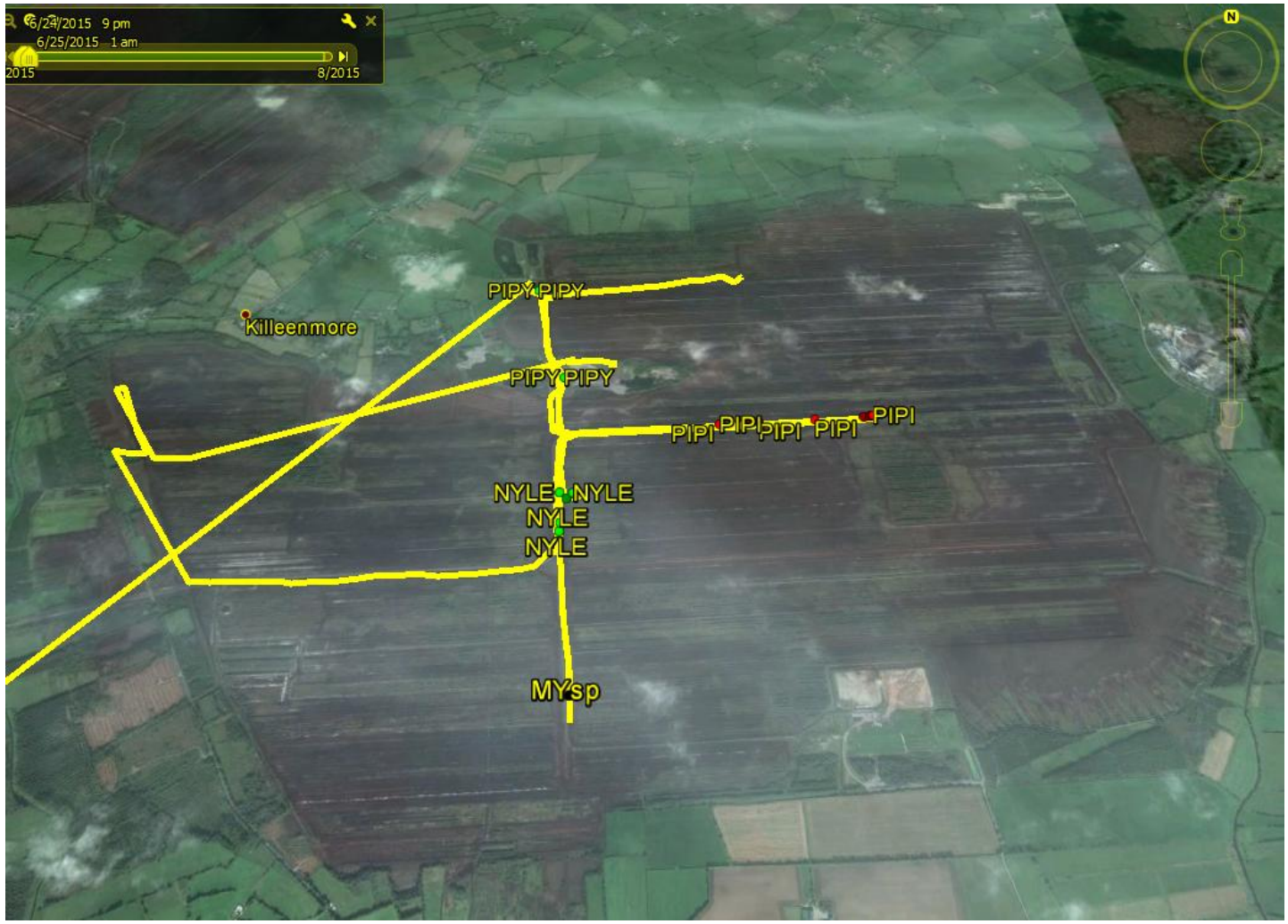


Figure 4-1: Bat activity Surveys Phase 1

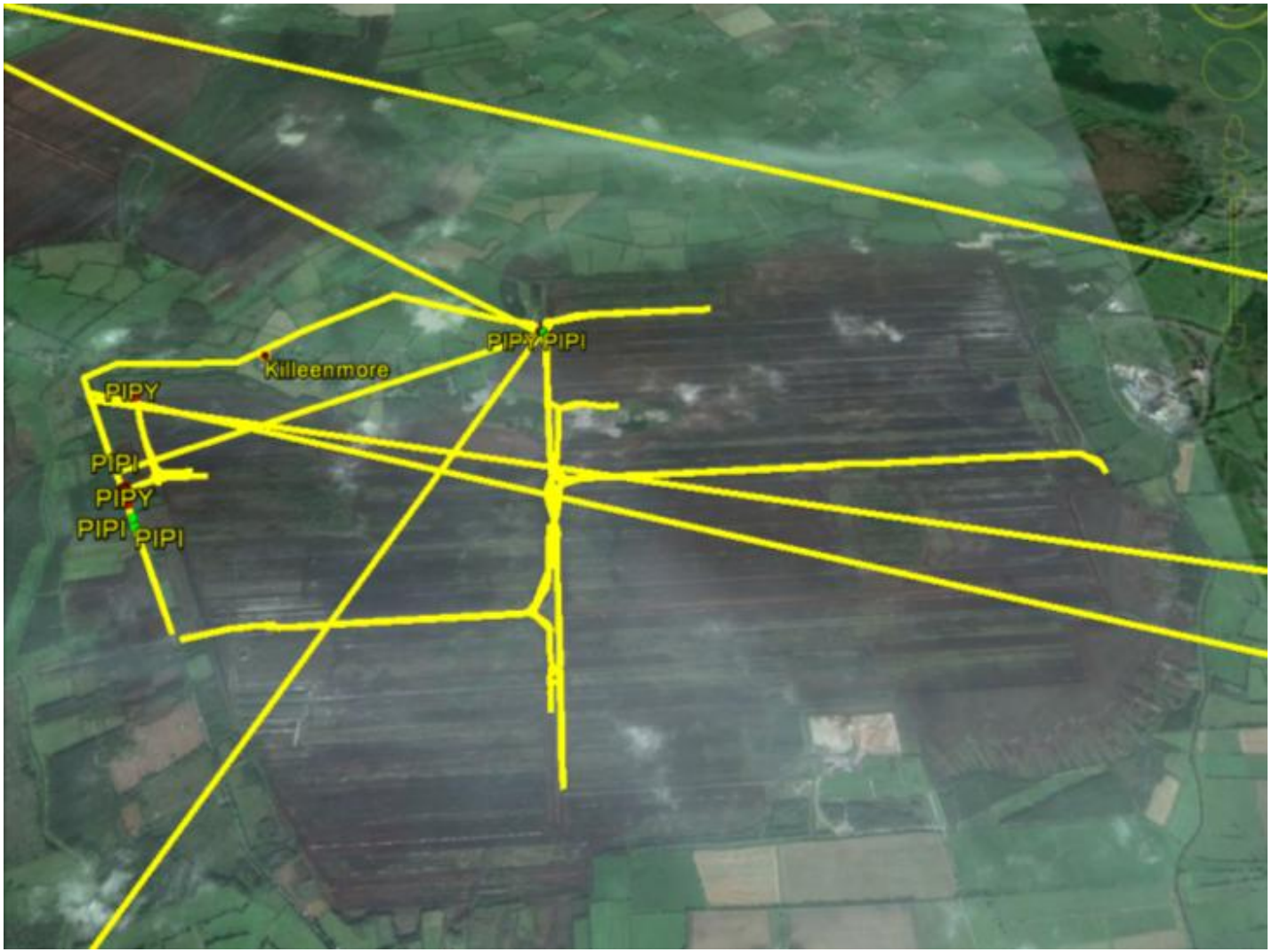


Figure 4-2: Bat activity Surveys Phase 2

Figure 4-3: Bat activity Surveys Phase 3

Appendix 5

Descriptions of potential bat roost sites

Table 5-1 (BR1)

<table>
<tr><th colspan="4">(BR1) Roost survey: Ballycon BnM Workshop/Factory</th></tr>
<tr><td>GPS:</td><td>Date</td><td>Weather During emergence survey</td><td>Site Description</td></tr>
<tr><td rowspan="4">N53823 26027</td><td>26/03/2015</td><td rowspan="4">12°C, dry, F-1 W/NW, 8/8 cloud cover</td><td rowspan="4">Ballycon BnM Factory used by for maintenance of machinery and equipment, adjacent to the R400 road. Two additional open buildings used for repair and storage of railway line etc.</td></tr>
<tr><td>07/08/2015</td></tr>
<tr><td>04/09/2015</td></tr>
<tr><td>15/12/2015</td></tr>
<tr><td colspan="4">Habitats present</td></tr>
<tr><td colspan="4">Open compound area with three buildings. The more easterly buildings are open to elements, with the main building closed, with large doors allowing access from the east. The northern end of the main building consists of one storey sloped roof structure. Good quality hedgerows line the adjacent regional road and the agricultural grassland to the east and south. Sections of mature conifer treeline and plantation bound the northern site of the large compound.</td></tr>
<tr><td colspan="4">Roost survey results</td></tr>
<tr><td colspan="4">All the buildings were investigated for evidence of bats during daytime surveys. The more easterly located open buildings are not optimal for roosting bats. During daytime visual searches bat droppings were observed on the northern wall just below the sloped corrugated roof. The interior of the building also had evidence of bats. During a bat emergence survey nine bats were observed exiting from the void spaces between the top of the northern wall and the corrugated roof.</td></tr>
<tr><td colspan="2"> </td><td colspan="2"> </td></tr>
<tr><td colspan="4">Conclusion: Leisler’s bat and Common pipistrelle present (9 bats). Potential maternity and hibernation roost.</td></tr>
</table>

Table 5-2 (BR1)

Bat droppings towards top of northern wall	Investigating void space on top of northern wall

Table 5-3 (BR2 (A))

<table>
<tr><th colspan="4">BR2(A) Roost survey: Bord na Móna Tea Center at Cloncreen Bog</th></tr>
<tr><td>GPS:</td><td>Date</td><td>Weather</td><td>Site Description</td></tr>
<tr><td rowspan="2">N58224, 26887</td><td>16/06/2015</td><td>14°C, dry, calm, 3/8 cloud cover</td><td rowspan="2">Building used by BnM workers; canteen area, toilets, change of gear, some small equipment</td></tr>
<tr><td>16/11/2015</td><td>11°C, dry, slight southerly breeze, 6/8 cloud cover</td></tr>
<tr><td colspan="4">Habitats present</td></tr>
<tr><td colspan="4">The building is situated on cutaway bog which would have been cutaway to the gravel, or gravel has been installed at the general location of the building. The building itself is a plastered single storey A roof structure, with single chimney on the eastern roof. The building is accessed via a wooden frame and door at the southern gable. The building has a number of wooden framed windows. The A roof consists of wooden beams, felt and corrugated iron sheets. The adjacent yard is used for equipment and machinery storage. To the west, the land area is used as borrow pit, which has resulted in small lake, which had water present throughout the survey period. Willow and bramble dominant scrub also occurs. To the west outside the site boundary, the land area is also used as quarry site, with small lake as result of excavations bounding the bog site. Grassland occurrs to the northeast, with the majority of the cloncreen bog best described as cutover bog.</td></tr>
<tr><td colspan="4">Roost survey results</td></tr>
<tr><td colspan="4">The windows/doors of the structure are well sealed and do not provide access for bats. The voids between the timber facia and the corrugated roof were examined, with no evidence of bats. Spider webs were present, indicating no usage by bats. The interior of the building aws investigated, also with no evidence of bats, droppings, streaking/staining etc.</td></tr>
<tr><td colspan="4"> </td></tr>
<tr><td colspan="4">Conclusion: No ecidence of bats during survey period. Considered not used as bat roost site. Bat contacts during transects/fixed point surveys at this location, included Soprano pipistrelle.</td></tr>
</table>

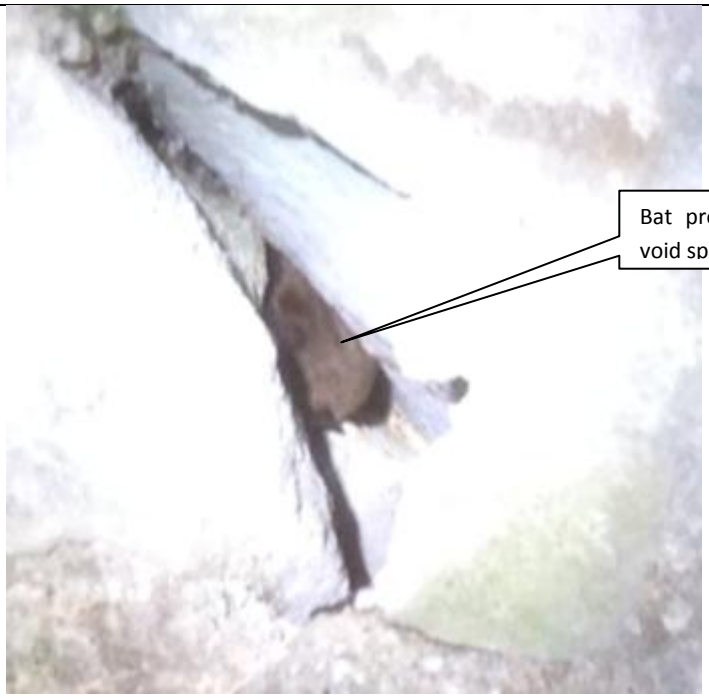
Table 5-4 (BR3)

BR3 Roost survey: Single span masonry bridge			
GPS:	**Date**	**Weather**	**Site Description**
N52588, 31184	22/06/2015 10/09/2015 15/12/2015	14°C, dry, F1 NW, 4/8 cloud cover	Single span masonry bridge spanning the Grand Canal. Located approximately 5.5km to the northwest.
Habitats present			
Masonry Bridge, spanning Grand Canal. Pointing works have been carried out on the stonework at the bridge, however some voids present throughout the bridge. Good quality hedgerows bounding agricultural grassland in all directions of bridge. Some treeline in front of conifer plantation to the south and lining the grand canal further to the east. A number of houses to the east, with one unused house to the southeast which could potentially harbour bats.			
Roost survey results			
Some cracks and voids present in the stonework of the bridge. Some pointing works has fallen away/deteriorated. A number of crevices/voids throughout the walls of the bridge. Three large crevices underneath the arch. During daytime visual survey a bat was observed in void on the southern bank of the watercourse. With the use of an endoscope the other voids present at the bridge were investigated for evidence of bats. During bat emergence survey, the bat did not exit, or no other bats were observed emerging from the bridge. It is likely that the bat was a Daubneton's bat, and used this location as temporary roost. During following visits to this site, the bat was observed in the void on one more occasion. The void is open to the elements and is not optimal as maternity roost. Bat activity at the general location of this site included pipistrelle species and Daubenton's bat. Roach and perch were observed rising in the canal and pine martin droppings were observed underneath the arch, on the southern bank of the canal.			
Conclusion: One bat observed using the bridge. Likely a temporary roost.			

Table 5-5 (BR3)

Void spaces underneath arch

Void spaces underneath arch



Bat present in somewhat open void space

Table 5-6 (BR4 (A))

BR4(A) Roost survey: Dilapidated/ruin house			
GPS:	**Date**	**Weather**	**Site Description**
N58065, 27592	16/06/2015	14°C, dry, calm, 3/8 cloud cover	A number of single storey, timber clad buildings associated with nature sanctuary adjacent to Cloncreen site
Habitats present			
A number of single storey, timber clad building situated on amenity grassland. Man made ponds installed at the property and area probably used to observe bird life. The A roof metal sheeting had some voids present, but otherwise, buildings well sealed. Hedgerow, some broken treeline/individual trees bounding agricultural grassland to the west and north. Cutover bog to southeast and east.			
Roost survey results			
Even though some voids present between the top of the walls and the metal clad roof, spider webs often occurred in the void spaces. Otherwise the builds are well sealed. The careful search of these buildings did not find bat droppings, staining or other evidence of bats at this structure. No bats observed during emergence survey at this site. During time of survey It is considered that this structure is not likely to be used as a bat roosting site..			
Conclusion: No ecidence of bats during survey period. Considered not used as bat roost site.			

Table 5-7 (BR5 (A))

BR5(A) Roost survey: Dilapidated/ruin house			
GPS:	**Date**	**Weather**	**Site Description**
N59830, 24303	16/06/2015	14°C, dry, calm, 3/8 cloud cover	Dilapidated/ruin single storey house in agricultural grassland approximately 1km to the south of the southern end of the site.
	17/11/2015	12°C, dry, slight southerly breeze, 6/8 cloud cover	
Habitats present			
The structure itself is considerable dilapidated. A number of slates have fallen away, moreover towards the eastern end of the house. The windows and doors have fallen away and frames of same are rotting away. The interior of the structure has plastered walls/pointing on some stone walls. The walls are solid stone and some concrete formed walls, with no cavity. Inside the structure the plaster on the walls remained and was getting mouldy. The ceilings were falling away with the attic space exposed. Some ivy growth present towards the eastern and southern end of the house. The structure is located on agricultural/arable land, which would have been harvestes sometime in September, 2015. Some hedgerow and treeline occurs, with the house in close proximity to the network of hedgerows, bounding the agricultural grassland.			
Roost survey results			
The careful search of this building did not find bat droppings or other evidence of bats at this structure. Due to the fact that no evidence of bats was observed at this location, along with the fact that this structure is considerably dilapidated (damp and draughty) it is considered that this structure is not likely to be used as a bat roosting site. The covering of ivy on section of the exterior walls may potentially act as temporary bat roost site, however no evidence of bats was observed during time of survey.			
Conclusion: No ecidence of bats during survey period. Considered not used as bat roost site.			

Table 5-8 (BR6 (A))

<table>
<tr><th colspan="4">BR6(A) Roost survey: Cloncreen Bridge</th></tr>
<tr><th>GPS:</th><th>Date</th><th>Weather</th><th>Site Description</th></tr>
<tr><td rowspan="2">N60511, 23992</td><td>21/06/2015</td><td>18°C, dry, calm, 2/8 cloud cover</td><td rowspan="2">Three arch stone bridge, spanning the River Figile. Located approximately 1.3km to the southeast of the southern boundary of the Cloncreen Bog.</td></tr>
<tr><td>16/11/2015</td><td>12°C, dry, slight southerly breeze, 6/8 cloud cover</td></tr>
<tr><td colspan="4">Habitats present</td></tr>
<tr><td colspan="4">This triple arch bridge has random stone/rubble construction. Semicircular profile arches with dressed stone voussoirs. Upstream V-cutwaters. For the most part the stonework has been pointed, with some pointing work done somewhat recently. From observations during surveys, it is likely that this is a spate river. Surrounding habitats include, hedgerow, small sections of treeline, agricultural grassland and conifer plantation.</td></tr>
<tr><td colspan="4">Roost survey results</td></tr>
<tr><td colspan="4">The majority of the stone work has been pointed. Some crevices present on the main walls of the bridge/handrail etc.The crevices present had no substantial void spaces. During surveys, no evidence of bat using these locations as roost sites was observed. There was no evidence that bats were entering or exiting from these crevices. No staining was present on the stone surfaces at crevices. The interior of the crevices had decaying leaves, fine soil and spider webs. When required, an endoscope was also used. The inside of the crevices were undisturbed, with no droppings/stains/remains of feeding observed. Some ivy growth on the downstream side of the eastern side of the bridge. This location was thoroughly inspected, with no evidence of bats.</td></tr>
<tr><td colspan="4"> </td></tr>
<tr><td colspan="4">Conclusion: Some crevices present, but no evidence of bats, during summer and autumn/winter surveys.</td></tr>
</table>

Table 5-9 (BR7 (A))

BR7(A) Roost survey: Kilcumber Bridge			
GPS:	**Date**	**Weather**	**Site Description**
N61061, 26817	21/06/2015	18°C, dry, calm, 2/8 cloud cover	Double arch bridge spanning the River Figile, approximately 1.7km to the southeast of the southern boundary of Cloncreen Bog.
	17/11/2015	12°C, dry, slight southerly breeze, 6/8 cloud cover	
Habitats present			
Double arch stone bridge, which would have been subject to large amount of repair works. For the most part the stonework would have pointing carried out. Some crevices/cracks do occur. Some ivy growth occurs on the western end of the downstream side of the bridge. Scrub occurs at the bridge, with some broken hedgerow leading up to the bridge, lining the R442 Regional road. Extending away from the bridge, grassland is the dominant habitat type, with some section of conifer plantation. The Bord na Móna, Edenderry Power Plant occurs to the north.			
Roost survey results			
The majority of the stone work has been pointed. Some crevives present on the main walls of the bridge/handrail etc. The crevices were checked with an endoscope and had no substantial void spaces. Also it was noted during surveys that there was very little clearance between the surface of the road and the top of the arch, which would make this location unsuitable for bats. During surveys, no evidence of bat using these locations as roost sites was observed. There was no evidence that bats were entering or exiting from these crevices. No staining was present on the stone surfaces at crevices. No droppings or remains of feeding observed. For the most part the inside of the crevices were undisturbed, with spider webs present, indicating no bat usage. Theivy growth on the downstream side of the eastern side of the bridge was investigated, with no evidence of bat usage.			
Conclusion: Some crevices present, but no evidence of bats, during summer and autumn/winter (2015) surveys.			

Table 5-10 (BR10)

BR10 Roost survey: Rhode Bridge			
GPS:	**Date**	**Weather**	**Site Description**
N53477, 31637	16/06/2015 17/09/2015 15/12/2015	14°C, dry, calm, 3/8 cloud cover, slight SW breeze, a lot of midge activity.	Single arch bridge spanning Grand Canal, approximately 5.3km to the northwest of Cloncreen Bog.
Habitats present			
Single arch stone bridge, which would have been subject to pointing repair works. Some voids/crevices present in stonework. Some ivy growth occurs on the parapet and Abutment walls. Treeline and hedgerow line the Gran Canal, adjacent public road and surrounding agricultural grassland. Two stone walls structures occur to the 30m northwest. These are used by the landowner for sorting livestock. An unused, somewhat dilapidated two storey house occurs approximately 20m to the south (BR Site No.13)..			
Roost survey results			
The majority of the bridge stonework has been pointed. Some crevices present on the parapet and abutment walls. Crevices were checked with an endoscope and had no substantial void spaces. Also it was noted during surveys that there was very little clearance between the surface of the road and the top of the arch, which would make this location less suitable for bats. The visual daytime and bat emergence surveys included the stone structures to the northwest. During surveys, no evidence of bat using these locations as roost sites was observed. There was no evidence that bats were entering, or exiting from these crevices. No staining was present on the stone surfaces at crevices. No bat droppings or remains of feeding observed. For the most part the inside of the crevices were undisturbed, with spider webs present, indicating no bat usage. The growth on the downstream side of the eastern side of the bridge was investigated, with no evidence of bat usage.			
Conclusion: Some crevices present, but no evidence of bats, during summer and autumn/winter (2015) bat roost surveys.			

Table 5-11 (BR11 (A))

BR11(A) Roost survey: Mature trees to east of Cloncreen Bog			
GPS:	**Date**	**Weather**	**Site Description**
N60829, 27723	15/12/2015	11°C, dry, calm, 8/8 cloud cover, slight NW breeze.	Two mature trees in treeline in front of conifer plantation adjacent to the northeast of the Cloncreen Windfarm.
Habitats present			
A hazel-alder-birch treeline, line a sitka spruce plantation located adjacent to the north eastern boundary of the Cloncreen Bog site. Towards the eastern end of this treeline (two of the more mature trees could potentially harbour bats, with holes and cracks present on the trunk and limbs. Hedgerow and broken treeline, and the agricultural grasslands further to the north and east. Cutover bog extends to the west.			
Roost survey results			
This survey, which included investigating the void spaces with an endoscope, did not find any evidence of bats using these trees.			
Conclusion: Some crevices present, but no evidence of bats, during summer and autumn/winter (2015) bat roost surveys.			

Table 5-12 (BR13)

BR13 Roost survey: Unused Two story house adjacent to Rhode Bridge			
GPS:	**Date**	**Weather**	**Site Description**
N53463, 31604	21/06/2015 17/09/2015 15/12/2015	14°C, dry, calm, 3/8 cloud cover, slight SW breeze, a lot of midge activity.	Single arch bridge spanning Grand Canal, approximately 5.3km to the northwest of Cloncreen Bog.
Habitats present			
An old unused stone wall building, somewhat dilapidated. Some mature treeline, bounds the adjacent road, and the Grand Canal, situated approximately 40m to the north of the building. Good quality hedgerow bounds the R400 road and nearby grasslands. Small section of conifer plantation to the northeast.			
Roost survey results			
A slate roof is finished with slate, but some slates are missing from areas, and many voids/slates lifting in the existing roof. Some of the windows and doors have fallen away, with some having been boarded up for security. A great deal of the pointing in the stone work has deteriorated, and voids/crevices occur in the stonework. For health and safety reasons, and access to the site, the interior of the building was not investigated. During a bat emergence survey at this location, on the 21st of June 2015, eight Common pipistrelle bats were observed emerging form this structure. When this site was revisited on the 17th of September 2015, five Common pipistrelle bats were observed emerging from this building. On both occasions the bats were observed emerging form an upstairs window located on the eastern gable. During surveys at this location, bats were observed foraging and commuting along the good quality hedgerows that bound the adjacent grassland fields to the south, and the R400 public road to the east of the building.			
Conclusion: Common pipistrelle observed emerging (8 bats). Potentially maternity and hibernation roost.			

Table 5-13 (BR15)

BR15 Roost survey: Double concrete culvert			
GPS:	**Date**	**Weather**	**Site Description**
N61776, 27899	15/12/2015	11°C, dry, calm, 8/8 cloud cover, slight NW breeze.	Double mass concrete culvert spanning the Figile River.
Habitats present			
Mass concrete double culvert. Conifer plantation to the southeast. Dominant habitat type includes agricultural grassland, with cutover bog to the west and south. mSome mature treeline, bounds the adjacent road, and the Grand Canal, situated approximately 40m to the north of the building. Good quality hedgerow bounds the R400 road and nearby grasslands. Small section of conifer plantation to the northeast.			
Roost survey results			
No cracks/crevices present on the culvert. Subjected to flooding. No optimal bat roost habitat present.			
Conclusion: No ecidence of bats during survey period. Considered not used as bat roost site.			

Appendix 6

Bat Criteria for Bat Roosts of National or International Importance

Lesser Horseshoe bats

In Ireland, the following bat population figures have been used as criteria for the designation of Special Areas of Conservation for the protection of lesser horseshoe bats.

(a) Maternity roost (summer): 100 individuals (approximately 1% of the Irish population)
(b) Hibernacula (winter): 50 individuals (approx. 0.5 % of the Irish population)

Internationally important roosts

There are no clear guidelines as to the nature of a bat roost of international importance. All of the largest roosts of lesser horseshoe bats in Ireland would be of international importance and it is anticipated that all large Leisler's bat roosts (in excess of 100) would also have international significance.

The following are working guidelines developed by the Bat Expert Panel of the Heritage Council in 2003 to provide a basis for comparing the importance of different building roosts nationally and internationally.

Species	Indicator	Significance
Lesser Horseshoe Bat	SAC	Very significant
	If present	Significant
Whiskered	>10	Very significant
	If present	Significant
Natterer's	>10	Very significant
	If present	Significant
Daubenton's	Maternity roost	Very significant
Leisler's	Maternity roost	Very significant
Common Pipistrelle	Maternity roost	Significant
Soprano Pipistrelle	Maternity roost	Significant
Brown Long-eared	Maternity roost	Significant

Annex 3

Assessment Criteria

Factors to consider when determining survey effort & site risk (taken from Hundt, 2012)

Quality of habitat & number of habitat features likely to affect bat mortality rates if altered by development*	Species likely to use the site*	Importance of roosts, of species likely to use site, which may be affected*	Potential risk level of development
No potential habitat for roosting, foraging or commuting bats	None	Local	Lowest
Small number of potential roost features, of low quality Low quality foraging habitat that could be used by small numbers of foraging bats Isolated site, not connected to the wider landscape by prominent linear features	Low number, single low risk species High number, several low risk species	Parish	Low
Buildings, trees or other structures with moderate-high potential as roost sites on or near the site Habitat could be used extensively by foraging bats Site is connected to the wider landscape by linear features such as scrub tree lines and streams	Low number, medium risk species High number, medium risk species	District County	Medium
Numerous suitable buildings, trees (particularly mature ancient woodland) or other structures with moderate/high potential on or near the site and/or confirmed roosts present close to or on the site Extensive and diverse habitat mosaic of high quality for foraging bats Site is connected to the wider landscape by a network of strong linear features such as rivers, blocks of woodland and mature hedgerows	High number, single high risk species High number, several high risk species High number, all high risk species	National International	High

Annex 4

Minimum Survey Standards

Minimum standards for bat surveys at proposed onshore wind turbine developments (taken from Hundt, 2012)

Survey criteria	Site risk level		
	Low	Medium	High
	Roost surveys		
Selection of roosts requiring further survey	If evidence of roosting by medium or high-risk species and or roosts of district importance and above is found, further survey should follow SNCO guidance & guidelines available in Chapter 8 (Hundt, 2012)		
	Activity surveys		
Survey period	Surveys should provide data for one survey as a minimum		
Survey area [1]	Up to 200 m + rotor radius from turbine locations or potential turbine locations		
Ground level transects	One visit per transect each season (spring, summer & autumn)	One visit per transect each month (April -October)	Up to two visits per transect each month (April – October)
Automated surveys at ground level	5 consecutive nights for each single[2] or pair of locations within the survey area, per season	5 consecutive nights for each single or pair of locations within the survey area, per month	Up to 2 sets of 5 consecutive nights for each single or pair of locations within the survey area, per month
Automated surveys at height	Situations where at-height survey may be appropriate are outlined in Chapter 10 (Hundt, 2012) For surveys undertaken from masts, survey effort is as outlined above for surveys at ground level.		

[1] Should include potential turbine locations plus the nearest habitat features likely to be used by bats.

[2] Single locations will be at potential turbine locations. It may not be necessary to survey potential turbine locations without suitable habitat for bats located within 100 m plus the rotor radius. See Chapter 10 in Hundt (2012) for further details.

Annex 5

Habitat Suitability Assessment

Guidelines for assessing the potential suitability of a site for bats, based on the presence of habitat features (taken from Collins, 2016)

Suitability	Roosting Habitats	Commuting and Foraging Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[1] and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats, i.e. unlikely to be suitable for maternity or hibernation[2]. A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential[3].	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only - the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

[1] For example, in terms of temperature, humidity, height above ground, light levels or levels of disturbance.

[2] Larger numbers of Common pipistrelle may be present during autumn and winter in large buildings in highly urbanised areas, based on evidence from the Netherlands (Korsten et al. 2015).

[3] Categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

Annex 6

Manual Transect Survey Results

Date	Time	Easting	Northing	Species	No.	Notes
28/04/2016	21:54	259314	225409	Unidentified bat	1	Not echolocating
26/05/2016	00:01	257954	225858	Common pipistrelle	1	
26/05/2016	00:03	258026	225864	Common pipistrelle	1	Foraging
26/05/2016	00:04	258941	226621	Common pipistrelle	1	Faint call
26/05/2016	22:20	260881	225759	Common pipistrelle	1	Commuting
26/05/2016	22:21	258632	224888	Common pipistrelle	1	Commuting
26/05/2016	22:28	260881	225759	Pipistrelle sp.	1	Commuting
26/05/2016	22:36	260678	225842	Common pipistrelle	1	Feeding
26/05/2016	22:38	257951	224706	Common pipistrelle	1	Commuting & feeding
26/05/2016	22:43	227842	224699	Common pipistrelle	2	Foraging along peat bank
26/05/2016	22:46	227842	224699	Common pipistrelle	1	Foraging along peat bank
26/05/2016	22:48	257739	224691	Common pipistrelle	1	
26/05/2016	22:48	260531	226416	Common pipistrelle	1	
26/05/2016	22:53	257510	224847	Brown Long-eared Bat	1	Foraging among Birch trees
26/05/2016	22:54	257510	224847	Common pipistrelle	1	Commuting
26/05/2016	22:59	260615	226513	Common pipistrelle	1	
26/05/2016	23:02	257413	225002	Common pipistrelle	1	Commuting
26/05/2016	23:06	260674	226787	Common pipistrelle	1	Faint call
26/05/2016	23:11	257115	225409	Leisler's bat	1	Commuting
26/05/2016	23:12	257078	225488	Common pipistrelle	1	
26/05/2016	23:13	260607	226749	Common pipistrelle	1	
26/05/2016	23:15	260607	226749	Common pipistrelle	1	
26/05/2016	23:22	260244	226717	Common pipistrelle	1	Faint call
26/05/2016	23:27	260013	226698	Common pipistrelle	1	Feeding
26/05/2016	23:32	226245	225556	Leisler's bat	1	Commuting
26/05/2016	23:40	256824	225722	Common pipistrelle	1	
26/05/2016	23:41	259809	2266880	Pipistrelle sp.	1	Commuting
26/05/2016	23:45	257228	225802	Common pipistrelle	3	Commuting & foraging
26/05/2016	23:45	259680	226680	Common pipistrelle	1	Commuting
26/05/2016	23:51	259459	226662	Common pipistrelle	2	Commuting & feeding
26/05/2016	23:53	257544	225827	Common pipistrelle	2	Commuting
26/05/2016	23:55	257676	225836	Common pipistrelle	1	Foraging
26/05/2016	23:58	257844	225850	Common pipistrelle	2	
26/05/2016	23:58	259325	226650	Leisler's bat	1	
26/05/2016	23:58	259325	226650	Pipistrelle sp.	1	
27/05/2016	04:05	258226	226738	Common pipistrelle	1	
27/05/2016	04:13	257814	226878	Common pipistrelle	1	
27/05/2016	04:16	257771	226906	Common pipistrelle	3	
27/05/2016	04:19	258603	226930	Common pipistrelle	1	
27/05/2016	04:21	258603	226930	Leisler's bat	1	
27/05/2016	04:38	259047	226986	Leisler's bat	1	
30/06/2016	22:31	260591	227259	Soprano pipistrelle	1	Commuting
30/06/2016	22:45	260520	227996	Soprano pipistrelle	1	Commuting
30/06/2016	22:56	259878	228067	Common pipistrelle	1	Foraging
30/06/2016	23:03	259468	228037	Common pipistrelle	1	Commuting
30/06/2016	23:08	259198	227990	Common pipistrelle	1	
30/06/2016	23:10	259207	227889	Common pipistrelle	1	Foraging
30/06/2016	23:14	259068	227746	Common pipistrelle	1	
01/07/2016						
28/07/2016	22:16	257884	224721	Soprano pipistrelle	2	Feeding
28/07/2016	22:24	260473	228121	Soprano pipistrelle	3	Feeding
28/07/2016	22:31	260522	227943	Soprano pipistrelle	1	Feeding
28/07/2016	22:35	260525	227890	Soprano pipistrelle	1	
28/07/2016	22:38	260532	227756	Soprano pipistrelle	2	
28/07/2016	22:39	260537	227725	Soprano pipistrelle	2	
28/07/2016	22:45	260643	27605	Soprano pipistrelle	1	

Date	Time	Easting	Northing	Species	No.	Notes
28/07/2016	22:53	260584	227302	Soprano pipistrelle	1	Commuting
28/07/2016	23:37	258237	226798	Common pipistrelle	1	
29/07/2016	04:10	258237	226798	Soprano pipistrelle	1	Commuting
23/08/2016	21:15	258392	225104	Soprano pipistrelle	1	Commuting
23/08/2016	21:29	258136	224767	Common pipistrelle	1	
23/08/2016	21:33	258137	224727	Unidentified bat	1	
23/08/2016	21:39	258021	224714	Common pipistrelle	1	Feeding by earth bank
23/08/2016	21:45	257637	224690	Common pipistrelle	1	
23/08/2016	22:06	257003	225632	Pipistrelle sp.	1	
23/08/2016	22:24	257548	225809	Leisler's bat	1	
23/08/2016	22:34	257885	225834	Common pipistrelle	1	Commuting
23/08/2016	22:36	257934	225840	Common pipistrelle	1	
23/08/2016	22:49	258255	226460	Common pipistrelle	1	
23/08/2016	22:51	258267	226565	Soprano pipistrelle	1	
23/08/2016				Soprano pipistrelle	1	
24/08/2016	05:10	258230	226893	Soprano pipistrelle	1	

Annex 7

Fixed Point Survey Results

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	30/04/2016	21:29:38	Pipistrelle sp.	FP-1	30/04/2016	22:26:27	Common pipistrell	FP-1	30/04/2016	23:06:57	Soprano pipistrelle	FP-1	30/04/2016	23:20:10	Common pipistrelle
FP-1	30/04/2016	21:34:07	Soprano pipistrelle	FP-1	30/04/2016	22:26:35	Common pipistrell	FP-1	30/04/2016	23:07:14	Pipistrelle sp.	FP-1	30/04/2016	23:20:28	Pipistrelle sp.
FP-1	30/04/2016	21:36:17	Leisler's bat	FP-1	30/04/2016	22:26:46	Pipistrelle sp.	FP-1	30/04/2016	23:07:32	Soprano pipistrelle	FP-1	30/04/2016	23:20:46	Soprano pipistrelle
FP-1	30/04/2016	21:36:17	Pipistrelle sp.	FP-1	30/04/2016	22:26:58	Pipistrelle sp.	FP-1	30/04/2016	23:07:41	Soprano pipistrelle	FP-1	30/04/2016	23:20:57	Pipistrelle sp.
FP-1	30/04/2016	21:36:39	Pipistrelle sp.	FP-1	30/04/2016	22:27:20	Soprano pipistrelle	FP-1	30/04/2016	23:07:50	Soprano pipistrelle	FP-1	30/04/2016	23:21:04	Pipistrelle sp.
FP-1	30/04/2016	21:37:29	Pipistrelle sp.	FP-1	30/04/2016	22:27:32	Soprano pipistrelle	FP-1	30/04/2016	23:08:13	Pipistrelle sp.	FP-1	30/04/2016	23:21:11	Common pipistrelle
FP-1	30/04/2016	21:38:09	Soprano pipistrelle	FP-1	30/04/2016	22:29:46	Pipistrelle sp.	FP-1	30/04/2016	23:08:34	Pipistrelle sp.	FP-1	30/04/2016	23:21:21	Common pipistrelle
FP-1	30/04/2016	21:38:21	Common pipistrell	FP-1	30/04/2016	22:33:54	Common pipistrell	FP-1	30/04/2016	23:08:52	Soprano pipistrelle	FP-1	30/04/2016	23:21:49	Common pipistrelle
FP-1	30/04/2016	21:38:21	Soprano pipistrelle	FP-1	30/04/2016	22:34:08	Common pipistrell	FP-1	30/04/2016	23:09:05	Common pipistrell	FP-1	30/04/2016	23:22:10	Common pipistrelle
FP-1	30/04/2016	21:39:25	Pipistrelle sp.	FP-1	30/04/2016	22:35:37	Soprano pipistrelle	FP-1	30/04/2016	23:10:05	Soprano pipistrelle	FP-1	30/04/2016	23:22:38	Common pipistrelle
FP-1	30/04/2016	21:44:05	Common pipistrell	FP-1	30/04/2016	22:37:40	Soprano pipistrelle	FP-1	30/04/2016	23:10:12	Soprano pipistrelle	FP-1	30/04/2016	23:23:07	Common pipistrelle
FP-1	30/04/2016	21:46:43	Common pipistrell	FP-1	30/04/2016	22:39:36	Common pipistrell	FP-1	30/04/2016	23:10:24	Pipistrelle sp.	FP-1	30/04/2016	23:23:30	Common pipistrelle
FP-1	30/04/2016	21:49:09	Soprano pipistrelle	FP-1	30/04/2016	22:40:01	Common pipistrell	FP-1	30/04/2016	23:10:33	Soprano pipistrelle	FP-1	30/04/2016	23:24:54	Common pipistrelle
FP-1	30/04/2016	21:49:20	Common pipistrell	FP-1	30/04/2016	22:44:01	Soprano pipistrelle	FP-1	30/04/2016	23:10:47	Soprano pipistrelle	FP-1	30/04/2016	23:24:54	Soprano pipistrelle
FP-1	30/04/2016	21:50:00	Common pipistrell	FP-1	30/04/2016	22:44:32	Soprano pipistrelle	FP-1	30/04/2016	23:11:07	Pipistrelle sp.	FP-1	30/04/2016	23:25:20	Common pipistrelle
FP-1	30/04/2016	21:51:07	Common pipistrell	FP-1	30/04/2016	22:44:50	Soprano pipistrelle	FP-1	30/04/2016	23:11:16	Pipistrelle sp.	FP-1	30/04/2016	23:25:38	Pipistrelle sp.
FP-1	30/04/2016	21:57:44	Soprano pipistrelle	FP-1	30/04/2016	22:45:17	Soprano pipistrelle	FP-1	30/04/2016	23:11:28	Soprano pipistrelle	FP-1	30/04/2016	23:25:59	Soprano pipistrelle
FP-1	30/04/2016	21:58:30	Soprano pipistrelle	FP-1	30/04/2016	22:45:55	Soprano pipistrelle	FP-1	30/04/2016	23:11:45	Soprano pipistrelle	FP-1	30/04/2016	23:26:25	Pipistrelle sp.
FP-1	30/04/2016	21:59:01	Soprano pipistrelle	FP-1	30/04/2016	22:46:19	Soprano pipistrelle	FP-1	30/04/2016	23:12:04	Soprano pipistrelle	FP-1	30/04/2016	23:27:22	Pipistrelle sp.
FP-1	30/04/2016	21:59:23	Common pipistrell	FP-1	30/04/2016	22:46:28	Common pipistrell	FP-1	30/04/2016	23:12:18	Pipistrelle sp.	FP-1	30/04/2016	23:27:30	Soprano pipistrelle
FP-1	30/04/2016	21:59:30	Common pipistrell	FP-1	30/04/2016	22:46:41	Common pipistrell	FP-1	30/04/2016	23:12:30	Soprano pipistrelle	FP-1	30/04/2016	23:27:41	Common pipistrelle
FP-1	30/04/2016	22:00:13	Common pipistrell	FP-1	30/04/2016	22:46:41	Soprano pipistrelle	FP-1	30/04/2016	23:12:43	Soprano pipistrelle	FP-1	30/04/2016	23:27:57	Common pipistrelle
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FP-1	30/04/2016	22:02:14	Common pipistrell	FP-1	30/04/2016	22:50:17	Soprano pipistrelle	FP-1	30/04/2016	23:13:35	Soprano pipistrelle	FP-1	30/04/2016	23:28:43	Soprano pipistrelle
FP-1	30/04/2016	22:02:42	Common pipistrell	FP-1	30/04/2016	22:50:28	Soprano pipistrelle	FP-1	30/04/2016	23:14:05	Pipistrelle sp.	FP-1	30/04/2016	23:28:58	Soprano pipistrelle
FP-1	30/04/2016	22:02:42	Soprano pipistrelle	FP-1	30/04/2016	22:50:36	Soprano pipistrelle	FP-1	30/04/2016	23:14:36	Pipistrelle sp.	FP-1	30/04/2016	23:29:14	Soprano pipistrelle
FP-1	30/04/2016	22:03:01	Common pipistrell	FP-1	30/04/2016	22:50:46	Soprano pipistrelle	FP-1	30/04/2016	23:14:53	Common pipistrell	FP-1	30/04/2016	23:29:31	Soprano pipistrelle
FP-1	30/04/2016	22:05:10	Soprano pipistrelle	FP-1	30/04/2016	22:50:56	Soprano pipistrelle	FP-1	30/04/2016	23:15:46	Soprano pipistrelle	FP-1	30/04/2016	23:29:41	Common pipistrelle
FP-1	30/04/2016	22:06:35	Pipistrelle sp.	FP-1	30/04/2016	22:51:46	Common pipistrell	FP-1	30/04/2016	23:16:03	Myotis sp.	FP-1	30/04/2016	23:29:41	Soprano pipistrelle
FP-1	30/04/2016	22:07:32	Soprano pipistrelle	FP-1	30/04/2016	22:52:05	Soprano pipistrelle	FP-1	30/04/2016	23:16:03	Soprano pipistrelle	FP-1	30/04/2016	23:30:00	Common pipistrelle
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FP-1	30/04/2016	22:09:41	Pipistrelle sp.	FP-1	30/04/2016	22:52:33	Soprano pipistrelle	FP-1	30/04/2016	23:16:58	Pipistrelle sp.	FP-1	30/04/2016	23:31:08	Soprano pipistrelle
FP-1	30/04/2016	22:14:13	Soprano pipistrelle	FP-1	30/04/2016	22:53:55	Pipistrelle sp.	FP-1	30/04/2016	23:17:18	Soprano pipistrelle	FP-1	30/04/2016	23:31:32	Soprano pipistrelle
FP-1	30/04/2016	22:17:28	Common pipistrell	FP-1	30/04/2016	22:54:20	Soprano pipistrelle	FP-1	30/04/2016	23:17:32	Soprano pipistrelle	FP-1	30/04/2016	23:31:59	Soprano pipistrelle
FP-1	30/04/2016	22:17:28	Soprano pipistrelle	FP-1	30/04/2016	22:54:30	Soprano pipistrelle	FP-1	30/04/2016	23:17:41	Soprano pipistrelle	FP-1	30/04/2016	23:32:35	Common pipistrelle
FP-1	30/04/2016	22:18:03	Common pipistrell	FP-1	30/04/2016	22:56:03	Common pipistrell	FP-1	30/04/2016	23:17:53	Soprano pipistrelle	FP-1	30/04/2016	23:32:35	Soprano pipistrelle
FP-1	30/04/2016	22:22:20	Common pipistrell	FP-1	30/04/2016	22:56:20	Soprano pipistrelle	FP-1	30/04/2016	23:18:06	Soprano pipistrelle	FP-1	30/04/2016	23:33:06	Soprano pipistrelle
FP-1	30/04/2016	22:22:35	Common pipistrell	FP-1	30/04/2016	22:56:38	Soprano pipistrelle	FP-1	30/04/2016	23:18:15	Soprano pipistrelle	FP-1	30/04/2016	23:33:17	Soprano pipistrelle
FP-1	30/04/2016	22:22:45	Common pipistrell	FP-1	30/04/2016	23:04:54	Soprano pipistrelle	FP-1	30/04/2016	23:18:37	Common pipistrell	FP-1	30/04/2016	23:33:30	Common pipistrelle
FP-1	30/04/2016	22:22:53	Common pipistrell	FP-1	30/04/2016	23:05:06	Soprano pipistrelle	FP-1	30/04/2016	23:18:37	Soprano pipistrelle	FP-1	30/04/2016	23:33:30	Soprano pipistrelle
FP-1	30/04/2016	22:25:13	Soprano pipistrelle	FP-1	30/04/2016	23:05:22	Soprano pipistrelle	FP-1	30/04/2016	23:19:31	Common pipistrell	FP-1	30/04/2016	23:33:48	Common pipistrelle
FP-1	30/04/2016	22:25:31	Soprano pipistrelle	FP-1	30/04/2016	23:05:33	Soprano pipistrelle	FP-1	30/04/2016	23:19:31	Soprano pipistrelle	FP-1	30/04/2016	23:33:59	Soprano pipistrelle
FP-1	30/04/2016	22:26:09	Pipistrelle sp.	FP-1	30/04/2016	23:06:40	Soprano pipistrelle	FP-1	30/04/2016	23:19:49	Soprano pipistrelle	FP-1	30/04/2016	23:34:08	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	30/04/2016	23:34:08	Soprano pipistrelle	FP-1	30/04/2016	23:48:29	Soprano pipistrelle	FP-1	01/05/2016	00:01:32	Common pipistrell	FP-1	01/05/2016	00:23:31	Soprano pipistrelle
FP-1	30/04/2016	23:34:21	Soprano pipistrelle	FP-1	30/04/2016	23:48:47	Common pipistrell	FP-1	01/05/2016	00:02:44	Common pipistrell	FP-1	01/05/2016	00:23:56	Soprano pipistrelle
FP-1	30/04/2016	23:34:36	Common pipistrell	FP-1	30/04/2016	23:49:00	Common pipistrell	FP-1	01/05/2016	00:02:44	Soprano pipistrelle	FP-1	01/05/2016	00:44:52	Common pipistrelle
FP-1	30/04/2016	23:36:38	Common pipistrell	FP-1	30/04/2016	23:49:25	Common pipistrell	FP-1	01/05/2016	00:05:08	Soprano pipistrelle	FP-1	01/05/2016	00:48:33	Common pipistrelle
FP-1	30/04/2016	23:37:24	Pipistrelle sp.	FP-1	30/04/2016	23:49:41	Common pipistrell	FP-1	01/05/2016	00:05:24	Soprano pipistrelle	FP-1	01/05/2016	00:48:45	Common pipistrelle
FP-1	30/04/2016	23:37:42	Pipistrelle sp.	FP-1	30/04/2016	23:49:54	Common pipistrell	FP-1	01/05/2016	00:05:49	Soprano pipistrelle	FP-1	01/05/2016	00:48:57	Common pipistrelle
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FP-1	30/04/2016	23:38:55	Soprano pipistrelle	FP-1	30/04/2016	23:50:30	Common pipistrell	FP-1	01/05/2016	00:06:44	Soprano pipistrelle	FP-1	01/05/2016	00:49:29	Common pipistrelle
FP-1	30/04/2016	23:39:08	Soprano pipistrelle	FP-1	30/04/2016	23:50:53	Common pipistrell	FP-1	01/05/2016	00:07:02	Common pipistrell	FP-1	01/05/2016	00:49:41	Common pipistrelle
FP-1	30/04/2016	23:39:28	Soprano pipistrelle	FP-1	30/04/2016	23:51:07	Common pipistrell	FP-1	01/05/2016	00:07:31	Common pipistrell	FP-1	01/05/2016	00:50:02	Common pipistrelle
FP-1	30/04/2016	23:39:51	Pipistrelle sp.	FP-1	30/04/2016	23:51:25	Common pipistrell	FP-1	01/05/2016	00:08:37	Pipistrelle sp.	FP-1	01/05/2016	00:50:24	Common pipistrelle
FP-1	30/04/2016	23:40:02	Pipistrelle sp.	FP-1	30/04/2016	23:51:25	Soprano pipistrelle	FP-1	01/05/2016	00:08:55	Soprano pipistrelle	FP-1	01/05/2016	00:50:38	Common pipistrelle
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FP-1	30/04/2016	23:41:28	Soprano pipistrelle	FP-1	30/04/2016	23:51:52	Soprano pipistrelle	FP-1	01/05/2016	00:09:21	Pipistrelle sp.	FP-1	01/05/2016	00:51:12	Common pipistrelle
FP-1	30/04/2016	23:41:46	Soprano pipistrelle	FP-1	30/04/2016	23:52:10	Soprano pipistrelle	FP-1	01/05/2016	00:09:28	Pipistrelle sp.	FP-1	01/05/2016	00:51:32	Common pipistrelle
FP-1	30/04/2016	23:42:00	Soprano pipistrelle	FP-1	30/04/2016	23:52:18	Common pipistrell	FP-1	01/05/2016	00:09:50	Soprano pipistrelle	FP-1	01/05/2016	00:51:52	Common pipistrelle
FP-1	30/04/2016	23:42:13	Soprano pipistrelle	FP-1	30/04/2016	23:52:18	Soprano pipistrelle	FP-1	01/05/2016	00:10:09	Pipistrelle sp.	FP-1	01/05/2016	00:52:17	Common pipistrelle
FP-1	30/04/2016	23:42:24	Common pipistrell	FP-1	30/04/2016	23:52:36	Soprano pipistrelle	FP-1	01/05/2016	00:10:25	Common pipistrell	FP-1	01/05/2016	00:52:37	Common pipistrelle
FP-1	30/04/2016	23:42:24	Soprano pipistrelle	FP-1	30/04/2016	23:52:56	Common pipistrell	FP-1	01/05/2016	00:10:36	Common pipistrell	FP-1	01/05/2016	00:52:57	Common pipistrelle
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FP-1	30/04/2016	23:42:53	Soprano pipistrelle	FP-1	30/04/2016	23:53:28	Common pipistrell	FP-1	01/05/2016	00:10:55	Common pipistrell	FP-1	01/05/2016	00:53:39	Common pipistrelle
FP-1	30/04/2016	23:43:11	Soprano pipistrelle	FP-1	30/04/2016	23:53:47	Pipistrelle sp.	FP-1	01/05/2016	00:11:04	Common pipistrell	FP-1	01/05/2016	00:54:02	Common pipistrelle
FP-1	30/04/2016	23:43:31	Soprano pipistrelle	FP-1	30/04/2016	23:53:54	Soprano pipistrelle	FP-1	01/05/2016	00:11:15	Myotis sp.	FP-1	01/05/2016	00:54:22	Common pipistrelle
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FP-1	30/04/2016	23:44:14	Common pipistrell	FP-1	30/04/2016	23:55:08	Common pipistrell	FP-1	01/05/2016	00:11:52	Soprano pipistrelle	FP-1	01/05/2016	00:55:24	Common pipistrelle
FP-1	30/04/2016	23:44:14	Soprano pipistrelle	FP-1	30/04/2016	23:55:28	Common pipistrell	FP-1	01/05/2016	00:12:20	Common pipistrell	FP-1	01/05/2016	00:55:43	Common pipistrelle
FP-1	30/04/2016	23:44:32	Soprano pipistrelle	FP-1	30/04/2016	23:55:46	Common pipistrell	FP-1	01/05/2016	00:12:44	Common pipistrell	FP-1	01/05/2016	00:56:04	Common pipistrelle
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FP-1	30/04/2016	23:45:19	Soprano pipistrelle	FP-1	30/04/2016	23:56:33	Soprano pipistrelle	FP-1	01/05/2016	00:14:20	Common pipistrell	FP-1	01/05/2016	00:57:00	Common pipistrelle
FP-1	30/04/2016	23:45:42	Soprano pipistrelle	FP-1	30/04/2016	23:56:56	Soprano pipistrelle	FP-1	01/05/2016	00:14:20	Soprano pipistrelle	FP-1	01/05/2016	00:57:13	Common pipistrelle
FP-1	30/04/2016	23:45:51	Common pipistrell	FP-1	30/04/2016	23:57:05	Common pipistrell	FP-1	01/05/2016	00:14:55	Soprano pipistrelle	FP-1	01/05/2016	00:57:29	Common pipistrelle
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FP-1	30/04/2016	23:46:15	Common pipistrell	FP-1	30/04/2016	23:57:30	Common pipistrell	FP-1	01/05/2016	00:16:32	Soprano pipistrelle	FP-1	01/05/2016	00:58:04	Common pipistrelle
FP-1	30/04/2016	23:46:15	Soprano pipistrelle	FP-1	30/04/2016	23:57:30	Soprano pipistrelle	FP-1	01/05/2016	00:17:13	Pipistrelle sp.	FP-1	01/05/2016	00:58:26	Common pipistrelle
FP-1	30/04/2016	23:46:38	Soprano pipistrelle	FP-1	30/04/2016	23:58:36	Common pipistrell	FP-1	01/05/2016	00:17:29	Soprano pipistrelle	FP-1	01/05/2016	00:58:48	Common pipistrelle
FP-1	30/04/2016	23:46:46	Pipistrelle sp.	FP-1	30/04/2016	23:59:18	Pipistrelle sp.	FP-1	01/05/2016	00:17:55	Soprano pipistrelle	FP-1	01/05/2016	00:59:11	Common pipistrelle
FP-1	30/04/2016	23:47:20	Soprano pipistrelle	FP-1	30/04/2016	23:59:26	Soprano pipistrelle	FP-1	01/05/2016	00:18:41	Soprano pipistrelle	FP-1	01/05/2016	00:59:24	Common pipistrelle
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FP-1	30/04/2016	23:47:56	Soprano pipistrelle	FP-1	30/04/2016	23:59:47	Common pipistrell	FP-1	01/05/2016	00:20:36	Soprano pipistrelle	FP-1	01/05/2016	01:00:03	Common pipistrelle
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FP-1	30/04/2016	23:48:13	Soprano pipistrelle	FP-1	01/05/2016	00:00:30	Soprano pipistrelle	FP-1	01/05/2016	00:22:01	Soprano pipistrelle	FP-1	01/05/2016	01:00:28	Common pipistrelle
FP-1	30/04/2016	23:48:29	Common pipistrell	FP-1	01/05/2016	00:01:21	Common pipistrell	FP-1	01/05/2016	00:23:00	Soprano pipistrelle	FP-1	01/05/2016	01:00:46	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	01/05/2016	01:01:17	Common pipistrell	FP-1	01/05/2016	02:01:03	Soprano pipistrelle	FP-1	01/05/2016	02:46:26	Soprano pipistrelle	FP-1	01/05/2016	21:47:47	Pipistrelle sp.
FP-1	01/05/2016	01:01:37	Common pipistrell	FP-1	01/05/2016	02:01:33	Soprano pipistrelle	FP-1	01/05/2016	02:46:46	Soprano pipistrelle	FP-1	01/05/2016	21:48:48	Common pipistrelle
FP-1	01/05/2016	01:01:56	Common pipistrell	FP-1	01/05/2016	02:02:03	Soprano pipistrelle	FP-1	01/05/2016	02:47:04	Pipistrelle sp.	FP-1	01/05/2016	21:49:03	Common pipistrelle
FP-1	01/05/2016	01:02:15	Common pipistrell	FP-1	01/05/2016	02:03:08	Pipistrelle sp.	FP-1	01/05/2016	02:47:34	Soprano pipistrelle	FP-1	01/05/2016	21:49:03	Soprano pipistrelle
FP-1	01/05/2016	01:02:36	Common pipistrell	FP-1	01/05/2016	02:03:34	Soprano pipistrelle	FP-1	01/05/2016	02:48:17	Soprano pipistrelle	FP-1	01/05/2016	21:49:55	Soprano pipistrelle
FP-1	01/05/2016	01:02:54	Common pipistrell	FP-1	01/05/2016	02:03:47	Pipistrelle sp.	FP-1	01/05/2016	02:49:13	Soprano pipistrelle	FP-1	01/05/2016	21:50:16	Pipistrelle sp.
FP-1	01/05/2016	01:03:06	Common pipistrell	FP-1	01/05/2016	02:05:26	Soprano pipistrelle	FP-1	01/05/2016	02:50:15	Soprano pipistrelle	FP-1	01/05/2016	21:54:22	Common pipistrelle
FP-1	01/05/2016	01:03:27	Common pipistrell	FP-1	01/05/2016	02:06:58	Soprano pipistrelle	FP-1	01/05/2016	02:51:26	Soprano pipistrelle	FP-1	01/05/2016	21:54:41	Common pipistrelle
FP-1	01/05/2016	01:03:44	Common pipistrell	FP-1	01/05/2016	02:07:22	Soprano pipistrelle	FP-1	01/05/2016	02:52:24	Pipistrelle sp.	FP-1	01/05/2016	21:54:57	Common pipistrelle
FP-1	01/05/2016	01:04:06	Common pipistrell	FP-1	01/05/2016	02:08:01	Soprano pipistrelle	FP-1	01/05/2016	02:52:36	Soprano pipistrelle	FP-1	01/05/2016	21:55:19	Common pipistrelle
FP-1	01/05/2016	01:04:27	Common pipistrell	FP-1	01/05/2016	02:08:13	Soprano pipistrelle	FP-1	01/05/2016	02:52:57	Soprano pipistrelle	FP-1	01/05/2016	21:56:43	Common pipistrelle
FP-1	01/05/2016	01:04:44	Common pipistrell	FP-1	01/05/2016	02:08:50	Soprano pipistrelle	FP-1	01/05/2016	02:53:48	Pipistrelle sp.	FP-1	01/05/2016	21:57:13	Common pipistrelle
FP-1	01/05/2016	01:05:03	Common pipistrell	FP-1	01/05/2016	02:10:11	Pipistrelle sp.	FP-1	01/05/2016	02:56:17	Soprano pipistrelle	FP-1	01/05/2016	21:57:28	Common pipistrelle
FP-1	01/05/2016	01:05:15	Common pipistrell	FP-1	01/05/2016	02:12:42	Pipistrelle sp.	FP-1	01/05/2016	02:57:06	Soprano pipistrelle	FP-1	01/05/2016	21:57:45	Common pipistrelle
FP-1	01/05/2016	01:05:25	Common pipistrell	FP-1	01/05/2016	02:14:52	Soprano pipistrelle	FP-1	01/05/2016	02:57:34	Soprano pipistrelle	FP-1	01/05/2016	21:59:16	Common pipistrelle
FP-1	01/05/2016	01:05:39	Common pipistrell	FP-1	01/05/2016	02:15:26	Soprano pipistrelle	FP-1	01/05/2016	02:58:05	Soprano pipistrelle	FP-1	01/05/2016	22:02:05	Common pipistrelle
FP-1	01/05/2016	01:05:47	Common pipistrell	FP-1	01/05/2016	02:16:12	Soprano pipistrelle	FP-1	01/05/2016	02:58:47	Soprano pipistrelle	FP-1	01/05/2016	22:05:02	Common pipistrelle
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FP-1	01/05/2016	01:06:06	Soprano pipistrelle	FP-1	01/05/2016	02:22:21	Soprano pipistrelle	FP-1	01/05/2016	03:01:40	Myotis sp.	FP-1	01/05/2016	22:10:38	Pipistrelle sp.
FP-1	01/05/2016	01:07:04	Soprano pipistrelle	FP-1	01/05/2016	02:22:33	Pipistrelle sp.	FP-1	01/05/2016	03:02:01	Soprano pipistrelle	FP-1	01/05/2016	22:19:46	Common pipistrelle
FP-1	01/05/2016	01:07:17	Soprano pipistrelle	FP-1	01/05/2016	02:22:50	Soprano pipistrelle	FP-1	01/05/2016	03:02:12	Soprano pipistrelle	FP-1	01/05/2016	22:19:59	Common pipistrelle
FP-1	01/05/2016	01:07:33	Soprano pipistrelle	FP-1	01/05/2016	02:23:39	Soprano pipistrelle	FP-1	01/05/2016	03:04:11	Common pipistrell	FP-1	01/05/2016	22:21:19	Soprano pipistrelle
FP-1	01/05/2016	01:07:46	Soprano pipistrelle	FP-1	01/05/2016	02:25:10	Soprano pipistrelle	FP-1	01/05/2016	21:28:59	Leisler's bat	FP-1	01/05/2016	22:26:19	Soprano pipistrelle
FP-1	01/05/2016	01:32:55	Soprano pipistrelle	FP-1	01/05/2016	02:29:00	Pipistrelle sp.	FP-1	01/05/2016	21:28:59	Soprano pipistrelle	FP-1	01/05/2016	22:35:55	Soprano pipistrelle
FP-1	01/05/2016	01:48:16	Common pipistrell	FP-1	01/05/2016	02:31:29	Soprano pipistrelle	FP-1	01/05/2016	21:29:11	Pipistrelle sp.	FP-1	01/05/2016	22:42:28	Soprano pipistrelle
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FP-1	01/05/2016	01:49:01	Common pipistrell	FP-1	01/05/2016	02:33:59	Soprano pipistrelle	FP-1	01/05/2016	21:32:36	Soprano pipistrelle	FP-1	01/05/2016	22:54:01	Pipistrelle sp.
FP-1	01/05/2016	01:49:15	Common pipistrell	FP-1	01/05/2016	02:35:48	Soprano pipistrelle	FP-1	01/05/2016	21:32:52	Soprano pipistrelle	FP-1	01/05/2016	22:56:13	Soprano pipistrelle
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FP-1	01/05/2016	01:50:27	Common pipistrell	FP-1	01/05/2016	02:38:10	Soprano pipistrelle	FP-1	01/05/2016	21:35:35	Common pipistrell	FP-1	01/05/2016	22:57:05	Soprano pipistrelle
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FP-1	01/05/2016	01:57:14	Soprano pipistrelle	FP-1	01/05/2016	02:43:58	Soprano pipistrelle	FP-1	01/05/2016	21:45:17	Common pipistrell	FP-1	01/05/2016	23:12:09	Soprano pipistrelle
FP-1	01/05/2016	01:58:49	Soprano pipistrelle	FP-1	01/05/2016	02:44:14	Pipistrelle sp.	FP-1	01/05/2016	21:45:34	Common pipistrell	FP-1	01/05/2016	23:12:27	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	01/05/2016	23:12:46	Common pipistrelle	FP-1	01/05/2016	23:25:10	Soprano pipistrelle	FP-1	01/05/2016	23:52:00	Common pipistrelle	FP-1	02/05/2016	00:18:36	Common pipistrelle
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FP-1	01/05/2016	23:18:47	Common pipistrelle	FP-1	01/05/2016	23:38:28	Soprano pipistrelle	FP-1	02/05/2016	00:11:47	Common pipistrelle	FP-1	02/05/2016	00:25:16	Soprano pipistrelle
FP-1	01/05/2016	23:19:05	Common pipistrelle	FP-1	01/05/2016	23:38:44	Pipistrelle sp.	FP-1	02/05/2016	00:12:32	Common pipistrelle	FP-1	02/05/2016	00:25:29	Soprano pipistrelle
FP-1	01/05/2016	23:19:23	Common pipistrelle	FP-1	01/05/2016	23:44:59	Common pipistrelle	FP-1	02/05/2016	00:12:32	Soprano pipistrelle	FP-1	02/05/2016	00:26:09	Soprano pipistrelle
FP-1	01/05/2016	23:19:41	Common pipistrelle	FP-1	01/05/2016	23:45:23	Common pipistrelle	FP-1	02/05/2016	00:13:05	Common pipistrelle	FP-1	02/05/2016	00:27:03	Soprano pipistrelle
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FP-1	01/05/2016	23:23:25	Common pipistrelle	FP-1	01/05/2016	23:50:42	Common pipistrelle	FP-1	02/05/2016	00:17:00	Soprano pipistrelle	FP-1	02/05/2016	00:34:24	Common pipistrelle
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ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	02/05/2016	00:35:50	Common pipistrell	FP-1	02/05/2016	00:54:06	Pipistrelle sp.	FP-1	02/05/2016	01:28:17	Common pipistrell	FP-1	02/05/2016	01:53:11	Common pipistrelle
FP-1	02/05/2016	00:36:08	Common pipistrell	FP-1	02/05/2016	00:54:24	Pipistrelle sp.	FP-1	02/05/2016	01:28:35	Common pipistrell	FP-1	02/05/2016	01:53:29	Common pipistrelle
FP-1	02/05/2016	00:36:26	Common pipistrell	FP-1	02/05/2016	00:54:42	Common pipistrell	FP-1	02/05/2016	01:28:53	Common pipistrell	FP-1	02/05/2016	01:53:47	Common pipistrelle
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FP-1	02/05/2016	00:37:56	Common pipistrell	FP-1	02/05/2016	00:58:46	Common pipistrell	FP-1	02/05/2016	01:30:11	Common pipistrell	FP-1	02/05/2016	01:55:06	Common pipistrelle
FP-1	02/05/2016	00:38:14	Common pipistrell	FP-1	02/05/2016	00:59:05	Common pipistrell	FP-1	02/05/2016	01:30:29	Common pipistrell	FP-1	02/05/2016	01:55:30	Common pipistrelle
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FP-1	02/05/2016	00:39:08	Common pipistrell	FP-1	02/05/2016	01:06:37	Common pipistrell	FP-1	02/05/2016	01:31:04	Common pipistrell	FP-1	02/05/2016	01:56:06	Common pipistrelle
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FP-1	02/05/2016	00:43:55	Soprano pipistrelle	FP-1	02/05/2016	01:14:36	Common pipistrell	FP-1	02/05/2016	01:31:51	Common pipistrell	FP-1	02/05/2016	01:56:49	Common pipistrelle
FP-1	02/05/2016	00:44:13	Soprano pipistrelle	FP-1	02/05/2016	01:14:45	Common pipistrell	FP-1	02/05/2016	01:32:09	Common pipistrell	FP-1	02/05/2016	01:57:08	Common pipistrelle
FP-1	02/05/2016	00:44:22	Soprano pipistrelle	FP-1	02/05/2016	01:15:03	Common pipistrell	FP-1	02/05/2016	01:32:27	Common pipistrell	FP-1	02/05/2016	01:57:26	Common pipistrelle
FP-1	02/05/2016	00:44:41	Soprano pipistrelle	FP-1	02/05/2016	01:15:21	Common pipistrell	FP-1	02/05/2016	01:32:45	Common pipistrell	FP-1	02/05/2016	01:58:26	Common pipistrelle
FP-1	02/05/2016	00:44:59	Soprano pipistrelle	FP-1	02/05/2016	01:15:46	Common pipistrell	FP-1	02/05/2016	01:33:03	Common pipistrell	FP-1	02/05/2016	01:58:45	Common pipistrelle
FP-1	02/05/2016	00:45:14	Pipistrelle sp.	FP-1	02/05/2016	01:16:05	Common pipistrell	FP-1	02/05/2016	01:33:21	Common pipistrell	FP-1	02/05/2016	01:59:03	Common pipistrelle
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FP-1	02/05/2016	00:45:29	Soprano pipistrelle	FP-1	02/05/2016	01:17:25	Common pipistrell	FP-1	02/05/2016	01:33:58	Common pipistrell	FP-1	02/05/2016	01:59:40	Common pipistrelle
FP-1	02/05/2016	00:45:49	Soprano pipistrelle	FP-1	02/05/2016	01:17:44	Common pipistrell	FP-1	02/05/2016	01:34:10	Common pipistrell	FP-1	02/05/2016	02:01:45	Common pipistrelle
FP-1	02/05/2016	00:46:14	Soprano pipistrelle	FP-1	02/05/2016	01:18:02	Common pipistrell	FP-1	02/05/2016	01:36:13	Common pipistrell	FP-1	02/05/2016	02:02:03	Common pipistrelle
FP-1	02/05/2016	00:46:46	Soprano pipistrelle	FP-1	02/05/2016	01:18:20	Common pipistrell	FP-1	02/05/2016	01:36:29	Common pipistrell	FP-1	02/05/2016	02:04:24	Common pipistrelle
FP-1	02/05/2016	00:47:20	Pipistrelle sp.	FP-1	02/05/2016	01:18:38	Common pipistrell	FP-1	02/05/2016	01:36:48	Common pipistrell	FP-1	02/05/2016	02:04:43	Soprano pipistrelle
FP-1	02/05/2016	00:47:39	Pipistrelle sp.	FP-1	02/05/2016	01:18:56	Common pipistrell	FP-1	02/05/2016	01:37:06	Common pipistrell	FP-1	02/05/2016	02:04:54	Common pipistrelle
FP-1	02/05/2016	00:47:57	Pipistrelle sp.	FP-1	02/05/2016	01:19:14	Common pipistrell	FP-1	02/05/2016	01:37:24	Common pipistrell	FP-1	02/05/2016	02:10:10	Common pipistrelle
FP-1	02/05/2016	00:48:15	Pipistrelle sp.	FP-1	02/05/2016	01:19:32	Common pipistrell	FP-1	02/05/2016	01:38:10	Common pipistrell	FP-1	02/05/2016	02:10:28	Common pipistrelle
FP-1	02/05/2016	00:48:24	Pipistrelle sp.	FP-1	02/05/2016	01:19:50	Common pipistrell	FP-1	02/05/2016	01:41:11	Common pipistrell	FP-1	02/05/2016	02:10:35	Common pipistrelle
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FP-1	02/05/2016	00:49:18	Common pipistrell	FP-1	02/05/2016	01:24:17	Common pipistrell	FP-1	02/05/2016	01:42:06	Common pipistrell	FP-1	02/05/2016	02:11:29	Common pipistrelle
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FP-1	02/05/2016	00:50:33	Pipistrelle sp.	FP-1	02/05/2016	01:25:47	Common pipistrell	FP-1	02/05/2016	01:43:37	Common pipistrell	FP-1	02/05/2016	02:14:57	Common pipistrelle
FP-1	02/05/2016	00:50:51	Pipistrelle sp.	FP-1	02/05/2016	01:26:05	Common pipistrell	FP-1	02/05/2016	01:43:49	Common pipistrell	FP-1	02/05/2016	02:17:01	Common pipistrelle
FP-1	02/05/2016	00:51:11	Pipistrelle sp.	FP-1	02/05/2016	01:26:23	Common pipistrell	FP-1	02/05/2016	01:44:07	Common pipistrell	FP-1	02/05/2016	02:17:19	Common pipistrelle
FP-1	02/05/2016	00:51:30	Pipistrelle sp.	FP-1	02/05/2016	01:26:41	Common pipistrell	FP-1	02/05/2016	01:44:25	Common pipistrell	FP-1	02/05/2016	02:17:38	Common pipistrelle
FP-1	02/05/2016	00:51:45	Common pipistrell	FP-1	02/05/2016	01:26:59	Common pipistrell	FP-1	02/05/2016	01:44:43	Common pipistrell	FP-1	02/05/2016	02:17:56	Common pipistrelle
FP-1	02/05/2016	00:52:04	Common pipistrell	FP-1	02/05/2016	01:27:17	Common pipistrell	FP-1	02/05/2016	01:45:01	Common pipistrell	FP-1	02/05/2016	02:18:14	Common pipistrelle
FP-1	02/05/2016	00:53:40	Pipistrelle sp.	FP-1	02/05/2016	01:27:35	Common pipistrell	FP-1	02/05/2016	01:45:19	Common pipistrell	FP-1	02/05/2016	02:20:57	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	02/05/2016	02:22:26	Common pipistrell	FP-1	02/05/2016	02:44:17	Common pipistrell	FP-1	02/05/2016	02:56:52	Common pipistrell	FP-1	02/05/2016	03:09:02	Common pipistrelle
FP-1	02/05/2016	02:22:39	Common pipistrell	FP-1	02/05/2016	02:44:35	Common pipistrell	FP-1	02/05/2016	02:57:03	Common pipistrell	FP-1	02/05/2016	03:09:20	Common pipistrelle
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FP-1	02/05/2016	02:25:33	Common pipistrell	FP-1	02/05/2016	02:46:26	Common pipistrell	FP-1	02/05/2016	02:59:04	Common pipistrell	FP-1	02/05/2016	03:11:28	Common pipistrelle
FP-1	02/05/2016	02:25:51	Common pipistrell	FP-1	02/05/2016	02:46:44	Common pipistrell	FP-1	02/05/2016	02:59:22	Common pipistrell	FP-1	02/05/2016	03:11:46	Common pipistrelle
FP-1	02/05/2016	02:26:29	Common pipistrell	FP-1	02/05/2016	02:47:02	Common pipistrell	FP-1	02/05/2016	02:59:40	Common pipistrell	FP-1	02/05/2016	03:12:04	Common pipistrelle
FP-1	02/05/2016	02:26:47	Common pipistrell	FP-1	02/05/2016	02:47:20	Common pipistrell	FP-1	02/05/2016	02:59:51	Common pipistrell	FP-1	02/05/2016	03:12:22	Common pipistrelle
FP-1	02/05/2016	02:27:05	Common pipistrell	FP-1	02/05/2016	02:47:28	Common pipistrell	FP-1	02/05/2016	03:00:09	Common pipistrell	FP-1	02/05/2016	03:12:40	Common pipistrelle
FP-1	02/05/2016	02:29:49	Pipistrelle sp.	FP-1	02/05/2016	02:47:46	Common pipistrell	FP-1	02/05/2016	03:00:27	Common pipistrell	FP-1	02/05/2016	03:12:58	Common pipistrelle
FP-1	02/05/2016	02:36:08	Common pipistrell	FP-1	02/05/2016	02:48:04	Common pipistrell	FP-1	02/05/2016	03:00:45	Common pipistrell	FP-1	02/05/2016	03:13:16	Common pipistrelle
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FP-1	02/05/2016	02:40:41	Common pipistrell	FP-1	02/05/2016	02:52:57	Common pipistrell	FP-1	02/05/2016	03:05:18	Common pipistrell	FP-1	02/05/2016	03:18:06	Common pipistrelle
FP-1	02/05/2016	02:40:59	Common pipistrell	FP-1	02/05/2016	02:53:15	Common pipistrell	FP-1	02/05/2016	03:05:31	Common pipistrell	FP-1	02/05/2016	03:18:24	Common pipistrelle
FP-1	02/05/2016	02:41:17	Common pipistrell	FP-1	02/05/2016	02:53:33	Common pipistrell	FP-1	02/05/2016	03:05:40	Common pipistrell	FP-1	02/05/2016	03:18:42	Common pipistrelle
FP-1	02/05/2016	02:41:26	Common pipistrell	FP-1	02/05/2016	02:53:51	Common pipistrell	FP-1	02/05/2016	03:05:58	Common pipistrell	FP-1	02/05/2016	03:19:00	Common pipistrelle
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FP-1	02/05/2016	02:42:02	Common pipistrell	FP-1	02/05/2016	02:54:20	Common pipistrell	FP-1	02/05/2016	03:06:34	Common pipistrell	FP-1	02/05/2016	03:19:37	Common pipistrelle
FP-1	02/05/2016	02:42:20	Common pipistrell	FP-1	02/05/2016	02:54:30	Common pipistrell	FP-1	02/05/2016	03:06:45	Common pipistrell	FP-1	02/05/2016	03:19:56	Common pipistrelle
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FP-1	02/05/2016	02:43:26	Common pipistrell	FP-1	02/05/2016	02:55:35	Common pipistrell	FP-1	02/05/2016	03:07:59	Common pipistrell	FP-1	02/05/2016	03:21:02	Common pipistrelle
FP-1	02/05/2016	02:43:40	Common pipistrell	FP-1	02/05/2016	02:55:53	Common pipistrell	FP-1	02/05/2016	03:08:08	Common pipistrell	FP-1	02/05/2016	03:21:11	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	02/05/2016	03:21:48	Common pipistrell	FP-1	02/05/2016	03:35:02	Common pipistrell	FP-1	02/05/2016	03:47:54	Soprano pipistrelle	FP-1	02/05/2016	22:12:49	Common pipistrelle
FP-1	02/05/2016	03:22:06	Common pipistrell	FP-1	02/05/2016	03:35:20	Common pipistrell	FP-1	02/05/2016	03:48:12	Soprano pipistrelle	FP-1	02/05/2016	22:14:32	Common pipistrelle
FP-1	02/05/2016	03:22:24	Common pipistrell	FP-1	02/05/2016	03:35:38	Common pipistrell	FP-1	02/05/2016	03:48:30	Soprano pipistrelle	FP-1	02/05/2016	22:15:02	Common pipistrelle
FP-1	02/05/2016	03:22:42	Common pipistrell	FP-1	02/05/2016	03:35:55	Common pipistrell	FP-1	02/05/2016	03:48:52	Soprano pipistrelle	FP-1	02/05/2016	22:16:28	Soprano pipistrelle
FP-1	02/05/2016	03:23:00	Common pipistrell	FP-1	02/05/2016	03:36:13	Common pipistrell	FP-1	02/05/2016	03:49:13	Common pipistrell	FP-1	02/05/2016	22:17:02	Soprano pipistrelle
FP-1	02/05/2016	03:23:18	Common pipistrell	FP-1	02/05/2016	03:36:31	Common pipistrell	FP-1	02/05/2016	03:49:32	Common pipistrell	FP-1	02/05/2016	22:17:29	Soprano pipistrelle
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FP-1	02/05/2016	03:26:08	Common pipistrell	FP-1	02/05/2016	03:39:03	Common pipistrell	FP-1	02/05/2016	03:53:23	Soprano pipistrelle	FP-1	03/05/2016	22:05:14	Soprano pipistrelle
FP-1	02/05/2016	03:26:26	Common pipistrell	FP-1	02/05/2016	03:39:21	Common pipistrell	FP-1	02/05/2016	03:53:58	Soprano pipistrelle	FP-1	03/05/2016	22:05:20	Pipistrelle sp.
FP-1	02/05/2016	03:26:44	Common pipistrell	FP-1	02/05/2016	03:39:39	Common pipistrell	FP-1	02/05/2016	03:54:09	Soprano pipistrelle	FP-1	03/05/2016	22:05:54	Soprano pipistrelle
FP-1	02/05/2016	03:27:02	Common pipistrell	FP-1	02/05/2016	03:39:57	Common pipistrell	FP-1	02/05/2016	03:54:15	Soprano pipistrelle	FP-1	03/05/2016	22:06:12	Soprano pipistrelle
FP-1	02/05/2016	03:27:21	Common pipistrell	FP-1	02/05/2016	03:40:15	Common pipistrell	FP-1	02/05/2016	03:54:30	Soprano pipistrelle	FP-1	03/05/2016	22:06:44	Pipistrelle sp.
FP-1	02/05/2016	03:27:36	Common pipistrell	FP-1	02/05/2016	03:40:33	Common pipistrell	FP-1	02/05/2016	03:56:19	Myotis sp.	FP-1	03/05/2016	22:11:41	Common pipistrelle
FP-1	02/05/2016	03:27:54	Common pipistrell	FP-1	02/05/2016	03:40:51	Common pipistrell	FP-1	02/05/2016	04:00:55	Soprano pipistrelle	FP-1	03/05/2016	22:19:24	Common pipistrelle
FP-1	02/05/2016	03:28:12	Common pipistrell	FP-1	02/05/2016	03:41:09	Common pipistrell	FP-1	02/05/2016	04:07:20	Soprano pipistrelle	FP-1	03/05/2016	22:19:54	Common pipistrelle
FP-1	02/05/2016	03:28:21	Common pipistrell	FP-1	02/05/2016	03:41:27	Common pipistrell	FP-1	02/05/2016	21:36:23	Soprano pipistrelle	FP-1	03/05/2016	22:20:42	Common pipistrelle
FP-1	02/05/2016	03:28:39	Common pipistrell	FP-1	02/05/2016	03:41:45	Common pipistrell	FP-1	02/05/2016	21:38:08	Soprano pipistrelle	FP-1	03/05/2016	22:21:16	Common pipistrelle
FP-1	02/05/2016	03:28:55	Common pipistrell	FP-1	02/05/2016	03:42:03	Common pipistrell	FP-1	02/05/2016	21:38:33	Leisler's bat	FP-1	03/05/2016	22:21:28	Common pipistrelle
FP-1	02/05/2016	03:29:13	Common pipistrell	FP-1	02/05/2016	03:42:22	Common pipistrell	FP-1	02/05/2016	21:43:03	Common pipistrell	FP-1	03/05/2016	22:22:36	Common pipistrelle
FP-1	02/05/2016	03:29:33	Common pipistrell	FP-1	02/05/2016	03:42:35	Common pipistrell	FP-1	02/05/2016	21:45:07	Pipistrelle sp.	FP-1	03/05/2016	22:23:00	Common pipistrelle
FP-1	02/05/2016	03:29:52	Common pipistrell	FP-1	02/05/2016	03:43:10	Common pipistrell	FP-1	02/05/2016	21:50:01	Soprano pipistrelle	FP-1	03/05/2016	22:23:38	Common pipistrelle
FP-1	02/05/2016	03:30:16	Common pipistrell	FP-1	02/05/2016	03:43:32	Common pipistrell	FP-1	02/05/2016	21:50:37	Pipistrelle sp.	FP-1	03/05/2016	22:24:01	Common pipistrelle
FP-1	02/05/2016	03:30:34	Common pipistrell	FP-1	02/05/2016	03:43:51	Common pipistrell	FP-1	02/05/2016	21:53:03	Soprano pipistrelle	FP-1	03/05/2016	22:24:32	Common pipistrelle
FP-1	02/05/2016	03:30:53	Common pipistrell	FP-1	02/05/2016	03:44:08	Common pipistrell	FP-1	02/05/2016	21:53:57	Soprano pipistrelle	FP-1	03/05/2016	22:25:00	Common pipistrelle
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FP-1	02/05/2016	03:31:33	Common pipistrell	FP-1	02/05/2016	03:44:45	Common pipistrell	FP-1	02/05/2016	21:59:30	Common pipistrell	FP-1	03/05/2016	22:26:03	Common pipistrelle
FP-1	02/05/2016	03:31:51	Common pipistrell	FP-1	02/05/2016	03:45:03	Common pipistrell	FP-1	02/05/2016	21:59:40	Soprano pipistrelle	FP-1	03/05/2016	22:26:23	Common pipistrelle
FP-1	02/05/2016	03:32:09	Common pipistrell	FP-1	02/05/2016	03:45:39	Common pipistrell	FP-1	02/05/2016	22:00:15	Common pipistrell	FP-1	03/05/2016	22:27:03	Common pipistrelle
FP-1	02/05/2016	03:32:20	Common pipistrell	FP-1	02/05/2016	03:45:51	Common pipistrell	FP-1	02/05/2016	22:00:15	Leisler's bat	FP-1	03/05/2016	22:27:22	Common pipistrelle
FP-1	02/05/2016	03:32:38	Common pipistrell	FP-1	02/05/2016	03:46:09	Common pipistrell	FP-1	02/05/2016	22:01:13	Common pipistrell	FP-1	03/05/2016	22:27:57	Pipistrelle sp.
FP-1	02/05/2016	03:32:54	Common pipistrell	FP-1	02/05/2016	03:46:27	Common pipistrell	FP-1	02/05/2016	22:04:44	Common pipistrell	FP-1	03/05/2016	22:28:15	Pipistrelle sp.
FP-1	02/05/2016	03:33:13	Common pipistrell	FP-1	02/05/2016	03:46:44	Common pipistrell	FP-1	02/05/2016	22:04:58	Common pipistrell	FP-1	03/05/2016	22:28:24	Common pipistrelle
FP-1	02/05/2016	03:33:31	Common pipistrell	FP-1	02/05/2016	03:47:02	Common pipistrell	FP-1	02/05/2016	22:06:46	Common pipistrell	FP-1	03/05/2016	22:28:44	Common pipistrelle
FP-1	02/05/2016	03:34:16	Common pipistrell	FP-1	02/05/2016	03:47:20	Common pipistrell	FP-1	02/05/2016	22:08:31	Soprano pipistrelle	FP-1	03/05/2016	22:29:34	Common pipistrelle
FP-1	02/05/2016	03:34:35	Common pipistrell	FP-1	02/05/2016	03:47:38	Common pipistrell	FP-1	02/05/2016	22:10:56	Common pipistrell	FP-1	03/05/2016	22:29:55	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	03/05/2016	22:29:55	Soprano pipistrelle	FP-1	03/05/2016	22:49:47	Common pipistrell	FP-1	03/05/2016	23:05:03	Common pipistrell	FP-1	03/05/2016	23:29:46	Common pipistrelle
FP-1	03/05/2016	22:30:14	Common pipistrell	FP-1	03/05/2016	22:49:47	Soprano pipistrelle	FP-1	03/05/2016	23:05:15	Common pipistrell	FP-1	03/05/2016	23:32:00	Common pipistrelle
FP-1	03/05/2016	22:30:43	Common pipistrell	FP-1	03/05/2016	22:50:05	Common pipistrell	FP-1	03/05/2016	23:07:04	Pipistrelle sp.	FP-1	03/05/2016	23:32:09	Common pipistrelle
FP-1	03/05/2016	22:31:30	Common pipistrell	FP-1	03/05/2016	22:50:05	Soprano pipistrelle	FP-1	03/05/2016	23:07:29	Common pipistrell	FP-1	03/05/2016	23:32:59	Common pipistrelle
FP-1	03/05/2016	22:31:49	Common pipistrell	FP-1	03/05/2016	22:50:23	Common pipistrell	FP-1	03/05/2016	23:08:22	Common pipistrell	FP-1	03/05/2016	23:33:56	Common pipistrelle
FP-1	03/05/2016	22:32:20	Common pipistrell	FP-1	03/05/2016	22:50:23	Soprano pipistrelle	FP-1	03/05/2016	23:08:57	Common pipistrell	FP-1	03/05/2016	23:34:15	Common pipistrelle
FP-1	03/05/2016	22:32:33	Common pipistrell	FP-1	03/05/2016	22:50:33	Common pipistrell	FP-1	03/05/2016	23:09:28	Common pipistrell	FP-1	03/05/2016	23:36:22	Common pipistrelle
FP-1	03/05/2016	22:32:55	Common pipistrell	FP-1	03/05/2016	22:51:48	Common pipistrell	FP-1	03/05/2016	23:09:56	Common pipistrell	FP-1	03/05/2016	23:36:52	Common pipistrelle
FP-1	03/05/2016	22:33:12	Common pipistrell	FP-1	03/05/2016	22:52:04	Common pipistrell	FP-1	03/05/2016	23:11:10	Common pipistrell	FP-1	03/05/2016	23:38:03	Common pipistrelle
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FP-1	03/05/2016	22:33:55	Soprano pipistrelle	FP-1	03/05/2016	22:52:35	Soprano pipistrelle	FP-1	03/05/2016	23:13:28	Pipistrelle sp.	FP-1	03/05/2016	23:39:27	Common pipistrelle
FP-1	03/05/2016	22:34:11	Soprano pipistrelle	FP-1	03/05/2016	22:52:50	Common pipistrell	FP-1	03/05/2016	23:13:35	Common pipistrell	FP-1	03/05/2016	23:40:17	Common pipistrelle
FP-1	03/05/2016	22:34:49	Common pipistrell	FP-1	03/05/2016	22:52:50	Soprano pipistrelle	FP-1	03/05/2016	23:13:54	Common pipistrell	FP-1	03/05/2016	23:40:27	Common pipistrelle
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FP-1	03/05/2016	22:37:41	Common pipistrell	FP-1	03/05/2016	22:53:33	Common pipistrell	FP-1	03/05/2016	23:14:49	Common pipistrell	FP-1	03/05/2016	23:40:40	Soprano pipistrelle
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FP-1	03/05/2016	22:41:05	Common pipistrell	FP-1	03/05/2016	22:57:02	Common pipistrell	FP-1	03/05/2016	23:21:11	Common pipistrell	FP-1	03/05/2016	23:42:37	Common pipistrelle
FP-1	03/05/2016	22:41:23	Common pipistrell	FP-1	03/05/2016	22:57:16	Common pipistrell	FP-1	03/05/2016	23:22:00	Common pipistrell	FP-1	03/05/2016	23:43:15	Common pipistrelle
FP-1	03/05/2016	22:41:35	Soprano pipistrelle	FP-1	03/05/2016	22:57:57	Common pipistrell	FP-1	03/05/2016	23:22:21	Common pipistrell	FP-1	03/05/2016	23:44:26	Common pipistrelle
FP-1	03/05/2016	22:42:27	Common pipistrell	FP-1	03/05/2016	22:58:43	Common pipistrell	FP-1	03/05/2016	23:22:36	Common pipistrell	FP-1	03/05/2016	23:46:27	Common pipistrelle
FP-1	03/05/2016	22:42:51	Common pipistrell	FP-1	03/05/2016	22:58:56	Common pipistrell	FP-1	03/05/2016	23:22:54	Common pipistrell	FP-1	03/05/2016	23:47:40	Common pipistrelle
FP-1	03/05/2016	22:43:26	Common pipistrell	FP-1	03/05/2016	22:59:06	Common pipistrell	FP-1	03/05/2016	23:23:36	Common pipistrell	FP-1	03/05/2016	23:48:47	Pipistrelle sp.
FP-1	03/05/2016	22:43:43	Common pipistrell	FP-1	03/05/2016	22:59:06	Soprano pipistrelle	FP-1	03/05/2016	23:24:23	Common pipistrell	FP-1	03/05/2016	23:48:59	Pipistrelle sp.
FP-1	03/05/2016	22:43:57	Pipistrelle sp.	FP-1	03/05/2016	22:59:31	Common pipistrell	FP-1	03/05/2016	23:24:39	Common pipistrell	FP-1	03/05/2016	23:49:24	Common pipistrelle
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FP-1	03/05/2016	22:44:26	Common pipistrell	FP-1	03/05/2016	23:00:17	Common pipistrell	FP-1	03/05/2016	23:25:05	Soprano pipistrelle	FP-1	03/05/2016	23:49:54	Common pipistrelle
FP-1	03/05/2016	22:44:35	Common pipistrell	FP-1	03/05/2016	23:00:45	Common pipistrell	FP-1	03/05/2016	23:25:48	Common pipistrell	FP-1	03/05/2016	23:50:29	Common pipistrelle
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FP-1	03/05/2016	22:45:37	Common pipistrell	FP-1	03/05/2016	23:01:35	Common pipistrell	FP-1	03/05/2016	23:26:17	Common pipistrell	FP-1	03/05/2016	23:55:41	Common pipistrelle
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FP-1	03/05/2016	22:48:22	Pipistrelle sp.	FP-1	03/05/2016	23:02:15	Common pipistrell	FP-1	03/05/2016	23:26:52	Common pipistrell	FP-1	03/05/2016	23:56:06	Soprano pipistrelle
FP-1	03/05/2016	22:48:41	Common pipistrell	FP-1	03/05/2016	23:02:45	Common pipistrell	FP-1	03/05/2016	23:28:00	Soprano pipistrelle	FP-1	03/05/2016	23:56:23	Common pipistrelle
FP-1	03/05/2016	22:49:13	Common pipistrell	FP-1	03/05/2016	23:03:33	Common pipistrell	FP-1	03/05/2016	23:29:10	Common pipistrell	FP-1	03/05/2016	23:56:23	Soprano pipistrelle
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FP-1	03/05/2016	22:49:31	Soprano pipistrelle	FP-1	03/05/2016	23:04:54	Pipistrelle sp.	FP-1	03/05/2016	23:29:32	Common pipistrell	FP-1	03/05/2016	23:56:56	Soprano pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	03/05/2016	23:57:49	Common pipistrelle	FP-1	04/05/2016	00:15:49	Soprano pipistrelle	FP-1	04/05/2016	00:28:25	Common pipistrelle	FP-1	04/05/2016	00:39:02	Common pipistrelle
FP-1	03/05/2016	23:58:10	Pipistrelle sp.	FP-1	04/05/2016	00:16:07	Soprano pipistrelle	FP-1	04/05/2016	00:28:42	Common pipistrelle	FP-1	04/05/2016	00:39:02	Soprano pipistrelle
FP-1	03/05/2016	23:58:30	Pipistrelle sp.	FP-1	04/05/2016	00:16:15	Soprano pipistrelle	FP-1	04/05/2016	00:28:55	Common pipistrelle	FP-1	04/05/2016	00:39:20	Common pipistrelle
FP-1	03/05/2016	23:58:47	Pipistrelle sp.	FP-1	04/05/2016	00:16:29	Soprano pipistrelle	FP-1	04/05/2016	00:29:07	Common pipistrelle	FP-1	04/05/2016	00:39:20	Soprano pipistrelle
FP-1	03/05/2016	23:59:11	Soprano pipistrelle	FP-1	04/05/2016	00:17:46	Pipistrelle sp.	FP-1	04/05/2016	00:29:23	Common pipistrelle	FP-1	04/05/2016	00:39:38	Common pipistrelle
FP-1	03/05/2016	23:59:29	Pipistrelle sp.	FP-1	04/05/2016	00:18:26	Soprano pipistrelle	FP-1	04/05/2016	00:29:35	Common pipistrelle	FP-1	04/05/2016	00:39:38	Soprano pipistrelle
FP-1	03/05/2016	23:59:36	Pipistrelle sp.	FP-1	04/05/2016	00:18:41	Soprano pipistrelle	FP-1	04/05/2016	00:29:43	Common pipistrelle	FP-1	04/05/2016	00:39:57	Common pipistrelle
FP-1	03/05/2016	23:59:50	Common pipistrelle	FP-1	04/05/2016	00:18:49	Soprano pipistrelle	FP-1	04/05/2016	00:29:58	Common pipistrelle	FP-1	04/05/2016	00:39:57	Soprano pipistrelle
FP-1	04/05/2016	00:00:26	Soprano pipistrelle	FP-1	04/05/2016	00:19:00	Soprano pipistrelle	FP-1	04/05/2016	00:30:26	Soprano pipistrelle	FP-1	04/05/2016	00:40:15	Common pipistrelle
FP-1	04/05/2016	00:00:48	Soprano pipistrelle	FP-1	04/05/2016	00:19:08	Soprano pipistrelle	FP-1	04/05/2016	00:30:41	Common pipistrelle	FP-1	04/05/2016	00:40:15	Soprano pipistrelle
FP-1	04/05/2016	00:01:15	Soprano pipistrelle	FP-1	04/05/2016	00:19:24	Soprano pipistrelle	FP-1	04/05/2016	00:30:41	Soprano pipistrelle	FP-1	04/05/2016	00:40:49	Common pipistrelle
FP-1	04/05/2016	00:01:26	Soprano pipistrelle	FP-1	04/05/2016	00:19:33	Soprano pipistrelle	FP-1	04/05/2016	00:30:56	Common pipistrelle	FP-1	04/05/2016	00:41:01	Common pipistrelle
FP-1	04/05/2016	00:01:44	Soprano pipistrelle	FP-1	04/05/2016	00:19:40	Soprano pipistrelle	FP-1	04/05/2016	00:31:11	Common pipistrelle	FP-1	04/05/2016	00:41:15	Common pipistrelle
FP-1	04/05/2016	00:02:02	Soprano pipistrelle	FP-1	04/05/2016	00:19:59	Soprano pipistrelle	FP-1	04/05/2016	00:31:28	Common pipistrelle	FP-1	04/05/2016	00:41:27	Common pipistrelle
FP-1	04/05/2016	00:02:20	Soprano pipistrelle	FP-1	04/05/2016	00:20:36	Common pipistrelle	FP-1	04/05/2016	00:31:53	Common pipistrelle	FP-1	04/05/2016	00:41:35	Common pipistrelle
FP-1	04/05/2016	00:02:29	Soprano pipistrelle	FP-1	04/05/2016	00:20:43	Soprano pipistrelle	FP-1	04/05/2016	00:32:02	Common pipistrelle	FP-1	04/05/2016	00:41:52	Common pipistrelle
FP-1	04/05/2016	00:02:47	Soprano pipistrelle	FP-1	04/05/2016	00:20:50	Pipistrelle sp.	FP-1	04/05/2016	00:32:14	Common pipistrelle	FP-1	04/05/2016	00:42:00	Common pipistrelle
FP-1	04/05/2016	00:03:06	Pipistrelle sp.	FP-1	04/05/2016	00:20:58	Pipistrelle sp.	FP-1	04/05/2016	00:32:26	Common pipistrelle	FP-1	04/05/2016	00:42:14	Common pipistrelle
FP-1	04/05/2016	00:03:14	Soprano pipistrelle	FP-1	04/05/2016	00:21:12	Pipistrelle sp.	FP-1	04/05/2016	00:32:35	Common pipistrelle	FP-1	04/05/2016	00:42:32	Common pipistrelle
FP-1	04/05/2016	00:03:24	Common pipistrelle	FP-1	04/05/2016	00:21:31	Common pipistrelle	FP-1	04/05/2016	00:33:33	Pipistrelle sp.	FP-1	04/05/2016	00:42:40	Common pipistrelle
FP-1	04/05/2016	00:03:24	Soprano pipistrelle	FP-1	04/05/2016	00:21:31	Soprano pipistrelle	FP-1	04/05/2016	00:33:45	Soprano pipistrelle	FP-1	04/05/2016	00:42:40	Soprano pipistrelle
FP-1	04/05/2016	00:03:43	Common pipistrelle	FP-1	04/05/2016	00:22:03	Pipistrelle sp.	FP-1	04/05/2016	00:33:53	Soprano pipistrelle	FP-1	04/05/2016	00:42:55	Common pipistrelle
FP-1	04/05/2016	00:03:43	Soprano pipistrelle	FP-1	04/05/2016	00:22:21	Common pipistrelle	FP-1	04/05/2016	00:34:04	Soprano pipistrelle	FP-1	04/05/2016	00:43:10	Common pipistrelle
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FP-1	04/05/2016	00:04:22	Soprano pipistrelle	FP-1	04/05/2016	00:23:01	Common pipistrelle	FP-1	04/05/2016	00:34:20	Soprano pipistrelle	FP-1	04/05/2016	00:43:48	Common pipistrelle
FP-1	04/05/2016	00:05:20	Soprano pipistrelle	FP-1	04/05/2016	00:23:11	Common pipistrelle	FP-1	04/05/2016	00:34:35	Soprano pipistrelle	FP-1	04/05/2016	00:43:56	Common pipistrelle
FP-1	04/05/2016	00:05:37	Soprano pipistrelle	FP-1	04/05/2016	00:23:29	Common pipistrelle	FP-1	04/05/2016	00:34:49	Soprano pipistrelle	FP-1	04/05/2016	00:43:56	Soprano pipistrelle
FP-1	04/05/2016	00:06:04	Soprano pipistrelle	FP-1	04/05/2016	00:23:44	Common pipistrelle	FP-1	04/05/2016	00:34:58	Soprano pipistrelle	FP-1	04/05/2016	00:44:08	Common pipistrelle
FP-1	04/05/2016	00:06:32	Soprano pipistrelle	FP-1	04/05/2016	00:23:57	Pipistrelle sp.	FP-1	04/05/2016	00:35:06	Soprano pipistrelle	FP-1	04/05/2016	00:44:17	Common pipistrelle
FP-1	04/05/2016	00:06:42	Common pipistrelle	FP-1	04/05/2016	00:24:14	Common pipistrelle	FP-1	04/05/2016	00:35:18	Soprano pipistrelle	FP-1	04/05/2016	00:44:17	Soprano pipistrelle
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FP-1	04/05/2016	00:08:04	Soprano pipistrelle	FP-1	04/05/2016	00:25:41	Common pipistrelle	FP-1	04/05/2016	00:36:10	Common pipistrelle	FP-1	04/05/2016	00:45:11	Common pipistrelle
FP-1	04/05/2016	00:09:48	Soprano pipistrelle	FP-1	04/05/2016	00:25:51	Common pipistrelle	FP-1	04/05/2016	00:36:18	Common pipistrelle	FP-1	04/05/2016	00:45:22	Common pipistrelle
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FP-1	04/05/2016	00:13:36	Soprano pipistrelle	FP-1	04/05/2016	00:27:06	Common pipistrelle	FP-1	04/05/2016	00:37:18	Common pipistrelle	FP-1	04/05/2016	00:46:44	Common pipistrelle
FP-1	04/05/2016	00:14:36	Soprano pipistrelle	FP-1	04/05/2016	00:27:19	Common pipistrelle	FP-1	04/05/2016	00:37:59	Soprano pipistrelle	FP-1	04/05/2016	00:47:00	Common pipistrelle
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FP-1	04/05/2016	00:15:35	Common pipistrelle	FP-1	04/05/2016	00:27:55	Common pipistrelle	FP-1	04/05/2016	00:38:30	Soprano pipistrelle	FP-1	04/05/2016	00:47:43	Soprano pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	04/05/2016	00:48:51	Soprano pipistrelle	FP-1	04/05/2016	01:04:20	Pipistrelle sp.	FP-1	04/05/2016	01:38:17	Common pipistrell	FP-1	04/05/2016	02:23:41	Common pipistrelle
FP-1	04/05/2016	00:49:10	Pipistrelle sp.	FP-1	04/05/2016	01:04:36	Pipistrelle sp.	FP-1	04/05/2016	01:40:07	Pipistrelle sp.	FP-1	04/05/2016	02:24:07	Common pipistrelle
FP-1	04/05/2016	00:49:25	Common pipistrell	FP-1	04/05/2016	01:04:51	Pipistrelle sp.	FP-1	04/05/2016	01:40:47	Soprano pipistrelle	FP-1	04/05/2016	02:24:24	Common pipistrelle
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FP-1	04/05/2016	00:53:23	Common pipistrell	FP-1	04/05/2016	01:09:31	Common pipistrell	FP-1	04/05/2016	02:07:07	Soprano pipistrelle	FP-1	04/05/2016	02:29:27	Common pipistrelle
FP-1	04/05/2016	00:53:39	Common pipistrell	FP-1	04/05/2016	01:09:42	Common pipistrell	FP-1	04/05/2016	02:07:23	Soprano pipistrelle	FP-1	04/05/2016	02:29:45	Common pipistrelle
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FP-1	04/05/2016	00:55:24	Common pipistrell	FP-1	04/05/2016	01:09:50	Soprano pipistrelle	FP-1	04/05/2016	02:11:08	Soprano pipistrelle	FP-1	04/05/2016	02:30:19	Common pipistrelle
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FP-1	04/05/2016	00:55:56	Common pipistrell	FP-1	04/05/2016	01:12:08	Common pipistrell	FP-1	04/05/2016	02:12:24	Pipistrelle sp.	FP-1	04/05/2016	02:30:55	Common pipistrelle
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FP-1	04/05/2016	00:56:27	Common pipistrell	FP-1	04/05/2016	01:15:12	Common pipistrell	FP-1	04/05/2016	02:15:31	Common pipistrell	FP-1	04/05/2016	02:31:09	Soprano pipistrelle
FP-1	04/05/2016	00:56:27	Soprano pipistrelle	FP-1	04/05/2016	01:15:30	Soprano pipistrelle	FP-1	04/05/2016	02:15:31	Soprano pipistrelle	FP-1	04/05/2016	02:31:49	Soprano pipistrelle
FP-1	04/05/2016	00:56:54	Common pipistrell	FP-1	04/05/2016	01:15:47	Soprano pipistrelle	FP-1	04/05/2016	02:15:54	Common pipistrell	FP-1	04/05/2016	02:32:50	Common pipistrelle
FP-1	04/05/2016	00:57:06	Common pipistrell	FP-1	04/05/2016	01:17:52	Soprano pipistrelle	FP-1	04/05/2016	02:16:02	Common pipistrell	FP-1	04/05/2016	02:33:09	Common pipistrelle
FP-1	04/05/2016	00:57:35	Common pipistrell	FP-1	04/05/2016	01:18:12	Soprano pipistrelle	FP-1	04/05/2016	02:16:27	Common pipistrell	FP-1	04/05/2016	02:33:20	Common pipistrelle
FP-1	04/05/2016	00:58:20	Soprano pipistrelle	FP-1	04/05/2016	01:18:21	Soprano pipistrelle	FP-1	04/05/2016	02:16:27	Soprano pipistrelle	FP-1	04/05/2016	02:33:36	Common pipistrelle
FP-1	04/05/2016	00:58:30	Soprano pipistrelle	FP-1	04/05/2016	01:21:00	Soprano pipistrelle	FP-1	04/05/2016	02:16:51	Common pipistrell	FP-1	04/05/2016	02:33:51	Common pipistrelle
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FP-1	04/05/2016	00:59:05	Soprano pipistrelle	FP-1	04/05/2016	01:21:20	Soprano pipistrelle	FP-1	04/05/2016	02:17:19	Soprano pipistrelle	FP-1	04/05/2016	02:35:36	Common pipistrelle
FP-1	04/05/2016	00:59:14	Soprano pipistrelle	FP-1	04/05/2016	01:21:30	Soprano pipistrelle	FP-1	04/05/2016	02:17:48	Common pipistrell	FP-1	04/05/2016	02:35:54	Common pipistrelle
FP-1	04/05/2016	00:59:43	Common pipistrell	FP-1	04/05/2016	01:21:44	Soprano pipistrelle	FP-1	04/05/2016	02:18:02	Common pipistrell	FP-1	04/05/2016	02:36:12	Common pipistrelle
FP-1	04/05/2016	01:00:01	Pipistrelle sp.	FP-1	04/05/2016	01:22:02	Soprano pipistrelle	FP-1	04/05/2016	02:18:25	Pipistrelle sp.	FP-1	04/05/2016	02:36:37	Common pipistrelle
FP-1	04/05/2016	01:00:12	Common pipistrell	FP-1	04/05/2016	01:22:20	Soprano pipistrelle	FP-1	04/05/2016	02:18:54	Soprano pipistrelle	FP-1	04/05/2016	02:36:55	Common pipistrelle
FP-1	04/05/2016	01:00:12	Soprano pipistrelle	FP-1	04/05/2016	01:22:33	Soprano pipistrelle	FP-1	04/05/2016	02:19:22	Common pipistrell	FP-1	04/05/2016	02:37:13	Common pipistrelle
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FP-1	04/05/2016	01:01:04	Soprano pipistrelle	FP-1	04/05/2016	01:22:41	Soprano pipistrelle	FP-1	04/05/2016	02:19:56	Common pipistrell	FP-1	04/05/2016	02:37:51	Common pipistrelle
FP-1	04/05/2016	01:03:22	Pipistrelle sp.	FP-1	04/05/2016	01:23:02	Soprano pipistrelle	FP-1	04/05/2016	02:20:43	Common pipistrell	FP-1	04/05/2016	02:38:05	Common pipistrelle
FP-1	04/05/2016	01:03:34	Pipistrelle sp.	FP-1	04/05/2016	01:25:03	Soprano pipistrelle	FP-1	04/05/2016	02:21:34	Pipistrelle sp.	FP-1	04/05/2016	02:38:18	Common pipistrelle
FP-1	04/05/2016	01:03:49	Pipistrelle sp.	FP-1	04/05/2016	01:26:23	Soprano pipistrelle	FP-1	04/05/2016	02:22:06	Pipistrelle sp.	FP-1	04/05/2016	02:38:36	Common pipistrelle
FP-1	04/05/2016	01:03:58	Pipistrelle sp.	FP-1	04/05/2016	01:30:42	Pipistrelle sp.	FP-1	04/05/2016	02:22:32	Soprano pipistrelle	FP-1	04/05/2016	02:38:54	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	04/05/2016	02:39:12	Common pipistrell	FP-1	04/05/2016	03:03:48	Pipistrelle sp.	FP-1	04/05/2016	03:27:12	Common pipistrell	FP-1	04/05/2016	03:43:27	Common pipistrelle
FP-1	04/05/2016	02:40:03	Common pipistrell	FP-1	04/05/2016	03:06:09	Soprano pipistrelle	FP-1	04/05/2016	03:27:34	Common pipistrell	FP-1	04/05/2016	03:45:13	Pipistrelle sp.
FP-1	04/05/2016	02:40:17	Common pipistrell	FP-1	04/05/2016	03:06:26	Pipistrelle sp.	FP-1	04/05/2016	03:28:07	Common pipistrell	FP-1	04/05/2016	03:47:52	Pipistrelle sp.
FP-1	04/05/2016	02:40:42	Common pipistrell	FP-1	04/05/2016	03:08:17	Soprano pipistrelle	FP-1	04/05/2016	03:28:33	Common pipistrell	FP-1	04/05/2016	03:48:34	Pipistrelle sp.
FP-1	04/05/2016	02:41:10	Common pipistrell	FP-1	04/05/2016	03:09:05	Pipistrelle sp.	FP-1	04/05/2016	03:28:44	Common pipistrell	FP-1	04/05/2016	03:51:26	Pipistrelle sp.
FP-1	04/05/2016	02:43:04	Common pipistrell	FP-1	04/05/2016	03:09:29	Pipistrelle sp.	FP-1	04/05/2016	03:28:59	Common pipistrell	FP-1	04/05/2016	03:52:44	Common pipistrelle
FP-1	04/05/2016	02:43:23	Common pipistrell	FP-1	04/05/2016	03:09:57	Pipistrelle sp.	FP-1	04/05/2016	03:29:18	Common pipistrell	FP-1	04/05/2016	03:53:05	Common pipistrelle
FP-1	04/05/2016	02:44:09	Soprano pipistrelle	FP-1	04/05/2016	03:10:23	Pipistrelle sp.	FP-1	04/05/2016	03:29:27	Common pipistrell	FP-1	04/05/2016	03:53:23	Common pipistrelle
FP-1	04/05/2016	02:44:37	Soprano pipistrelle	FP-1	04/05/2016	03:10:40	Pipistrelle sp.	FP-1	04/05/2016	03:30:33	Common pipistrell	FP-1	04/05/2016	03:53:32	Common pipistrelle
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FP-1	04/05/2016	02:45:21	Common pipistrell	FP-1	04/05/2016	03:12:33	Pipistrelle sp.	FP-1	04/05/2016	03:31:00	Common pipistrell	FP-1	04/05/2016	03:54:03	Common pipistrelle
FP-1	04/05/2016	02:45:40	Common pipistrell	FP-1	04/05/2016	03:14:07	Common pipistrell	FP-1	04/05/2016	03:31:18	Common pipistrell	FP-1	04/05/2016	03:54:18	Common pipistrelle
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FP-1	04/05/2016	02:46:34	Common pipistrell	FP-1	04/05/2016	03:16:09	Common pipistrell	FP-1	04/05/2016	03:31:54	Common pipistrell	FP-1	04/05/2016	03:55:52	Common pipistrelle
FP-1	04/05/2016	02:46:45	Common pipistrell	FP-1	04/05/2016	03:16:27	Common pipistrell	FP-1	04/05/2016	03:32:12	Common pipistrell	FP-1	04/05/2016	03:56:18	Common pipistrelle
FP-1	04/05/2016	02:47:03	Common pipistrell	FP-1	04/05/2016	03:16:55	Soprano pipistrelle	FP-1	04/05/2016	03:32:21	Common pipistrell	FP-1	04/05/2016	03:56:49	Common pipistrelle
FP-1	04/05/2016	02:47:17	Common pipistrell	FP-1	04/05/2016	03:18:05	Soprano pipistrelle	FP-1	04/05/2016	03:32:41	Common pipistrell	FP-1	04/05/2016	03:57:08	Common pipistrelle
FP-1	04/05/2016	02:47:36	Common pipistrell	FP-1	04/05/2016	03:19:30	Common pipistrell	FP-1	04/05/2016	03:32:59	Common pipistrell	FP-1	04/05/2016	03:57:23	Common pipistrelle
FP-1	04/05/2016	02:47:53	Common pipistrell	FP-1	04/05/2016	03:19:47	Common pipistrell	FP-1	04/05/2016	03:33:17	Common pipistrell	FP-1	04/05/2016	03:57:41	Common pipistrelle
FP-1	04/05/2016	02:49:19	Common pipistrell	FP-1	04/05/2016	03:20:01	Common pipistrell	FP-1	04/05/2016	03:33:36	Common pipistrell	FP-1	04/05/2016	03:57:53	Common pipistrelle
FP-1	04/05/2016	02:49:37	Common pipistrell	FP-1	04/05/2016	03:20:19	Common pipistrell	FP-1	04/05/2016	03:33:50	Common pipistrell	FP-1	04/05/2016	03:58:12	Pipistrelle sp.
FP-1	04/05/2016	02:49:59	Common pipistrell	FP-1	04/05/2016	03:20:37	Common pipistrell	FP-1	04/05/2016	03:34:55	Pipistrelle sp.	FP-1	04/05/2016	03:58:45	Common pipistrelle
FP-1	04/05/2016	02:50:17	Common pipistrell	FP-1	04/05/2016	03:20:37	Soprano pipistrelle	FP-1	04/05/2016	03:35:22	Pipistrelle sp.	FP-1	04/05/2016	03:58:59	Pipistrelle sp.
FP-1	04/05/2016	02:50:35	Common pipistrell	FP-1	04/05/2016	03:20:55	Common pipistrell	FP-1	04/05/2016	03:35:54	Pipistrelle sp.	FP-1	04/05/2016	03:59:07	Common pipistrelle
FP-1	04/05/2016	02:50:50	Common pipistrell	FP-1	04/05/2016	03:21:21	Common pipistrell	FP-1	04/05/2016	03:36:56	Pipistrelle sp.	FP-1	04/05/2016	03:59:25	Common pipistrelle
FP-1	04/05/2016	02:53:00	Common pipistrell	FP-1	04/05/2016	03:21:40	Common pipistrell	FP-1	04/05/2016	03:37:15	Pipistrelle sp.	FP-1	04/05/2016	03:59:47	Common pipistrelle
FP-1	04/05/2016	02:53:00	Soprano pipistrelle	FP-1	04/05/2016	03:21:58	Common pipistrell	FP-1	04/05/2016	03:38:24	Common pipistrell	FP-1	04/05/2016	04:00:02	Common pipistrelle
FP-1	04/05/2016	02:53:19	Common pipistrell	FP-1	04/05/2016	03:22:09	Common pipistrell	FP-1	04/05/2016	03:38:24	Soprano pipistrelle	FP-1	04/05/2016	04:00:20	Common pipistrelle
FP-1	04/05/2016	02:53:27	Common pipistrell	FP-1	04/05/2016	03:22:28	Common pipistrell	FP-1	04/05/2016	03:38:47	Common pipistrell	FP-1	04/05/2016	04:00:40	Common pipistrelle
FP-1	04/05/2016	02:53:45	Common pipistrell	FP-1	04/05/2016	03:22:46	Common pipistrell	FP-1	04/05/2016	03:39:06	Common pipistrell	FP-1	04/05/2016	04:00:58	Common pipistrelle
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FP-1	04/05/2016	02:54:38	Pipistrelle sp.	FP-1	04/05/2016	03:23:24	Common pipistrell	FP-1	04/05/2016	03:39:54	Common pipistrell	FP-1	04/05/2016	04:01:28	Common pipistrelle
FP-1	04/05/2016	02:55:02	Pipistrelle sp.	FP-1	04/05/2016	03:23:46	Common pipistrell	FP-1	04/05/2016	03:40:13	Common pipistrell	FP-1	04/05/2016	04:01:47	Common pipistrelle
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FP-1	04/05/2016	02:59:39	Soprano pipistrelle	FP-1	04/05/2016	03:25:25	Common pipistrell	FP-1	04/05/2016	03:42:35	Soprano pipistrelle	FP-1	04/05/2016	04:03:29	Common pipistrelle
FP-1	04/05/2016	03:00:00	Pipistrelle sp.	FP-1	04/05/2016	03:25:43	Common pipistrell	FP-1	04/05/2016	03:42:53	Common pipistrell	FP-1	04/05/2016	04:03:38	Common pipistrelle
FP-1	04/05/2016	03:00:41	Soprano pipistrelle	FP-1	04/05/2016	03:26:09	Common pipistrell	FP-1	04/05/2016	03:43:00	Common pipistrell	FP-1	04/05/2016	04:03:51	Common pipistrelle
FP-1	04/05/2016	03:02:04	Soprano pipistrelle	FP-1	04/05/2016	03:26:27	Common pipistrell	FP-1	04/05/2016	03:43:09	Common pipistrell	FP-1	04/05/2016	04:03:51	Soprano pipistrelle
FP-1	04/05/2016	03:03:20	Pipistrelle sp.	FP-1	04/05/2016	03:26:54	Common pipistrell	FP-1	04/05/2016	03:43:09	Soprano pipistrelle	FP-1	04/05/2016	04:04:16	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	04/05/2016	04:04:34	Common pipistrell	FP-1	04/05/2016	04:43:37	Pipistrelle sp.	FP-1	04/05/2016	21:41:54	Leisler's bat	FP-1	04/05/2016	22:05:12	Common pipistrelle
FP-1	04/05/2016	04:04:44	Common pipistrell	FP-1	04/05/2016	04:43:57	Pipistrelle sp.	FP-1	04/05/2016	21:42:11	Pipistrelle sp.	FP-1	04/05/2016	22:05:30	Soprano pipistrelle
FP-1	04/05/2016	04:05:03	Soprano pipistrelle	FP-1	04/05/2016	04:44:08	Soprano pipistrelle	FP-1	04/05/2016	21:42:29	Soprano pipistrelle	FP-1	04/05/2016	22:05:37	Soprano pipistrelle
FP-1	04/05/2016	04:06:13	Pipistrelle sp.	FP-1	04/05/2016	04:44:20	Pipistrelle sp.	FP-1	04/05/2016	21:42:55	Soprano pipistrelle	FP-1	04/05/2016	22:06:03	Common pipistrelle
FP-1	04/05/2016	04:07:20	Pipistrelle sp.	FP-1	04/05/2016	04:45:06	Common pipistrell	FP-1	04/05/2016	21:44:05	Soprano pipistrelle	FP-1	04/05/2016	22:06:15	Common pipistrelle
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FP-1	04/05/2016	04:09:26	Common pipistrell	FP-1	04/05/2016	04:45:49	Soprano pipistrelle	FP-1	04/05/2016	21:44:38	Common pipistrell	FP-1	04/05/2016	22:26:39	Soprano pipistrelle
FP-1	04/05/2016	04:12:28	Pipistrelle sp.	FP-1	04/05/2016	04:46:20	Pipistrelle sp.	FP-1	04/05/2016	21:44:45	Common pipistrell	FP-1	04/05/2016	22:32:37	Soprano pipistrelle
FP-1	04/05/2016	04:13:21	Common pipistrell	FP-1	04/05/2016	04:47:48	Soprano pipistrelle	FP-1	04/05/2016	21:45:03	Common pipistrell	FP-1	04/05/2016	22:32:46	Soprano pipistrelle
FP-1	04/05/2016	04:13:40	Common pipistrell	FP-1	04/05/2016	04:48:22	Pipistrelle sp.	FP-1	04/05/2016	21:45:09	Common pipistrell	FP-1	04/05/2016	22:32:56	Pipistrelle sp.
FP-1	04/05/2016	04:13:40	Soprano pipistrelle	FP-1	04/05/2016	04:48:44	Pipistrelle sp.	FP-1	04/05/2016	21:45:09	Soprano pipistrelle	FP-1	04/05/2016	22:33:02	Soprano pipistrelle
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FP-1	04/05/2016	04:22:57	Soprano pipistrelle	FP-1	04/05/2016	04:49:20	Pipistrelle sp.	FP-1	04/05/2016	21:46:08	Common pipistrell	FP-1	04/05/2016	22:33:38	Soprano pipistrelle
FP-1	04/05/2016	04:24:18	Soprano pipistrelle	FP-1	04/05/2016	04:49:37	Pipistrelle sp.	FP-1	04/05/2016	21:46:23	Common pipistrell	FP-1	04/05/2016	22:33:56	Soprano pipistrelle
FP-1	04/05/2016	04:25:00	Pipistrelle sp.	FP-1	04/05/2016	04:49:51	Soprano pipistrelle	FP-1	04/05/2016	21:46:41	Common pipistrell	FP-1	04/05/2016	22:34:12	Soprano pipistrelle
FP-1	04/05/2016	04:26:48	Soprano pipistrelle	FP-1	04/05/2016	04:50:20	Pipistrelle sp.	FP-1	04/05/2016	21:47:13	Soprano pipistrelle	FP-1	04/05/2016	22:34:31	Soprano pipistrelle
FP-1	04/05/2016	04:27:15	Soprano pipistrelle	FP-1	04/05/2016	04:50:43	Pipistrelle sp.	FP-1	04/05/2016	21:47:44	Soprano pipistrelle	FP-1	04/05/2016	22:34:42	Soprano pipistrelle
FP-1	04/05/2016	04:27:33	Common pipistrell	FP-1	04/05/2016	04:51:05	Pipistrelle sp.	FP-1	04/05/2016	21:48:06	Common pipistrell	FP-1	04/05/2016	22:35:00	Soprano pipistrelle
FP-1	04/05/2016	04:27:33	Soprano pipistrelle	FP-1	04/05/2016	04:51:16	Pipistrelle sp.	FP-1	04/05/2016	21:48:06	Soprano pipistrelle	FP-1	04/05/2016	22:35:18	Soprano pipistrelle
FP-1	04/05/2016	04:27:53	Soprano pipistrelle	FP-1	04/05/2016	04:51:31	Pipistrelle sp.	FP-1	04/05/2016	21:48:19	Common pipistrell	FP-1	04/05/2016	22:35:49	Soprano pipistrelle
FP-1	04/05/2016	04:28:09	Soprano pipistrelle	FP-1	04/05/2016	04:51:59	Pipistrelle sp.	FP-1	04/05/2016	21:48:19	Soprano pipistrelle	FP-1	04/05/2016	22:35:58	Soprano pipistrelle
FP-1	04/05/2016	04:29:11	Pipistrelle sp.	FP-1	04/05/2016	04:52:16	Pipistrelle sp.	FP-1	04/05/2016	21:48:32	Common pipistrell	FP-1	04/05/2016	22:36:12	Soprano pipistrelle
FP-1	04/05/2016	04:31:15	Common pipistrell	FP-1	04/05/2016	04:52:34	Pipistrelle sp.	FP-1	04/05/2016	21:50:24	Common pipistrell	FP-1	04/05/2016	22:36:21	Soprano pipistrelle
FP-1	04/05/2016	04:32:11	Soprano pipistrelle	FP-1	04/05/2016	04:52:51	Pipistrelle sp.	FP-1	04/05/2016	21:50:36	Common pipistrell	FP-1	04/05/2016	22:42:58	Pipistrelle sp.
FP-1	04/05/2016	04:33:15	Common pipistrell	FP-1	04/05/2016	04:53:13	Pipistrelle sp.	FP-1	04/05/2016	21:51:00	Pipistrelle sp.	FP-1	04/05/2016	22:43:12	Soprano pipistrelle
FP-1	04/05/2016	04:33:35	Soprano pipistrelle	FP-1	04/05/2016	04:53:32	Pipistrelle sp.	FP-1	04/05/2016	21:51:15	Common pipistrell	FP-1	04/05/2016	22:43:34	Soprano pipistrelle
FP-1	04/05/2016	04:34:35	Soprano pipistrelle	FP-1	04/05/2016	04:53:54	Pipistrelle sp.	FP-1	04/05/2016	21:51:27	Common pipistrell	FP-1	04/05/2016	22:43:43	Soprano pipistrelle
FP-1	04/05/2016	04:34:50	Pipistrelle sp.	FP-1	04/05/2016	04:56:09	Pipistrelle sp.	FP-1	04/05/2016	21:51:46	Common pipistrell	FP-1	04/05/2016	22:43:58	Soprano pipistrelle
FP-1	04/05/2016	04:36:30	Pipistrelle sp.	FP-1	04/05/2016	04:56:18	Pipistrelle sp.	FP-1	04/05/2016	21:51:59	Pipistrelle sp.	FP-1	04/05/2016	22:44:27	Soprano pipistrelle
FP-1	04/05/2016	04:39:11	Common pipistrell	FP-1	04/05/2016	04:56:37	Pipistrelle sp.	FP-1	04/05/2016	21:52:45	Soprano pipistrelle	FP-1	04/05/2016	22:44:45	Pipistrelle sp.
FP-1	04/05/2016	04:39:51	Pipistrelle sp.	FP-1	04/05/2016	04:57:13	Pipistrelle sp.	FP-1	04/05/2016	21:53:54	Common pipistrell	FP-1	04/05/2016	22:44:53	Soprano pipistrelle
FP-1	04/05/2016	04:40:09	Pipistrelle sp.	FP-1	04/05/2016	04:57:38	Pipistrelle sp.	FP-1	04/05/2016	21:58:31	Common pipistrell	FP-1	04/05/2016	22:45:07	Soprano pipistrelle
FP-1	04/05/2016	04:40:27	Pipistrelle sp.	FP-1	04/05/2016	04:57:49	Pipistrelle sp.	FP-1	04/05/2016	21:58:50	Common pipistrell	FP-1	04/05/2016	22:45:21	Pipistrelle sp.
FP-1	04/05/2016	04:40:36	Pipistrelle sp.	FP-1	04/05/2016	04:58:24	Pipistrelle sp.	FP-1	04/05/2016	21:59:09	Common pipistrell	FP-1	04/05/2016	22:47:58	Common pipistrelle
FP-1	04/05/2016	04:40:54	Pipistrelle sp.	FP-1	04/05/2016	04:58:41	Pipistrelle sp.	FP-1	04/05/2016	21:59:29	Common pipistrell	FP-1	04/05/2016	22:48:52	Soprano pipistrelle
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FP-1	04/05/2016	04:41:29	Pipistrelle sp.	FP-1	04/05/2016	04:59:12	Pipistrelle sp.	FP-1	04/05/2016	22:00:00	Soprano pipistrelle	FP-1	04/05/2016	22:49:22	Soprano pipistrelle
FP-1	04/05/2016	04:41:48	Pipistrelle sp.	FP-1	04/05/2016	04:59:46	Pipistrelle sp.	FP-1	04/05/2016	22:01:23	Common pipistrell	FP-1	04/05/2016	22:50:27	Soprano pipistrelle
FP-1	04/05/2016	04:42:07	Pipistrelle sp.	FP-1	04/05/2016	05:00:05	Pipistrelle sp.	FP-1	04/05/2016	22:01:43	Soprano pipistrelle	FP-1	04/05/2016	22:54:06	Common pipistrelle
FP-1	04/05/2016	04:42:28	Soprano pipistrelle	FP-1	04/05/2016	05:00:22	Pipistrelle sp.	FP-1	04/05/2016	22:02:57	Common pipistrell	FP-1	04/05/2016	22:54:20	Common pipistrelle
FP-1	04/05/2016	04:42:47	Pipistrelle sp.	FP-1	04/05/2016	05:00:34	Pipistrelle sp.	FP-1	04/05/2016	22:03:12	Soprano pipistrelle	FP-1	04/05/2016	22:54:31	Common pipistrelle
FP-1	04/05/2016	04:43:02	Pipistrelle sp.	FP-1	04/05/2016	21:34:57	Soprano pipistrelle	FP-1	04/05/2016	22:03:55	Soprano pipistrelle	FP-1	04/05/2016	22:54:50	Common pipistrelle
FP-1	04/05/2016	04:43:22	Pipistrelle sp.	FP-1	04/05/2016	21:39:48	Pipistrelle sp.	FP-1	04/05/2016	22:04:46	Common pipistrell	FP-1	04/05/2016	22:55:08	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	04/05/2016	22:57:36	Common pipistrell	FP-1	04/05/2016	23:37:21	Common pipistrell	FP-1	04/05/2016	23:55:13	Soprano pipistrelle	FP-1	05/05/2016	00:07:53	Soprano pipistrelle
FP-1	04/05/2016	22:57:54	Common pipistrell	FP-1	04/05/2016	23:37:46	Common pipistrell	FP-1	04/05/2016	23:55:31	Soprano pipistrelle	FP-1	05/05/2016	00:08:12	Soprano pipistrelle
FP-1	04/05/2016	22:58:01	Common pipistrell	FP-1	04/05/2016	23:38:04	Common pipistrell	FP-1	04/05/2016	23:55:42	Soprano pipistrelle	FP-1	05/05/2016	00:08:26	Soprano pipistrelle
FP-1	04/05/2016	22:58:17	Common pipistrell	FP-1	04/05/2016	23:38:50	Common pipistrell	FP-1	04/05/2016	23:55:52	Soprano pipistrelle	FP-1	05/05/2016	00:08:44	Soprano pipistrelle
FP-1	04/05/2016	22:58:30	Common pipistrell	FP-1	04/05/2016	23:39:08	Common pipistrell	FP-1	04/05/2016	23:56:08	Soprano pipistrelle	FP-1	05/05/2016	00:08:53	Common pipistrelle
FP-1	04/05/2016	23:02:49	Soprano pipistrelle	FP-1	04/05/2016	23:39:20	Common pipistrell	FP-1	04/05/2016	23:56:24	Common pipistrell	FP-1	05/05/2016	00:08:53	Soprano pipistrelle
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FP-1	04/05/2016	23:03:30	Soprano pipistrelle	FP-1	04/05/2016	23:41:46	Soprano pipistrelle	FP-1	04/05/2016	23:56:43	Common pipistrell	FP-1	05/05/2016	00:09:28	Soprano pipistrelle
FP-1	04/05/2016	23:07:35	Soprano pipistrelle	FP-1	04/05/2016	23:42:06	Soprano pipistrelle	FP-1	04/05/2016	23:56:43	Soprano pipistrelle	FP-1	05/05/2016	00:09:48	Soprano pipistrelle
FP-1	04/05/2016	23:14:08	Common pipistrell	FP-1	04/05/2016	23:42:25	Soprano pipistrelle	FP-1	04/05/2016	23:57:02	Common pipistrell	FP-1	05/05/2016	00:10:02	Soprano pipistrelle
FP-1	04/05/2016	23:16:45	Pipistrelle sp.	FP-1	04/05/2016	23:42:44	Soprano pipistrelle	FP-1	04/05/2016	23:57:02	Soprano pipistrelle	FP-1	05/05/2016	00:10:09	Soprano pipistrelle
FP-1	04/05/2016	23:19:09	Common pipistrell	FP-1	04/05/2016	23:45:16	Pipistrelle sp.	FP-1	04/05/2016	23:57:20	Soprano pipistrelle	FP-1	05/05/2016	00:10:16	Common pipistrelle
FP-1	04/05/2016	23:19:28	Common pipistrell	FP-1	04/05/2016	23:48:40	Pipistrelle sp.	FP-1	04/05/2016	23:57:34	Soprano pipistrelle	FP-1	05/05/2016	00:11:20	Soprano pipistrelle
FP-1	04/05/2016	23:20:18	Common pipistrell	FP-1	04/05/2016	23:49:02	Soprano pipistrelle	FP-1	04/05/2016	23:57:52	Soprano pipistrelle	FP-1	05/05/2016	00:11:31	Soprano pipistrelle
FP-1	04/05/2016	23:21:58	Common pipistrell	FP-1	04/05/2016	23:49:14	Soprano pipistrelle	FP-1	04/05/2016	23:58:10	Soprano pipistrelle	FP-1	05/05/2016	00:11:39	Soprano pipistrelle
FP-1	04/05/2016	23:23:13	Common pipistrell	FP-1	04/05/2016	23:49:27	Soprano pipistrelle	FP-1	04/05/2016	23:58:28	Soprano pipistrelle	FP-1	05/05/2016	00:11:57	Common pipistrelle
FP-1	04/05/2016	23:23:58	Common pipistrell	FP-1	04/05/2016	23:49:36	Soprano pipistrelle	FP-1	04/05/2016	23:58:43	Soprano pipistrelle	FP-1	05/05/2016	00:11:57	Soprano pipistrelle
FP-1	04/05/2016	23:24:16	Common pipistrell	FP-1	04/05/2016	23:49:51	Soprano pipistrelle	FP-1	04/05/2016	23:59:01	Common pipistrell	FP-1	05/05/2016	00:12:15	Common pipistrelle
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FP-1	04/05/2016	23:24:49	Common pipistrell	FP-1	04/05/2016	23:50:21	Soprano pipistrelle	FP-1	05/05/2016	00:00:07	Common pipistrell	FP-1	05/05/2016	00:12:56	Common pipistrelle
FP-1	04/05/2016	23:25:50	Common pipistrell	FP-1	04/05/2016	23:50:33	Soprano pipistrelle	FP-1	05/05/2016	00:00:07	Soprano pipistrelle	FP-1	05/05/2016	00:12:56	Soprano pipistrelle
FP-1	04/05/2016	23:26:13	Common pipistrell	FP-1	04/05/2016	23:50:42	Soprano pipistrelle	FP-1	05/05/2016	00:00:25	Common pipistrell	FP-1	05/05/2016	00:13:53	Soprano pipistrelle
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FP-1	04/05/2016	23:27:19	Common pipistrell	FP-1	04/05/2016	23:51:27	Soprano pipistrelle	FP-1	05/05/2016	00:01:28	Common pipistrell	FP-1	05/05/2016	00:14:42	Common pipistrelle
FP-1	04/05/2016	23:27:38	Common pipistrell	FP-1	04/05/2016	23:51:48	Soprano pipistrelle	FP-1	05/05/2016	00:02:46	Soprano pipistrelle	FP-1	05/05/2016	00:14:42	Soprano pipistrelle
FP-1	04/05/2016	23:28:01	Common pipistrell	FP-1	04/05/2016	23:52:01	Common pipistrell	FP-1	05/05/2016	00:03:04	Soprano pipistrelle	FP-1	05/05/2016	00:15:06	Soprano pipistrelle
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FP-1	04/05/2016	23:32:17	Common pipistrell	FP-1	04/05/2016	23:53:45	Common pipistrell	FP-1	05/05/2016	00:05:37	Soprano pipistrelle	FP-1	05/05/2016	00:17:20	Soprano pipistrelle
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FP-1	04/05/2016	23:36:22	Common pipistrell	FP-1	04/05/2016	23:54:56	Soprano pipistrelle	FP-1	05/05/2016	00:07:16	Soprano pipistrelle	FP-1	05/05/2016	00:19:33	Soprano pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	05/05/2016	00:19:59	Soprano pipistrelle	FP-1	05/05/2016	00:31:27	Soprano pipistrelle	FP-1	05/05/2016	00:42:31	Common pipistrelle	FP-1	05/05/2016	00:57:18	Soprano pipistrelle
FP-1	05/05/2016	00:20:17	Soprano pipistrelle	FP-1	05/05/2016	00:31:41	Soprano pipistrelle	FP-1	05/05/2016	00:42:49	Common pipistrelle	FP-1	05/05/2016	00:57:36	Common pipistrelle
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FP-1	05/05/2016	00:20:43	Soprano pipistrelle	FP-1	05/05/2016	00:32:05	Soprano pipistrelle	FP-1	05/05/2016	00:44:14	Common pipistrelle	FP-1	05/05/2016	00:57:54	Common pipistrelle
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FP-1	05/05/2016	00:21:28	Soprano pipistrelle	FP-1	05/05/2016	00:32:54	Soprano pipistrelle	FP-1	05/05/2016	00:46:54	Soprano pipistrelle	FP-1	05/05/2016	00:58:43	Common pipistrelle
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FP-1	05/05/2016	00:23:58	Soprano pipistrelle	FP-1	05/05/2016	00:36:00	Soprano pipistrelle	FP-1	05/05/2016	00:49:56	Soprano pipistrelle	FP-1	05/05/2016	01:02:19	Soprano pipistrelle
FP-1	05/05/2016	00:24:17	Soprano pipistrelle	FP-1	05/05/2016	00:36:28	Soprano pipistrelle	FP-1	05/05/2016	00:50:13	Soprano pipistrelle	FP-1	05/05/2016	01:02:37	Common pipistrelle
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FP-1	05/05/2016	00:24:51	Soprano pipistrelle	FP-1	05/05/2016	00:37:04	Soprano pipistrelle	FP-1	05/05/2016	00:50:38	Soprano pipistrelle	FP-1	05/05/2016	01:02:50	Common pipistrelle
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FP-1	05/05/2016	00:25:22	Soprano pipistrelle	FP-1	05/05/2016	00:37:32	Soprano pipistrelle	FP-1	05/05/2016	00:51:14	Soprano pipistrelle	FP-1	05/05/2016	01:03:16	Common pipistrelle
FP-1	05/05/2016	00:25:40	Soprano pipistrelle	FP-1	05/05/2016	00:37:50	Soprano pipistrelle	FP-1	05/05/2016	00:51:28	Soprano pipistrelle	FP-1	05/05/2016	01:03:33	Common pipistrelle
FP-1	05/05/2016	00:25:58	Soprano pipistrelle	FP-1	05/05/2016	00:38:00	Soprano pipistrelle	FP-1	05/05/2016	00:51:44	Soprano pipistrelle	FP-1	05/05/2016	01:03:47	Common pipistrelle
FP-1	05/05/2016	00:26:16	Soprano pipistrelle	FP-1	05/05/2016	00:38:09	Soprano pipistrelle	FP-1	05/05/2016	00:52:04	Soprano pipistrelle	FP-1	05/05/2016	01:03:56	Common pipistrelle
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FP-1	05/05/2016	00:28:05	Soprano pipistrelle	FP-1	05/05/2016	00:39:34	Soprano pipistrelle	FP-1	05/05/2016	00:53:26	Soprano pipistrelle	FP-1	05/05/2016	01:05:55	Common pipistrelle
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FP-1	05/05/2016	00:29:16	Soprano pipistrelle	FP-1	05/05/2016	00:40:43	Soprano pipistrelle	FP-1	05/05/2016	00:54:29	Common pipistrelle	FP-1	05/05/2016	01:07:22	Common pipistrelle
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FP-1	05/05/2016	00:30:18	Soprano pipistrelle	FP-1	05/05/2016	00:41:27	Soprano pipistrelle	FP-1	05/05/2016	00:56:21	Common pipistrelle	FP-1	05/05/2016	01:08:36	Common pipistrelle
FP-1	05/05/2016	00:30:36	Soprano pipistrelle	FP-1	05/05/2016	00:41:45	Soprano pipistrelle	FP-1	05/05/2016	00:56:42	Common pipistrelle	FP-1	05/05/2016	01:08:58	Common pipistrelle
FP-1	05/05/2016	00:30:51	Soprano pipistrelle	FP-1	05/05/2016	00:42:10	Common pipistrelle	FP-1	05/05/2016	00:56:59	Soprano pipistrelle	FP-1	05/05/2016	01:09:30	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	05/05/2016	01:09:53	Common pipistrell	FP-1	05/05/2016	01:34:47	Soprano pipistrelle	FP-1	05/05/2016	01:46:57	Common pipistrell	FP-1	05/05/2016	01:59:28	Pipistrelle sp.
FP-1	05/05/2016	01:10:12	Common pipistrell	FP-1	05/05/2016	01:34:59	Soprano pipistrelle	FP-1	05/05/2016	01:46:57	Soprano pipistrelle	FP-1	05/05/2016	01:59:40	Common pipistrelle
FP-1	05/05/2016	01:10:30	Common pipistrell	FP-1	05/05/2016	01:35:19	Soprano pipistrelle	FP-1	05/05/2016	01:47:15	Common pipistrell	FP-1	05/05/2016	02:00:02	Common pipistrelle
FP-1	05/05/2016	01:10:48	Common pipistrell	FP-1	05/05/2016	01:35:37	Soprano pipistrelle	FP-1	05/05/2016	01:47:33	Common pipistrell	FP-1	05/05/2016	02:00:13	Common pipistrelle
FP-1	05/05/2016	01:11:06	Common pipistrell	FP-1	05/05/2016	01:35:55	Soprano pipistrelle	FP-1	05/05/2016	01:47:46	Common pipistrell	FP-1	05/05/2016	02:00:29	Common pipistrelle
FP-1	05/05/2016	01:11:21	Common pipistrell	FP-1	05/05/2016	01:36:14	Soprano pipistrelle	FP-1	05/05/2016	01:48:21	Common pipistrell	FP-1	05/05/2016	02:00:51	Common pipistrelle
FP-1	05/05/2016	01:11:40	Common pipistrell	FP-1	05/05/2016	01:36:33	Soprano pipistrelle	FP-1	05/05/2016	01:48:21	Soprano pipistrelle	FP-1	05/05/2016	02:01:10	Common pipistrelle
FP-1	05/05/2016	01:11:58	Common pipistrell	FP-1	05/05/2016	01:36:53	Soprano pipistrelle	FP-1	05/05/2016	01:48:46	Common pipistrell	FP-1	05/05/2016	02:01:10	Soprano pipistrelle
FP-1	05/05/2016	01:12:27	Common pipistrell	FP-1	05/05/2016	01:37:04	Soprano pipistrelle	FP-1	05/05/2016	01:48:46	Soprano pipistrelle	FP-1	05/05/2016	02:01:25	Common pipistrelle
FP-1	05/05/2016	01:12:45	Common pipistrell	FP-1	05/05/2016	01:37:13	Soprano pipistrelle	FP-1	05/05/2016	01:49:04	Common pipistrell	FP-1	05/05/2016	02:01:25	Soprano pipistrelle
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FP-1	05/05/2016	01:13:16	Common pipistrell	FP-1	05/05/2016	01:37:37	Soprano pipistrelle	FP-1	05/05/2016	01:49:23	Soprano pipistrelle	FP-1	05/05/2016	02:01:39	Soprano pipistrelle
FP-1	05/05/2016	01:13:32	Common pipistrell	FP-1	05/05/2016	01:37:44	Soprano pipistrelle	FP-1	05/05/2016	01:49:42	Soprano pipistrelle	FP-1	05/05/2016	02:01:57	Common pipistrelle
FP-1	05/05/2016	01:14:15	Common pipistrell	FP-1	05/05/2016	01:38:02	Soprano pipistrelle	FP-1	05/05/2016	01:51:49	Soprano pipistrelle	FP-1	05/05/2016	02:02:08	Common pipistrelle
FP-1	05/05/2016	01:18:48	Pipistrelle sp.	FP-1	05/05/2016	01:38:20	Soprano pipistrelle	FP-1	05/05/2016	01:51:59	Soprano pipistrelle	FP-1	05/05/2016	02:02:16	Common pipistrelle
FP-1	05/05/2016	01:21:22	Soprano pipistrelle	FP-1	05/05/2016	01:38:30	Soprano pipistrelle	FP-1	05/05/2016	01:52:18	Soprano pipistrelle	FP-1	05/05/2016	02:02:44	Common pipistrelle
FP-1	05/05/2016	01:21:40	Soprano pipistrelle	FP-1	05/05/2016	01:38:48	Soprano pipistrelle	FP-1	05/05/2016	01:52:29	Soprano pipistrelle	FP-1	05/05/2016	02:03:05	Common pipistrelle
FP-1	05/05/2016	01:21:58	Soprano pipistrelle	FP-1	05/05/2016	01:39:07	Soprano pipistrelle	FP-1	05/05/2016	01:52:37	Soprano pipistrelle	FP-1	05/05/2016	02:03:19	Common pipistrelle
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FP-1	05/05/2016	01:22:38	Soprano pipistrelle	FP-1	05/05/2016	01:39:30	Soprano pipistrelle	FP-1	05/05/2016	01:53:07	Soprano pipistrelle	FP-1	05/05/2016	02:03:44	Common pipistrelle
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FP-1	05/05/2016	01:23:06	Soprano pipistrelle	FP-1	05/05/2016	01:39:46	Soprano pipistrelle	FP-1	05/05/2016	01:53:41	Soprano pipistrelle	FP-1	05/05/2016	02:05:10	Common pipistrelle
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FP-1	05/05/2016	01:26:32	Pipistrelle sp.	FP-1	05/05/2016	01:40:16	Soprano pipistrelle	FP-1	05/05/2016	01:54:18	Soprano pipistrelle	FP-1	05/05/2016	02:07:03	Soprano pipistrelle
FP-1	05/05/2016	01:28:23	Soprano pipistrelle	FP-1	05/05/2016	01:40:28	Soprano pipistrelle	FP-1	05/05/2016	01:54:37	Soprano pipistrelle	FP-1	05/05/2016	02:07:13	Soprano pipistrelle
FP-1	05/05/2016	01:28:47	Soprano pipistrelle	FP-1	05/05/2016	01:40:36	Soprano pipistrelle	FP-1	05/05/2016	01:54:55	Soprano pipistrelle	FP-1	05/05/2016	02:07:24	Soprano pipistrelle
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FP-1	05/05/2016	01:30:37	Soprano pipistrelle	FP-1	05/05/2016	01:41:30	Common pipistrell	FP-1	05/05/2016	01:55:38	Soprano pipistrelle	FP-1	05/05/2016	02:08:18	Soprano pipistrelle
FP-1	05/05/2016	01:30:46	Soprano pipistrelle	FP-1	05/05/2016	01:41:43	Common pipistrell	FP-1	05/05/2016	01:55:49	Soprano pipistrelle	FP-1	05/05/2016	02:08:55	Soprano pipistrelle
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FP-1	05/05/2016	01:31:36	Soprano pipistrelle	FP-1	05/05/2016	01:42:44	Common pipistrell	FP-1	05/05/2016	01:56:37	Soprano pipistrelle	FP-1	05/05/2016	02:10:17	Soprano pipistrelle
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FP-1	05/05/2016	01:33:13	Leisler's bat	FP-1	05/05/2016	01:44:55	Pipistrelle sp.	FP-1	05/05/2016	01:58:03	Common pipistrell	FP-1	05/05/2016	02:11:49	Common pipistrelle
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FP-1	05/05/2016	01:34:10	Soprano pipistrelle	FP-1	05/05/2016	01:46:42	Common pipistrell	FP-1	05/05/2016	01:59:06	Common pipistrell	FP-1	05/05/2016	02:12:25	Soprano pipistrelle
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ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	05/05/2016	02:13:03	Pipistrelle sp.	FP-1	05/05/2016	02:28:14	Common pipistrell	FP-1	05/05/2016	02:41:00	Common pipistrell	FP-1	05/05/2016	02:55:55	Common pipistrelle
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FP-1	05/05/2016	02:15:18	Common pipistrell	FP-1	05/05/2016	02:30:26	Common pipistrell	FP-1	05/05/2016	02:42:40	Common pipistrell	FP-1	05/05/2016	02:58:07	Common pipistrelle
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FP-1	05/05/2016	02:15:49	Common pipistrell	FP-1	05/05/2016	02:30:57	Common pipistrell	FP-1	05/05/2016	02:43:29	Pipistrelle sp.	FP-1	05/05/2016	02:58:39	Common pipistrelle
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FP-1	05/05/2016	02:21:03	Common pipistrell	FP-1	05/05/2016	02:34:30	Common pipistrell	FP-1	05/05/2016	02:48:07	Common pipistrell	FP-1	05/05/2016	03:03:28	Common pipistrelle
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FP-1	05/05/2016	02:21:36	Common pipistrell	FP-1	05/05/2016	02:34:58	Common pipistrell	FP-1	05/05/2016	02:49:09	Common pipistrell	FP-1	05/05/2016	03:04:02	Common pipistrelle
FP-1	05/05/2016	02:21:46	Common pipistrell	FP-1	05/05/2016	02:35:21	Common pipistrell	FP-1	05/05/2016	02:49:38	Common pipistrell	FP-1	05/05/2016	03:04:21	Common pipistrelle
FP-1	05/05/2016	02:22:06	Common pipistrell	FP-1	05/05/2016	02:35:34	Common pipistrell	FP-1	05/05/2016	02:50:13	Common pipistrell	FP-1	05/05/2016	03:04:49	Common pipistrelle
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FP-1	05/05/2016	02:26:51	Common pipistrell	FP-1	05/05/2016	02:39:37	Common pipistrell	FP-1	05/05/2016	02:54:24	Common pipistrell	FP-1	05/05/2016	03:09:54	Common pipistrelle
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FP-1	05/05/2016	02:27:24	Common pipistrell	FP-1	05/05/2016	02:40:01	Common pipistrell	FP-1	05/05/2016	02:55:03	Common pipistrell	FP-1	05/05/2016	03:11:04	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	05/05/2016	03:11:40	Common pipistrell	FP-1	05/05/2016	03:32:50	Common pipistrell	FP-1	05/05/2016	04:41:57	Pipistrelle sp.	FP-1	05/05/2016	05:06:12	Common pipistrelle
FP-1	05/05/2016	03:12:01	Common pipistrell	FP-1	05/05/2016	03:33:17	Common pipistrell	FP-1	05/05/2016	04:46:30	Soprano pipistrelle	FP-1	05/05/2016	05:06:26	Common pipistrelle
FP-1	05/05/2016	03:12:25	Common pipistrell	FP-1	05/05/2016	03:33:36	Common pipistrell	FP-1	05/05/2016	04:47:26	Common pipistrell	FP-1	05/05/2016	05:06:38	Common pipistrelle
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FP-1	05/05/2016	03:13:38	Common pipistrell	FP-1	05/05/2016	03:34:21	Common pipistrell	FP-1	05/05/2016	04:50:37	Pipistrelle sp.	FP-1	05/05/2016	21:32:07	Leisler's bat
FP-1	05/05/2016	03:13:45	Common pipistrell	FP-1	05/05/2016	03:34:30	Common pipistrell	FP-1	05/05/2016	04:50:52	Pipistrelle sp.	FP-1	05/05/2016	21:32:18	Leisler's bat
FP-1	05/05/2016	03:14:01	Common pipistrell	FP-1	05/05/2016	03:34:43	Common pipistrell	FP-1	05/05/2016	04:52:22	Common pipistrell	FP-1	05/05/2016	21:37:50	Leisler's bat
FP-1	05/05/2016	03:14:18	Common pipistrell	FP-1	05/05/2016	03:35:00	Common pipistrell	FP-1	05/05/2016	04:53:42	Common pipistrell	FP-1	05/05/2016	21:39:30	Pipistrelle sp.
FP-1	05/05/2016	03:14:41	Common pipistrell	FP-1	05/05/2016	03:35:09	Common pipistrell	FP-1	05/05/2016	04:54:11	Common pipistrell	FP-1	05/05/2016	21:39:47	Pipistrelle sp.
FP-1	05/05/2016	03:14:50	Common pipistrell	FP-1	05/05/2016	03:35:19	Common pipistrell	FP-1	05/05/2016	04:54:33	Common pipistrell	FP-1	05/05/2016	21:39:57	Pipistrelle sp.
FP-1	05/05/2016	03:15:04	Common pipistrell	FP-1	05/05/2016	03:35:37	Common pipistrell	FP-1	05/05/2016	04:54:42	Common pipistrell	FP-1	05/05/2016	21:40:14	Pipistrelle sp.
FP-1	05/05/2016	03:15:17	Common pipistrell	FP-1	05/05/2016	03:36:27	Soprano pipistrelle	FP-1	05/05/2016	04:55:02	Common pipistrell	FP-1	05/05/2016	21:40:27	Pipistrelle sp.
FP-1	05/05/2016	03:15:26	Common pipistrell	FP-1	05/05/2016	03:36:53	Soprano pipistrelle	FP-1	05/05/2016	04:55:13	Common pipistrell	FP-1	05/05/2016	21:50:48	Soprano pipistrelle
FP-1	05/05/2016	03:15:58	Common pipistrell	FP-1	05/05/2016	03:37:24	Soprano pipistrelle	FP-1	05/05/2016	04:55:42	Common pipistrell	FP-1	05/05/2016	21:51:33	Soprano pipistrelle
FP-1	05/05/2016	03:16:11	Common pipistrell	FP-1	05/05/2016	03:40:32	Pipistrelle sp.	FP-1	05/05/2016	04:56:08	Common pipistrell	FP-1	05/05/2016	22:03:43	Common pipistrelle
FP-1	05/05/2016	03:17:30	Common pipistrell	FP-1	05/05/2016	03:41:13	Soprano pipistrelle	FP-1	05/05/2016	04:56:49	Common pipistrell	FP-1	05/05/2016	22:13:56	Pipistrelle sp.
FP-1	05/05/2016	03:17:44	Common pipistrell	FP-1	05/05/2016	03:42:41	Soprano pipistrelle	FP-1	05/05/2016	04:56:58	Common pipistrell	FP-1	05/05/2016	22:36:30	Pipistrelle sp.
FP-1	05/05/2016	03:18:23	Common pipistrell	FP-1	05/05/2016	03:43:08	Soprano pipistrelle	FP-1	05/05/2016	04:57:15	Common pipistrell	FP-1	05/05/2016	22:39:49	Pipistrelle sp.
FP-1	05/05/2016	03:18:59	Common pipistrell	FP-1	05/05/2016	03:43:44	Soprano pipistrelle	FP-1	05/05/2016	04:57:38	Common pipistrell	FP-1	05/05/2016	22:43:01	Common pipistrelle
FP-1	05/05/2016	03:19:17	Common pipistrell	FP-1	05/05/2016	03:44:51	Soprano pipistrelle	FP-1	05/05/2016	04:57:59	Common pipistrell	FP-1	05/05/2016	22:43:09	Common pipistrelle
FP-1	05/05/2016	03:20:10	Pipistrelle sp.	FP-1	05/05/2016	04:27:52	Soprano pipistrelle	FP-1	05/05/2016	04:58:12	Common pipistrell	FP-1	05/05/2016	22:44:35	Pipistrelle sp.
FP-1	05/05/2016	03:20:19	Common pipistrell	FP-1	05/05/2016	04:29:12	Common pipistrell	FP-1	05/05/2016	04:58:53	Common pipistrell	FP-1	05/05/2016	22:47:18	Pipistrelle sp.
FP-1	05/05/2016	03:20:38	Common pipistrell	FP-1	05/05/2016	04:29:40	Common pipistrell	FP-1	05/05/2016	04:59:05	Common pipistrell	FP-1	05/05/2016	23:03:14	Pipistrelle sp.
FP-1	05/05/2016	03:21:11	Common pipistrell	FP-1	05/05/2016	04:30:10	Common pipistrell	FP-1	05/05/2016	04:59:28	Common pipistrell	FP-1	05/05/2016	23:10:49	Common pipistrelle
FP-1	05/05/2016	03:21:35	Common pipistrell	FP-1	05/05/2016	04:30:32	Common pipistrell	FP-1	05/05/2016	04:59:41	Common pipistrell	FP-1	05/05/2016	23:12:39	Soprano pipistrelle
FP-1	05/05/2016	03:22:52	Common pipistrell	FP-1	05/05/2016	04:30:41	Common pipistrell	FP-1	05/05/2016	04:59:56	Common pipistrell	FP-1	05/05/2016	23:14:11	Soprano pipistrelle
FP-1	05/05/2016	03:23:30	Pipistrelle sp.	FP-1	05/05/2016	04:30:54	Common pipistrell	FP-1	05/05/2016	05:00:25	Common pipistrell	FP-1	05/05/2016	23:14:55	Common pipistrelle
FP-1	05/05/2016	03:24:47	Common pipistrell	FP-1	05/05/2016	04:31:19	Common pipistrell	FP-1	05/05/2016	05:00:37	Common pipistrell	FP-1	05/05/2016	23:25:42	Pipistrelle sp.
FP-1	05/05/2016	03:25:27	Common pipistrell	FP-1	05/05/2016	04:31:47	Common pipistrell	FP-1	05/05/2016	05:01:16	Common pipistrell	FP-1	05/05/2016	23:26:35	Common pipistrelle
FP-1	05/05/2016	03:26:08	Common pipistrell	FP-1	05/05/2016	04:32:23	Common pipistrell	FP-1	05/05/2016	05:01:43	Common pipistrell	FP-1	05/05/2016	23:26:57	Soprano pipistrelle
FP-1	05/05/2016	03:26:57	Common pipistrell	FP-1	05/05/2016	04:32:32	Common pipistrell	FP-1	05/05/2016	05:02:00	Common pipistrell	FP-1	05/05/2016	23:28:15	Common pipistrelle
FP-1	05/05/2016	03:26:57	Soprano pipistrelle	FP-1	05/05/2016	04:32:50	Common pipistrell	FP-1	05/05/2016	05:02:22	Common pipistrell	FP-1	05/05/2016	23:33:57	Pipistrelle sp.
FP-1	05/05/2016	03:27:16	Common pipistrell	FP-1	05/05/2016	04:33:03	Common pipistrell	FP-1	05/05/2016	05:02:39	Common pipistrell	FP-1	05/05/2016	23:39:26	Common pipistrelle
FP-1	05/05/2016	03:27:16	Soprano pipistrelle	FP-1	05/05/2016	04:33:03	Soprano pipistrelle	FP-1	05/05/2016	05:02:54	Common pipistrell	FP-1	05/05/2016	23:39:49	Common pipistrelle
FP-1	05/05/2016	03:27:50	Common pipistrell	FP-1	05/05/2016	04:33:30	Common pipistrell	FP-1	05/05/2016	05:03:20	Common pipistrell	FP-1	05/05/2016	23:51:01	Pipistrelle sp.
FP-1	05/05/2016	03:28:39	Common pipistrell	FP-1	05/05/2016	04:33:45	Soprano pipistrelle	FP-1	05/05/2016	05:04:11	Common pipistrell	FP-1	06/05/2016	00:11:34	Common pipistrelle
FP-1	05/05/2016	03:29:20	Common pipistrell	FP-1	05/05/2016	04:33:54	Soprano pipistrelle	FP-1	05/05/2016	05:04:30	Common pipistrell	FP-1	06/05/2016	00:17:39	Pipistrelle sp.
FP-1	05/05/2016	03:29:43	Common pipistrell	FP-1	05/05/2016	04:34:11	Common pipistrell	FP-1	05/05/2016	05:04:50	Common pipistrell	FP-1	06/05/2016	00:18:36	Pipistrelle sp.
FP-1	05/05/2016	03:30:05	Common pipistrell	FP-1	05/05/2016	04:34:20	Common pipistrell	FP-1	05/05/2016	05:05:01	Common pipistrell	FP-1	06/05/2016	00:20:44	Common pipistrelle
FP-1	05/05/2016	03:30:58	Common pipistrell	FP-1	05/05/2016	04:34:32	Common pipistrell	FP-1	05/05/2016	05:05:13	Common pipistrell	FP-1	06/05/2016	00:34:21	Common pipistrelle
FP-1	05/05/2016	03:31:55	Common pipistrell	FP-1	05/05/2016	04:34:46	Common pipistrell	FP-1	05/05/2016	05:05:29	Common pipistrell	FP-1	06/05/2016	00:36:16	Common pipistrelle
FP-1	05/05/2016	03:32:04	Common pipistrell	FP-1	05/05/2016	04:39:19	Pipistrelle sp.	FP-1	05/05/2016	05:05:40	Common pipistrell	FP-1	06/05/2016	01:03:37	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	06/05/2016	01:09:07	Common pipistrell	FP-1	06/05/2016	22:38:27	Pipistrelle sp.	FP-1	07/05/2016	22:01:38	Soprano pipistrelle	FP-1	08/05/2016	03:51:20	Common pipistrelle
FP-1	06/05/2016	01:50:24	Common pipistrell	FP-1	06/05/2016	22:39:58	Common pipistrell	FP-1	07/05/2016	22:02:25	Soprano pipistrelle	FP-1	08/05/2016	03:53:15	Common pipistrelle
FP-1	06/05/2016	01:51:41	Common pipistrell	FP-1	06/05/2016	22:40:57	Pipistrelle sp.	FP-1	07/05/2016	22:06:39	Pipistrelle sp.	FP-1	08/05/2016	03:57:36	Leisler's bat
FP-1	06/05/2016	02:57:00	Common pipistrell	FP-1	06/05/2016	22:42:58	Common pipistrell	FP-1	07/05/2016	22:08:47	Common pipistrell	FP-1	08/05/2016	04:17:55	Soprano pipistrelle
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FP-1	06/05/2016	03:57:08	Leisler's bat	FP-1	06/05/2016	22:50:04	Pipistrelle sp.	FP-1	07/05/2016	22:13:09	Soprano pipistrelle	FP-1	08/05/2016	04:25:34	Pipistrelle sp.
FP-1	06/05/2016	03:57:16	Leisler's bat	FP-1	06/05/2016	22:59:00	Pipistrelle sp.	FP-1	07/05/2016	22:15:08	Soprano pipistrelle	FP-1	08/05/2016	04:32:10	Soprano pipistrelle
FP-1	06/05/2016	04:03:08	Common pipistrell	FP-1	06/05/2016	23:10:43	Common pipistrell	FP-1	07/05/2016	22:26:18	Leisler's bat	FP-1	08/05/2016	04:32:24	Soprano pipistrelle
FP-1	06/05/2016	04:04:17	Soprano pipistrelle	FP-1	06/05/2016	23:12:15	Common pipistrell	FP-1	07/05/2016	22:29:58	Myotis sp.	FP-1	08/05/2016	04:32:34	Soprano pipistrelle
FP-1	06/05/2016	04:22:55	Soprano pipistrelle	FP-1	06/05/2016	23:12:24	Common pipistrell	FP-1	07/05/2016	22:52:05	Leisler's bat	FP-1	08/05/2016	04:37:32	Soprano pipistrelle
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FP-1	06/05/2016	04:26:28	Pipistrelle sp.	FP-1	06/05/2016	23:20:27	Pipistrelle sp.	FP-1	07/05/2016	23:27:18	Leisler's bat	FP-1	08/05/2016	04:58:13	Common pipistrelle
FP-1	06/05/2016	04:27:33	Leisler's bat	FP-1	06/05/2016	23:24:10	Soprano pipistrelle	FP-1	07/05/2016	23:27:32	Leisler's bat	FP-1	08/05/2016	21:45:41	Soprano pipistrelle
FP-1	06/05/2016	04:28:32	Soprano pipistrelle	FP-1	06/05/2016	23:24:43	Soprano pipistrelle	FP-1	07/05/2016	23:33:52	Pipistrelle sp.	FP-1	08/05/2016	21:49:12	Soprano pipistrelle
FP-1	06/05/2016	04:42:13	Common pipistrell	FP-1	06/05/2016	23:45:17	Soprano pipistrelle	FP-1	07/05/2016	23:38:59	Pipistrelle sp.	FP-1	08/05/2016	21:49:19	Soprano pipistrelle
FP-1	06/05/2016	04:50:56	Soprano pipistrelle	FP-1	06/05/2016	23:45:28	Soprano pipistrelle	FP-1	07/05/2016	23:41:34	Common pipistrell	FP-1	08/05/2016	21:56:31	Leisler's bat
FP-1	06/05/2016	04:56:16	Common pipistrell	FP-1	06/05/2016	23:46:35	Soprano pipistrelle	FP-1	07/05/2016	23:47:31	Pipistrelle sp.	FP-1	08/05/2016	22:00:26	Leisler's bat
FP-1	06/05/2016	04:56:25	Common pipistrell	FP-1	06/05/2016	23:46:48	Soprano pipistrelle	FP-1	08/05/2016	00:38:54	Soprano pipistrelle	FP-1	08/05/2016	22:02:58	Leisler's bat
FP-1	06/05/2016	05:01:07	Common pipistrell	FP-1	06/05/2016	23:49:08	Soprano pipistrelle	FP-1	08/05/2016	00:52:34	Soprano pipistrelle	FP-1	08/05/2016	22:05:55	Pipistrelle sp.
FP-1	06/05/2016	21:34:45	Leisler's bat	FP-1	06/05/2016	23:51:30	Common pipistrell	FP-1	08/05/2016	00:56:08	Soprano pipistrelle	FP-1	08/05/2016	22:11:16	Common pipistrelle
FP-1	06/05/2016	21:37:57	Leisler's bat	FP-1	06/05/2016	23:55:35	Pipistrelle sp.	FP-1	08/05/2016	01:15:14	Soprano pipistrelle	FP-1	08/05/2016	22:29:25	Common pipistrelle
FP-1	06/05/2016	21:42:09	Leisler's bat	FP-1	07/05/2016	00:12:03	Soprano pipistrelle	FP-1	08/05/2016	01:44:47	Common pipistrell	FP-1	08/05/2016	22:31:18	Soprano pipistrelle
FP-1	06/05/2016	21:44:04	Pipistrelle sp.	FP-1	07/05/2016	00:12:22	Soprano pipistrelle	FP-1	08/05/2016	01:46:23	Pipistrelle sp.	FP-1	08/05/2016	22:38:50	Soprano pipistrelle
FP-1	06/05/2016	21:45:11	Common pipistrell	FP-1	07/05/2016	00:13:02	Soprano pipistrelle	FP-1	08/05/2016	02:04:55	Soprano pipistrelle	FP-1	08/05/2016	22:40:45	Soprano pipistrelle
FP-1	06/05/2016	21:45:31	Soprano pipistrelle	FP-1	07/05/2016	00:13:14	Common pipistrell	FP-1	08/05/2016	02:10:03	Leisler's bat	FP-1	08/05/2016	22:47:14	Soprano pipistrelle
FP-1	06/05/2016	21:48:39	Soprano pipistrelle	FP-1	07/05/2016	00:13:33	Common pipistrell	FP-1	08/05/2016	02:19:51	Common pipistrell	FP-1	08/05/2016	22:48:53	Leisler's bat
FP-1	06/05/2016	21:48:53	Common pipistrell	FP-1	07/05/2016	00:17:14	Leisler's bat	FP-1	08/05/2016	02:19:51	Leisler's bat	FP-1	08/05/2016	23:07:00	Common pipistrelle
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FP-1	06/05/2016	21:51:06	Pipistrelle sp.	FP-1	07/05/2016	00:27:29	Leisler's bat	FP-1	08/05/2016	02:51:43	Pipistrelle sp.	FP-1	08/05/2016	23:13:44	Common pipistrelle
FP-1	06/05/2016	21:56:09	Common pipistrell	FP-1	07/05/2016	00:38:02	Leisler's bat	FP-1	08/05/2016	03:08:03	Myotis sp.	FP-1	08/05/2016	23:18:59	Common pipistrelle
FP-1	06/05/2016	21:57:50	Common pipistrell	FP-1	07/05/2016	00:46:00	Leisler's bat	FP-1	08/05/2016	03:10:54	Pipistrelle sp.	FP-1	08/05/2016	23:19:15	Soprano pipistrelle
FP-1	06/05/2016	21:59:03	Leisler's bat	FP-1	07/05/2016	00:57:06	Soprano pipistrelle	FP-1	08/05/2016	03:23:24	Soprano pipistrelle	FP-1	08/05/2016	23:29:47	Common pipistrelle
FP-1	06/05/2016	22:03:45	Pipistrelle sp.	FP-1	07/05/2016	01:19:40	Leisler's bat	FP-1	08/05/2016	03:26:37	Soprano pipistrelle	FP-1	08/05/2016	23:33:22	Soprano pipistrelle
FP-1	06/05/2016	22:06:41	Soprano pipistrelle	FP-1	07/05/2016	01:19:55	Leisler's bat	FP-1	08/05/2016	03:28:28	Soprano pipistrelle	FP-1	08/05/2016	23:47:30	Soprano pipistrelle
FP-1	06/05/2016	22:21:47	Common pipistrell	FP-1	07/05/2016	01:20:27	Soprano pipistrelle	FP-1	08/05/2016	03:30:35	Soprano pipistrelle	FP-1	08/05/2016	23:58:09	Leisler's bat
FP-1	06/05/2016	22:24:50	Common pipistrell	FP-1	07/05/2016	01:28:06	Soprano pipistrelle	FP-1	08/05/2016	03:30:52	Soprano pipistrelle	FP-1	09/05/2016	00:01:14	Leisler's bat
FP-1	06/05/2016	22:26:16	Leisler's bat	FP-1	07/05/2016	01:29:20	Leisler's bat	FP-1	08/05/2016	03:32:34	Common pipistrell	FP-1	09/05/2016	00:42:15	Leisler's bat
FP-1	06/05/2016	22:26:24	Leisler's bat	FP-1	07/05/2016	01:45:23	Common pipistrell	FP-1	08/05/2016	03:42:55	Pipistrelle sp.	FP-1	09/05/2016	00:42:23	Leisler's bat
FP-1	06/05/2016	22:27:35	Common pipistrell	FP-1	07/05/2016	02:02:53	Leisler's bat	FP-1	08/05/2016	03:43:04	Soprano pipistrelle	FP-1	09/05/2016	00:45:44	Myotis sp.
FP-1	06/05/2016	22:27:55	Pipistrelle sp.	FP-1	07/05/2016	04:31:51	Common pipistrell	FP-1	08/05/2016	03:44:44	Pipistrelle sp.	FP-1	09/05/2016	01:10:36	Myotis sp.
FP-1	06/05/2016	22:28:45	Common pipistrell	FP-1	07/05/2016	04:43:32	Leisler's bat	FP-1	08/05/2016	03:47:31	Common pipistrell	FP-1	09/05/2016	01:18:34	Leisler's bat
FP-1	06/05/2016	22:34:13	Pipistrelle sp.	FP-1	07/05/2016	21:40:05	Soprano pipistrelle	FP-1	08/05/2016	03:48:04	Common pipistrell	FP-1	09/05/2016	01:19:19	Leisler's bat
FP-1	06/05/2016	22:36:35	Pipistrelle sp.	FP-1	07/05/2016	22:00:44	Pipistrelle sp.	FP-1	08/05/2016	03:48:17	Soprano pipistrelle	FP-1	09/05/2016	01:35:01	Common pipistrelle
FP-1	06/05/2016	22:38:08	Pipistrelle sp.	FP-1	07/05/2016	22:01:00	Pipistrelle sp.	FP-1	08/05/2016	03:48:43	Common pipistrell	FP-1	09/05/2016	01:46:17	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	09/05/2016	01:50:58	Pipistrelle sp.	FP-1	09/05/2016	23:55:01	Pipistrelle sp.	FP-1	10/05/2016	02:42:36	Leisler's bat	FP-1	11/05/2016	03:53:15	Leisler's bat
FP-1	09/05/2016	01:51:43	Soprano pipistrelle	FP-1	10/05/2016	00:00:26	Leisler's bat	FP-1	10/05/2016	02:46:58	Leisler's bat	FP-1	11/05/2016	03:53:34	Leisler's bat
FP-1	09/05/2016	01:56:29	Soprano pipistrelle	FP-1	10/05/2016	00:02:16	Common pipistrell	FP-1	10/05/2016	02:47:07	Leisler's bat	FP-1	11/05/2016	04:01:49	Leisler's bat
FP-1	09/05/2016	01:58:15	Soprano pipistrelle	FP-1	10/05/2016	00:06:31	Leisler's bat	FP-1	10/05/2016	02:47:52	Leisler's bat	FP-1	11/05/2016	04:02:07	Leisler's bat
FP-1	09/05/2016	02:22:51	Leisler's bat	FP-1	10/05/2016	00:10:44	Leisler's bat	FP-1	10/05/2016	02:48:57	Pipistrelle sp.	FP-1	11/05/2016	04:16:03	Leisler's bat
FP-1	09/05/2016	02:30:24	Common pipistrell	FP-1	10/05/2016	00:11:26	Common pipistrell	FP-1	10/05/2016	02:58:08	Leisler's bat	FP-1	11/05/2016	04:16:36	Leisler's bat
FP-1	09/05/2016	02:41:14	Common pipistrell	FP-1	10/05/2016	00:15:36	Pipistrelle sp.	FP-1	10/05/2016	02:58:34	Leisler's bat	FP-1	11/05/2016	04:42:24	Leisler's bat
FP-1	09/05/2016	02:46:47	Pipistrelle sp.	FP-1	10/05/2016	00:17:55	Leisler's bat	FP-1	10/05/2016	03:15:19	Pipistrelle sp.	FP-1	11/05/2016	04:42:42	Common pipistrelle
FP-1	09/05/2016	02:48:44	Pipistrelle sp.	FP-1	10/05/2016	00:30:42	Soprano pipistrelle	FP-1	10/05/2016	03:20:26	Leisler's bat	FP-1	11/05/2016	04:50:04	Common pipistrelle
FP-1	09/05/2016	02:48:57	Pipistrelle sp.	FP-1	10/05/2016	00:33:03	Leisler's bat	FP-1	10/05/2016	03:26:38	Pipistrelle sp.	FP-1	11/05/2016	04:59:30	Leisler's bat
FP-1	09/05/2016	02:51:35	Soprano pipistrelle	FP-1	10/05/2016	00:41:57	Leisler's bat	FP-1	10/05/2016	03:31:44	Common pipistrell	FP-1	11/05/2016	22:07:57	Soprano pipistrelle
FP-1	09/05/2016	02:56:51	Pipistrelle sp.	FP-1	10/05/2016	00:44:56	Leisler's bat	FP-1	10/05/2016	03:56:30	Leisler's bat	FP-1	11/05/2016	22:15:56	Common pipistrelle
FP-1	09/05/2016	03:16:20	Common pipistrell	FP-1	10/05/2016	00:48:45	Common pipistrell	FP-1	10/05/2016	03:56:41	Leisler's bat	FP-1	11/05/2016	22:32:00	Common pipistrelle
FP-1	09/05/2016	03:50:03	Leisler's bat	FP-1	10/05/2016	00:50:45	Common pipistrell	FP-1	10/05/2016	03:57:58	Soprano pipistrelle	FP-1	11/05/2016	22:35:51	Common pipistrelle
FP-1	09/05/2016	03:50:20	Leisler's bat	FP-1	10/05/2016	00:52:26	Common pipistrell	FP-1	10/05/2016	04:02:39	Leisler's bat	FP-1	11/05/2016	22:36:23	Leisler's bat
FP-1	09/05/2016	04:27:07	Soprano pipistrelle	FP-1	10/05/2016	00:52:36	Common pipistrell	FP-1	10/05/2016	04:02:50	Leisler's bat	FP-1	11/05/2016	22:37:09	Leisler's bat
FP-1	09/05/2016	04:30:09	Soprano pipistrelle	FP-1	10/05/2016	00:54:02	Leisler's bat	FP-1	10/05/2016	04:05:00	Common pipistrell	FP-1	11/05/2016	22:40:43	Soprano pipistrelle
FP-1	09/05/2016	04:49:45	Leisler's bat	FP-1	10/05/2016	00:54:20	Leisler's bat	FP-1	10/05/2016	04:30:43	Leisler's bat	FP-1	11/05/2016	22:47:17	Common pipistrelle
FP-1	09/05/2016	04:52:24	Soprano pipistrelle	FP-1	10/05/2016	00:54:38	Leisler's bat	FP-1	10/05/2016	04:33:17	Leisler's bat	FP-1	11/05/2016	22:55:27	Leisler's bat
FP-1	09/05/2016	04:58:47	Leisler's bat	FP-1	10/05/2016	01:16:51	Common pipistrell	FP-1	10/05/2016	04:38:32	Leisler's bat	FP-1	11/05/2016	22:55:45	Leisler's bat
FP-1	09/05/2016	21:53:11	Pipistrelle sp.	FP-1	10/05/2016	01:17:30	Common pipistrell	FP-1	10/05/2016	04:39:08	Leisler's bat	FP-1	11/05/2016	23:05:26	Leisler's bat
FP-1	09/05/2016	21:54:52	Pipistrelle sp.	FP-1	10/05/2016	01:19:40	Common pipistrell	FP-1	10/05/2016	04:39:24	Leisler's bat	FP-1	11/05/2016	23:05:38	Common pipistrelle
FP-1	09/05/2016	22:02:32	Leisler's bat	FP-1	10/05/2016	01:26:22	Common pipistrell	FP-1	10/05/2016	04:40:48	Leisler's bat	FP-1	11/05/2016	23:06:16	Leisler's bat
FP-1	09/05/2016	22:02:43	Soprano pipistrelle	FP-1	10/05/2016	01:32:39	Leisler's bat	FP-1	10/05/2016	04:41:01	Common pipistrell	FP-1	11/05/2016	23:06:35	Soprano pipistrelle
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FP-1	09/05/2016	22:03:46	Soprano pipistrelle	FP-1	10/05/2016	01:45:55	Leisler's bat	FP-1	10/05/2016	04:56:23	Leisler's bat	FP-1	11/05/2016	23:09:59	Leisler's bat
FP-1	09/05/2016	22:09:13	Soprano pipistrelle	FP-1	10/05/2016	01:48:33	Pipistrelle sp.	FP-1	10/05/2016	04:56:43	Leisler's bat	FP-1	11/05/2016	23:10:43	Leisler's bat
FP-1	09/05/2016	22:14:09	Soprano pipistrelle	FP-1	10/05/2016	01:50:04	Common pipistrell	FP-1	10/05/2016	04:57:07	Leisler's bat	FP-1	11/05/2016	23:11:02	Leisler's bat
FP-1	09/05/2016	22:23:00	Common pipistrell	FP-1	10/05/2016	02:06:06	Pipistrelle sp.	FP-1	10/05/2016	04:57:24	Leisler's bat	FP-1	11/05/2016	23:12:12	Soprano pipistrelle
FP-1	09/05/2016	22:24:06	Soprano pipistrelle	FP-1	10/05/2016	02:07:30	Soprano pipistrelle	FP-1	10/05/2016	05:02:09	Leisler's bat	FP-1	11/05/2016	23:12:39	Leisler's bat
FP-1	09/05/2016	22:25:19	Leisler's bat	FP-1	10/05/2016	02:08:05	Common pipistrell	FP-1	10/05/2016	05:02:18	Leisler's bat	FP-1	11/05/2016	23:12:52	Leisler's bat
FP-1	09/05/2016	22:25:38	Leisler's bat	FP-1	10/05/2016	02:08:14	Common pipistrell	FP-1	10/05/2016	05:10:42	Leisler's bat	FP-1	11/05/2016	23:13:11	Leisler's bat
FP-1	09/05/2016	22:32:00	Pipistrelle sp.	FP-1	10/05/2016	02:08:28	Common pipistrell	FP-1	10/05/2016	05:14:17	Leisler's bat	FP-1	11/05/2016	23:13:29	Leisler's bat
FP-1	09/05/2016	22:36:31	Common pipistrell	FP-1	10/05/2016	02:09:21	Common pipistrell	FP-1	10/05/2016	05:14:27	Leisler's bat	FP-1	11/05/2016	23:13:39	Leisler's bat
FP-1	09/05/2016	22:46:21	Leisler's bat	FP-1	10/05/2016	02:09:51	Common pipistrell	FP-1	11/05/2016	01:04:23	Soprano pipistrelle	FP-1	11/05/2016	23:27:24	Soprano pipistrelle
FP-1	09/05/2016	22:53:21	Pipistrelle sp.	FP-1	10/05/2016	02:10:58	Common pipistrell	FP-1	11/05/2016	01:53:22	Leisler's bat	FP-1	11/05/2016	23:32:21	Common pipistrelle
FP-1	09/05/2016	22:54:07	Leisler's bat	FP-1	10/05/2016	02:11:42	Common pipistrell	FP-1	11/05/2016	02:51:59	Leisler's bat	FP-1	11/05/2016	23:40:16	Common pipistrelle
FP-1	09/05/2016	22:57:23	Leisler's bat	FP-1	10/05/2016	02:13:07	Common pipistrell	FP-1	11/05/2016	02:58:37	Common pipistrell	FP-1	11/05/2016	23:45:00	Common pipistrelle
FP-1	09/05/2016	23:06:13	Common pipistrell	FP-1	10/05/2016	02:13:17	Common pipistrell	FP-1	11/05/2016	03:22:22	Common pipistrell	FP-1	11/05/2016	23:45:28	Soprano pipistrelle
FP-1	09/05/2016	23:16:12	Common pipistrell	FP-1	10/05/2016	02:16:42	Pipistrelle sp.	FP-1	11/05/2016	03:33:13	Leisler's bat	FP-1	11/05/2016	23:48:32	Common pipistrelle
FP-1	09/05/2016	23:25:43	Pipistrelle sp.	FP-1	10/05/2016	02:39:38	Common pipistrell	FP-1	11/05/2016	03:33:31	Leisler's bat	FP-1	11/05/2016	23:48:41	Common pipistrelle
FP-1	09/05/2016	23:43:06	Soprano pipistrelle	FP-1	10/05/2016	02:39:54	Common pipistrell	FP-1	11/05/2016	03:34:46	Leisler's bat	FP-1	11/05/2016	23:49:57	Leisler's bat
FP-1	09/05/2016	23:53:37	Leisler's bat	FP-1	10/05/2016	02:40:04	Common pipistrell	FP-1	11/05/2016	03:35:39	Leisler's bat	FP-1	11/05/2016	23:50:05	Common pipistrelle
FP-1	09/05/2016	23:53:54	Leisler's bat	FP-1	10/05/2016	02:42:17	Leisler's bat	FP-1	11/05/2016	03:43:31	Leisler's bat	FP-1	11/05/2016	23:50:05	Leisler's bat

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	11/05/2016	23:50:23	Leisler's bat	FP-1	12/05/2016	23:21:04	Leisler's bat	FP-1	13/05/2016	22:24:13	Leisler's bat	FP-1	14/05/2016	00:46:14	Leisler's bat
FP-1	11/05/2016	23:59:29	Common pipistrell	FP-1	12/05/2016	23:26:04	Common pipistrell	FP-1	13/05/2016	22:33:07	Soprano pipistrelle	FP-1	14/05/2016	00:46:34	Leisler's bat
FP-1	12/05/2016	00:18:54	Leisler's bat	FP-1	12/05/2016	23:29:39	Common pipistrell	FP-1	13/05/2016	22:40:09	Common pipistrell	FP-1	14/05/2016	00:49:43	Leisler's bat
FP-1	12/05/2016	01:00:10	Leisler's bat	FP-1	12/05/2016	23:46:08	Soprano pipistrelle	FP-1	13/05/2016	22:40:52	Common pipistrell	FP-1	14/05/2016	00:49:50	Leisler's bat
FP-1	12/05/2016	01:00:22	Leisler's bat	FP-1	12/05/2016	23:54:05	Soprano pipistrelle	FP-1	13/05/2016	22:56:50	Leisler's bat	FP-1	14/05/2016	01:06:45	Common pipistrelle
FP-1	12/05/2016	01:00:41	Leisler's bat	FP-1	13/05/2016	00:01:41	Soprano pipistrelle	FP-1	13/05/2016	22:59:48	Common pipistrell	FP-1	14/05/2016	01:20:42	Leisler's bat
FP-1	12/05/2016	01:01:00	Leisler's bat	FP-1	13/05/2016	00:11:44	Common pipistrell	FP-1	13/05/2016	22:59:55	Common pipistrell	FP-1	14/05/2016	01:24:56	Leisler's bat
FP-1	12/05/2016	01:04:57	Leisler's bat	FP-1	13/05/2016	00:21:43	Common pipistrell	FP-1	13/05/2016	23:12:12	Leisler's bat	FP-1	14/05/2016	01:29:58	Soprano pipistrelle
FP-1	12/05/2016	01:05:12	Leisler's bat	FP-1	13/05/2016	00:22:53	Leisler's bat	FP-1	13/05/2016	23:12:30	Leisler's bat	FP-1	14/05/2016	01:37:28	Leisler's bat
FP-1	12/05/2016	01:10:56	Leisler's bat	FP-1	13/05/2016	00:25:38	Leisler's bat	FP-1	13/05/2016	23:20:11	Soprano pipistrelle	FP-1	14/05/2016	01:42:40	Leisler's bat
FP-1	12/05/2016	01:15:25	Leisler's bat	FP-1	13/05/2016	00:37:49	Pipistrelle sp.	FP-1	13/05/2016	23:23:18	Soprano pipistrelle	FP-1	14/05/2016	01:47:46	Leisler's bat
FP-1	12/05/2016	02:22:42	Leisler's bat	FP-1	13/05/2016	00:39:30	Soprano pipistrelle	FP-1	13/05/2016	23:44:20	Common pipistrell	FP-1	14/05/2016	01:52:55	Leisler's bat
FP-1	12/05/2016	02:24:37	Leisler's bat	FP-1	13/05/2016	01:23:00	Common pipistrell	FP-1	14/05/2016	00:08:55	Leisler's bat	FP-1	14/05/2016	01:53:09	Leisler's bat
FP-1	12/05/2016	02:27:15	Leisler's bat	FP-1	13/05/2016	01:47:56	Leisler's bat	FP-1	14/05/2016	00:09:17	Leisler's bat	FP-1	14/05/2016	02:48:25	Myotis sp.
FP-1	12/05/2016	02:27:36	Common pipistrell	FP-1	13/05/2016	01:48:23	Leisler's bat	FP-1	14/05/2016	00:09:32	Leisler's bat	FP-1	14/05/2016	03:18:30	Soprano pipistrelle
FP-1	12/05/2016	02:37:44	Leisler's bat	FP-1	13/05/2016	01:48:43	Leisler's bat	FP-1	14/05/2016	00:10:00	Leisler's bat	FP-1	14/05/2016	03:25:49	Soprano pipistrelle
FP-1	12/05/2016	02:50:39	Leisler's bat	FP-1	13/05/2016	01:49:01	Leisler's bat	FP-1	14/05/2016	00:10:29	Leisler's bat	FP-1	14/05/2016	03:50:42	Leisler's bat
FP-1	12/05/2016	03:07:40	Leisler's bat	FP-1	13/05/2016	01:49:26	Leisler's bat	FP-1	14/05/2016	00:11:15	Leisler's bat	FP-1	14/05/2016	04:18:12	Common pipistrelle
FP-1	12/05/2016	03:08:00	Leisler's bat	FP-1	13/05/2016	01:49:45	Leisler's bat	FP-1	14/05/2016	00:24:16	Leisler's bat	FP-1	14/05/2016	21:44:23	Leisler's bat
FP-1	12/05/2016	03:15:41	Leisler's bat	FP-1	13/05/2016	01:49:57	Leisler's bat	FP-1	14/05/2016	00:25:59	Leisler's bat	FP-1	14/05/2016	22:10:42	Soprano pipistrelle
FP-1	12/05/2016	03:16:01	Leisler's bat	FP-1	13/05/2016	01:51:01	Leisler's bat	FP-1	14/05/2016	00:26:46	Leisler's bat	FP-1	14/05/2016	22:11:02	Pipistrelle sp.
FP-1	12/05/2016	03:16:32	Leisler's bat	FP-1	13/05/2016	02:09:10	Leisler's bat	FP-1	14/05/2016	00:26:57	Leisler's bat	FP-1	14/05/2016	22:13:55	Pipistrelle sp.
FP-1	12/05/2016	03:21:10	Leisler's bat	FP-1	13/05/2016	02:19:56	Leisler's bat	FP-1	14/05/2016	00:27:27	Leisler's bat	FP-1	14/05/2016	22:14:07	Common pipistrelle
FP-1	12/05/2016	03:39:50	Soprano pipistrelle	FP-1	13/05/2016	02:21:04	Leisler's bat	FP-1	14/05/2016	00:27:47	Leisler's bat	FP-1	14/05/2016	22:17:16	Soprano pipistrelle
FP-1	12/05/2016	03:42:55	Leisler's bat	FP-1	13/05/2016	02:59:00	Common pipistrell	FP-1	14/05/2016	00:28:03	Leisler's bat	FP-1	14/05/2016	22:17:29	Soprano pipistrelle
FP-1	12/05/2016	03:43:18	Leisler's bat	FP-1	13/05/2016	03:02:51	Leisler's bat	FP-1	14/05/2016	00:28:18	Leisler's bat	FP-1	14/05/2016	22:18:47	Common pipistrelle
FP-1	12/05/2016	03:57:51	Soprano pipistrelle	FP-1	13/05/2016	03:20:20	Pipistrelle sp.	FP-1	14/05/2016	00:28:29	Leisler's bat	FP-1	14/05/2016	22:19:18	Common pipistrelle
FP-1	12/05/2016	04:27:00	Leisler's bat	FP-1	13/05/2016	03:43:41	Leisler's bat	FP-1	14/05/2016	00:28:46	Leisler's bat	FP-1	14/05/2016	22:19:33	Common pipistrelle
FP-1	12/05/2016	04:27:33	Leisler's bat	FP-1	13/05/2016	04:01:35	Soprano pipistrelle	FP-1	14/05/2016	00:29:17	Leisler's bat	FP-1	14/05/2016	22:19:58	Common pipistrelle
FP-1	12/05/2016	04:35:21	Leisler's bat	FP-1	13/05/2016	04:10:51	Leisler's bat	FP-1	14/05/2016	00:29:36	Leisler's bat	FP-1	14/05/2016	22:22:49	Common pipistrelle
FP-1	12/05/2016	04:35:37	Leisler's bat	FP-1	13/05/2016	04:11:02	Leisler's bat	FP-1	14/05/2016	00:30:05	Leisler's bat	FP-1	14/05/2016	22:23:23	Common pipistrelle
FP-1	12/05/2016	04:36:03	Leisler's bat	FP-1	13/05/2016	04:11:26	Leisler's bat	FP-1	14/05/2016	00:30:36	Leisler's bat	FP-1	14/05/2016	22:24:40	Common pipistrelle
FP-1	12/05/2016	04:36:20	Leisler's bat	FP-1	13/05/2016	04:19:13	Pipistrelle sp.	FP-1	14/05/2016	00:30:55	Leisler's bat	FP-1	14/05/2016	22:24:59	Common pipistrelle
FP-1	12/05/2016	04:46:01	Leisler's bat	FP-1	13/05/2016	04:19:58	Leisler's bat	FP-1	14/05/2016	00:31:15	Leisler's bat	FP-1	14/05/2016	22:28:06	Common pipistrelle
FP-1	12/05/2016	04:53:25	Leisler's bat	FP-1	13/05/2016	04:21:52	Common pipistrell	FP-1	14/05/2016	00:31:34	Leisler's bat	FP-1	14/05/2016	22:28:36	Common pipistrelle
FP-1	12/05/2016	21:59:43	Leisler's bat	FP-1	13/05/2016	21:44:30	Leisler's bat	FP-1	14/05/2016	00:31:43	Leisler's bat	FP-1	14/05/2016	22:30:04	Common pipistrelle
FP-1	12/05/2016	22:16:09	Common pipistrell	FP-1	13/05/2016	21:45:36	Leisler's bat	FP-1	14/05/2016	00:32:02	Leisler's bat	FP-1	14/05/2016	22:35:33	Common pipistrelle
FP-1	12/05/2016	22:20:44	Common pipistrell	FP-1	13/05/2016	21:45:50	Leisler's bat	FP-1	14/05/2016	00:32:20	Leisler's bat	FP-1	14/05/2016	22:36:39	Common pipistrelle
FP-1	12/05/2016	22:34:59	Soprano pipistrelle	FP-1	13/05/2016	21:52:45	Leisler's bat	FP-1	14/05/2016	00:32:48	Leisler's bat	FP-1	14/05/2016	22:38:31	Common pipistrelle
FP-1	12/05/2016	22:44:21	Leisler's bat	FP-1	13/05/2016	22:14:08	Leisler's bat	FP-1	14/05/2016	00:42:44	Leisler's bat	FP-1	14/05/2016	22:48:30	Common pipistrelle
FP-1	12/05/2016	22:44:55	Common pipistrell	FP-1	13/05/2016	22:15:51	Leisler's bat	FP-1	14/05/2016	00:43:01	Leisler's bat	FP-1	14/05/2016	22:51:43	Soprano pipistrelle
FP-1	12/05/2016	22:46:10	Common pipistrell	FP-1	13/05/2016	22:19:14	Leisler's bat	FP-1	14/05/2016	00:43:19	Leisler's bat	FP-1	14/05/2016	22:56:33	Soprano pipistrelle
FP-1	12/05/2016	22:47:10	Common pipistrell	FP-1	13/05/2016	22:19:26	Leisler's bat	FP-1	14/05/2016	00:43:41	Leisler's bat	FP-1	14/05/2016	22:57:42	Soprano pipistrelle
FP-1	12/05/2016	23:09:47	Pipistrelle sp.	FP-1	13/05/2016	22:23:34	Leisler's bat	FP-1	14/05/2016	00:44:10	Leisler's bat	FP-1	14/05/2016	23:11:19	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	14/05/2016	23:11:47	Common pipistrell	FP-2	28/05/2016	04:37:05	Leisler's bat	FP-2	29/05/2016	04:35:12	Leisler's bat	FP-2	30/05/2016	02:30:27	Common pipistrelle
FP-1	14/05/2016	23:13:23	Common pipistrell	FP-2	28/05/2016	22:00:00	Leisler's bat	FP-2	29/05/2016	04:37:05	Leisler's bat	FP-2	30/05/2016	02:30:55	Common pipistrelle
FP-1	14/05/2016	23:13:45	Common pipistrell	FP-2	28/05/2016	22:13:25	Soprano pipistrelle	FP-2	29/05/2016	04:37:28	Leisler's bat	FP-2	30/05/2016	02:30:55	Leisler's bat
FP-1	14/05/2016	23:13:52	Common pipistrell	FP-2	28/05/2016	22:15:09	Leisler's bat	FP-2	29/05/2016	04:39:36	Leisler's bat	FP-2	30/05/2016	02:31:18	Common pipistrelle
FP-1	14/05/2016	23:32:51	Pipistrelle sp.	FP-2	28/05/2016	22:25:55	Leisler's bat	FP-2	29/05/2016	04:41:12	Leisler's bat	FP-2	30/05/2016	02:32:51	Common pipistrelle
FP-1	15/05/2016	00:04:49	Soprano pipistrelle	FP-2	28/05/2016	22:27:01	Leisler's bat	FP-2	29/05/2016	22:26:28	Soprano pipistrelle	FP-2	30/05/2016	02:33:17	Common pipistrelle
FP-1	15/05/2016	00:10:22	Soprano pipistrelle	FP-2	28/05/2016	22:27:13	Leisler's bat	FP-2	29/05/2016	22:27:24	Pipistrelle sp.	FP-2	30/05/2016	02:40:44	Common pipistrelle
FP-1	15/05/2016	00:13:57	Pipistrelle sp.	FP-2	28/05/2016	22:47:15	Pipistrelle sp.	FP-2	29/05/2016	22:28:52	Soprano pipistrelle	FP-2	30/05/2016	02:46:52	Common pipistrelle
FP-1	15/05/2016	00:57:49	Common pipistrell	FP-2	28/05/2016	22:59:06	Common pipistrell	FP-2	29/05/2016	22:40:23	Soprano pipistrelle	FP-2	30/05/2016	02:49:41	Common pipistrelle
FP-1	15/05/2016	00:57:49	Soprano pipistrelle	FP-2	28/05/2016	23:15:35	Pipistrelle sp.	FP-2	29/05/2016	22:43:28	Pipistrelle sp.	FP-2	30/05/2016	02:50:23	Common pipistrelle
FP-1	15/05/2016	01:05:27	Myotis sp.	FP-2	28/05/2016	23:30:12	Leisler's bat	FP-2	29/05/2016	23:16:58	Common pipistrell	FP-2	30/05/2016	02:51:33	Common pipistrelle
FP-1	15/05/2016	01:15:40	Common pipistrell	FP-2	28/05/2016	23:30:32	Leisler's bat	FP-2	29/05/2016	23:39:20	Pipistrelle sp.	FP-2	30/05/2016	02:52:03	Common pipistrelle
FP-1	15/05/2016	01:17:03	Soprano pipistrelle	FP-2	28/05/2016	23:48:02	Pipistrelle sp.	FP-2	29/05/2016	23:39:33	Leisler's bat	FP-2	30/05/2016	02:52:19	Pipistrelle sp.
FP-2	27/05/2016	22:19:07	Leisler's bat	FP-2	28/05/2016	23:51:24	Leisler's bat	FP-2	29/05/2016	23:43:54	Soprano pipistrelle	FP-2	30/05/2016	02:52:57	Pipistrelle sp.
FP-2	27/05/2016	22:21:56	Common pipistrell	FP-2	28/05/2016	23:51:58	Common pipistrell	FP-2	29/05/2016	23:51:49	Common pipistrell	FP-2	30/05/2016	02:53:31	Pipistrelle sp.
FP-2	27/05/2016	22:26:23	Leisler's bat	FP-2	29/05/2016	00:09:11	Soprano pipistrelle	FP-2	30/05/2016	00:05:03	Common pipistrell	FP-2	30/05/2016	02:54:03	Common pipistrelle
FP-2	27/05/2016	22:40:03	Common pipistrell	FP-2	29/05/2016	00:35:08	Leisler's bat	FP-2	30/05/2016	00:25:11	Leisler's bat	FP-2	30/05/2016	02:54:18	Common pipistrelle
FP-2	27/05/2016	22:44:32	Soprano pipistrelle	FP-2	29/05/2016	00:43:10	Common pipistrell	FP-2	30/05/2016	00:29:11	Soprano pipistrelle	FP-2	30/05/2016	02:54:51	Common pipistrelle
FP-2	27/05/2016	22:55:32	Soprano pipistrelle	FP-2	29/05/2016	00:43:21	Common pipistrell	FP-2	30/05/2016	00:44:07	Leisler's bat	FP-2	30/05/2016	02:54:58	Common pipistrelle
FP-2	27/05/2016	23:02:39	Common pipistrell	FP-2	29/05/2016	00:47:59	Common pipistrell	FP-2	30/05/2016	01:08:00	Leisler's bat	FP-2	30/05/2016	02:55:05	Pipistrelle sp.
FP-2	27/05/2016	23:03:35	Pipistrelle sp.	FP-2	29/05/2016	01:01:59	Pipistrelle sp.	FP-2	30/05/2016	01:23:49	Common pipistrell	FP-2	30/05/2016	02:55:25	Common pipistrelle
FP-2	27/05/2016	23:05:54	Pipistrelle sp.	FP-2	29/05/2016	01:03:35	Pipistrelle sp.	FP-2	30/05/2016	01:27:43	Common pipistrell	FP-2	30/05/2016	02:56:39	Pipistrelle sp.
FP-2	27/05/2016	23:29:31	Common pipistrell	FP-2	29/05/2016	01:04:48	Common pipistrell	FP-2	30/05/2016	01:28:52	Common pipistrell	FP-2	30/05/2016	02:57:50	Pipistrelle sp.
FP-2	28/05/2016	00:01:00	Common pipistrell	FP-2	29/05/2016	01:18:09	Common pipistrell	FP-2	30/05/2016	02:09:06	Common pipistrell	FP-2	30/05/2016	02:58:06	Common pipistrelle
FP-2	28/05/2016	00:12:29	Common pipistrell	FP-2	29/05/2016	01:38:54	Leisler's bat	FP-2	30/05/2016	02:10:46	Leisler's bat	FP-2	30/05/2016	02:59:32	Common pipistrelle
FP-2	28/05/2016	00:30:37	Leisler's bat	FP-2	29/05/2016	01:47:10	Common pipistrell	FP-2	30/05/2016	02:11:56	Common pipistrell	FP-2	30/05/2016	03:00:01	Common pipistrelle
FP-2	28/05/2016	00:49:29	Pipistrelle sp.	FP-2	29/05/2016	01:51:24	Common pipistrell	FP-2	30/05/2016	02:16:44	Pipistrelle sp.	FP-2	30/05/2016	03:00:24	Soprano pipistrelle
FP-2	28/05/2016	00:51:44	Leisler's bat	FP-2	29/05/2016	01:54:35	Common pipistrell	FP-2	30/05/2016	02:17:17	Common pipistrell	FP-2	30/05/2016	03:01:30	Common pipistrelle
FP-2	28/05/2016	01:05:05	Leisler's bat	FP-2	29/05/2016	02:11:36	Leisler's bat	FP-2	30/05/2016	02:17:43	Common pipistrell	FP-2	30/05/2016	03:01:55	Common pipistrelle
FP-2	28/05/2016	01:09:34	Leisler's bat	FP-2	29/05/2016	02:21:51	Leisler's bat	FP-2	30/05/2016	02:18:56	Common pipistrell	FP-2	30/05/2016	03:06:57	Common pipistrelle
FP-2	28/05/2016	01:33:40	Common pipistrell	FP-2	29/05/2016	02:43:52	Common pipistrell	FP-2	30/05/2016	02:19:17	Pipistrelle sp.	FP-2	30/05/2016	03:09:01	Common pipistrelle
FP-2	28/05/2016	01:33:40	Leisler's bat	FP-2	29/05/2016	02:59:18	Pipistrelle sp.	FP-2	30/05/2016	02:19:41	Leisler's bat	FP-2	30/05/2016	03:11:09	Leisler's bat
FP-2	28/05/2016	01:55:53	Common pipistrell	FP-2	29/05/2016	03:27:57	Myotis sp.	FP-2	30/05/2016	02:20:00	Leisler's bat	FP-2	30/05/2016	03:11:25	Common pipistrelle
FP-2	28/05/2016	02:15:08	Common pipistrell	FP-2	29/05/2016	03:38:16	Common pipistrell	FP-2	30/05/2016	02:21:52	Common pipistrell	FP-2	30/05/2016	03:12:14	Common pipistrelle
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FP-2	28/05/2016	02:15:38	Common pipistrell	FP-2	29/05/2016	04:01:51	Common pipistrell	FP-2	30/05/2016	02:22:43	Common pipistrell	FP-2	30/05/2016	03:12:40	Common pipistrelle
FP-2	28/05/2016	02:18:04	Pipistrelle sp.	FP-2	29/05/2016	04:14:56	Soprano pipistrelle	FP-2	30/05/2016	02:23:02	Common pipistrell	FP-2	30/05/2016	03:14:47	Common pipistrelle
FP-2	28/05/2016	02:41:56	Common pipistrell	FP-2	29/05/2016	04:22:07	Common pipistrell	FP-2	30/05/2016	02:23:58	Common pipistrell	FP-2	30/05/2016	03:15:28	Common pipistrelle
FP-2	28/05/2016	02:55:20	Soprano pipistrelle	FP-2	29/05/2016	04:24:22	Leisler's bat	FP-2	30/05/2016	02:24:45	Common pipistrell	FP-2	30/05/2016	03:19:31	Common pipistrelle
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FP-2	28/05/2016	03:41:30	Soprano pipistrelle	FP-2	29/05/2016	04:32:06	Leisler's bat	FP-2	30/05/2016	02:25:40	Myotis sp.	FP-2	30/05/2016	03:57:19	Common pipistrelle
FP-2	28/05/2016	04:28:54	Common pipistrell	FP-2	29/05/2016	04:34:43	Leisler's bat	FP-2	30/05/2016	02:26:35	Common pipistrell	FP-2	30/05/2016	04:04:07	Common pipistrelle
FP-2	28/05/2016	04:36:16	Leisler's bat	FP-2	29/05/2016	04:34:55	Leisler's bat	FP-2	30/05/2016	02:29:23	Common pipistrell	FP-2	30/05/2016	04:07:43	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	30/05/2016	04:08:26	Leisler's bat	FP-2	31/05/2016	00:48:37	Common pipistrell	FP-2	31/05/2016	01:16:26	Pipistrelle sp.	FP-2	31/05/2016	01:33:58	Common pipistrelle
FP-2	30/05/2016	04:13:15	Common pipistrell	FP-2	31/05/2016	00:49:26	Common pipistrell	FP-2	31/05/2016	01:16:33	Leisler's bat	FP-2	31/05/2016	01:34:32	Common pipistrelle
FP-2	30/05/2016	04:13:23	Soprano pipistrelle	FP-2	31/05/2016	00:49:36	Common pipistrell	FP-2	31/05/2016	01:16:52	Pipistrelle sp.	FP-2	31/05/2016	01:34:54	Common pipistrelle
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FP-2	30/05/2016	04:15:51	Common pipistrell	FP-2	31/05/2016	00:50:27	Common pipistrell	FP-2	31/05/2016	01:17:47	Leisler's bat	FP-2	31/05/2016	01:35:22	Common pipistrelle
FP-2	30/05/2016	04:19:53	Leisler's bat	FP-2	31/05/2016	00:50:46	Common pipistrell	FP-2	31/05/2016	01:17:57	Common pipistrell	FP-2	31/05/2016	01:35:44	Common pipistrelle
FP-2	30/05/2016	04:22:08	Leisler's bat	FP-2	31/05/2016	00:51:41	Soprano pipistrelle	FP-2	31/05/2016	01:17:57	Leisler's bat	FP-2	31/05/2016	01:35:56	Common pipistrelle
FP-2	30/05/2016	04:23:27	Leisler's bat	FP-2	31/05/2016	00:52:12	Common pipistrell	FP-2	31/05/2016	01:18:15	Leisler's bat	FP-2	31/05/2016	01:36:06	Common pipistrelle
FP-2	30/05/2016	04:26:52	Leisler's bat	FP-2	31/05/2016	00:52:21	Common pipistrell	FP-2	31/05/2016	01:18:39	Common pipistrell	FP-2	31/05/2016	01:36:22	Common pipistrelle
FP-2	30/05/2016	04:28:06	Leisler's bat	FP-2	31/05/2016	00:52:30	Common pipistrell	FP-2	31/05/2016	01:18:54	Common pipistrell	FP-2	31/05/2016	01:36:50	Leisler's bat
FP-2	30/05/2016	22:42:58	Pipistrelle sp.	FP-2	31/05/2016	00:53:21	Common pipistrell	FP-2	31/05/2016	01:19:28	Common pipistrell	FP-2	31/05/2016	01:37:02	Pipistrelle sp.
FP-2	30/05/2016	22:54:38	Common pipistrell	FP-2	31/05/2016	00:53:59	Common pipistrell	FP-2	31/05/2016	01:19:40	Common pipistrell	FP-2	31/05/2016	01:37:29	Common pipistrelle
FP-2	30/05/2016	22:58:55	Soprano pipistrelle	FP-2	31/05/2016	00:54:10	Common pipistrell	FP-2	31/05/2016	01:19:50	Common pipistrell	FP-2	31/05/2016	01:37:40	Common pipistrelle
FP-2	30/05/2016	23:08:18	Common pipistrell	FP-2	31/05/2016	00:54:24	Common pipistrell	FP-2	31/05/2016	01:20:08	Common pipistrell	FP-2	31/05/2016	01:37:40	Leisler's bat
FP-2	30/05/2016	23:14:19	Common pipistrell	FP-2	31/05/2016	00:54:36	Common pipistrell	FP-2	31/05/2016	01:20:23	Pipistrelle sp.	FP-2	31/05/2016	01:38:31	Leisler's bat
FP-2	30/05/2016	23:26:47	Common pipistrell	FP-2	31/05/2016	00:54:53	Common pipistrell	FP-2	31/05/2016	01:20:42	Common pipistrell	FP-2	31/05/2016	01:38:50	Pipistrelle sp.
FP-2	30/05/2016	23:32:21	Common pipistrell	FP-2	31/05/2016	00:58:06	Common pipistrell	FP-2	31/05/2016	01:21:59	Common pipistrell	FP-2	31/05/2016	01:39:35	Pipistrelle sp.
FP-2	30/05/2016	23:40:30	Leisler's bat	FP-2	31/05/2016	00:58:06	Leisler's bat	FP-2	31/05/2016	01:22:31	Common pipistrell	FP-2	31/05/2016	01:40:21	Common pipistrelle
FP-2	30/05/2016	23:54:55	Common pipistrell	FP-2	31/05/2016	00:58:17	Common pipistrell	FP-2	31/05/2016	01:22:45	Common pipistrell	FP-2	31/05/2016	01:40:31	Common pipistrelle
FP-2	31/05/2016	00:13:18	Pipistrelle sp.	FP-2	31/05/2016	00:58:17	Leisler's bat	FP-2	31/05/2016	01:22:55	Common pipistrell	FP-2	31/05/2016	01:41:03	Leisler's bat
FP-2	31/05/2016	00:17:29	Common pipistrell	FP-2	31/05/2016	00:59:47	Common pipistrell	FP-2	31/05/2016	01:23:14	Common pipistrell	FP-2	31/05/2016	01:46:24	Common pipistrelle
FP-2	31/05/2016	00:18:54	Leisler's bat	FP-2	31/05/2016	01:00:24	Common pipistrell	FP-2	31/05/2016	01:23:25	Common pipistrell	FP-2	31/05/2016	01:46:36	Common pipistrelle
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FP-2	31/05/2016	00:35:07	Common pipistrell	FP-2	31/05/2016	01:02:43	Common pipistrell	FP-2	31/05/2016	01:24:10	Common pipistrell	FP-2	31/05/2016	01:47:29	Common pipistrelle
FP-2	31/05/2016	00:36:01	Common pipistrell	FP-2	31/05/2016	01:04:03	Common pipistrell	FP-2	31/05/2016	01:24:27	Common pipistrell	FP-2	31/05/2016	01:47:41	Common pipistrelle
FP-2	31/05/2016	00:36:10	Common pipistrell	FP-2	31/05/2016	01:04:46	Common pipistrell	FP-2	31/05/2016	01:24:42	Common pipistrell	FP-2	31/05/2016	01:48:02	Common pipistrelle
FP-2	31/05/2016	00:36:44	Common pipistrell	FP-2	31/05/2016	01:05:45	Common pipistrell	FP-2	31/05/2016	01:26:14	Common pipistrell	FP-2	31/05/2016	01:48:10	Common pipistrelle
FP-2	31/05/2016	00:37:01	Common pipistrell	FP-2	31/05/2016	01:06:02	Common pipistrell	FP-2	31/05/2016	01:26:27	Common pipistrell	FP-2	31/05/2016	01:48:18	Common pipistrelle
FP-2	31/05/2016	00:37:13	Common pipistrell	FP-2	31/05/2016	01:06:08	Common pipistrell	FP-2	31/05/2016	01:27:00	Common pipistrell	FP-2	31/05/2016	01:48:26	Common pipistrelle
FP-2	31/05/2016	00:37:49	Common pipistrell	FP-2	31/05/2016	01:06:29	Common pipistrell	FP-2	31/05/2016	01:27:08	Common pipistrell	FP-2	31/05/2016	01:48:50	Common pipistrelle
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FP-2	31/05/2016	00:42:35	Common pipistrell	FP-2	31/05/2016	01:10:21	Common pipistrell	FP-2	31/05/2016	01:30:05	Pipistrelle sp.	FP-2	31/05/2016	01:50:11	Common pipistrelle
FP-2	31/05/2016	00:43:17	Common pipistrell	FP-2	31/05/2016	01:10:30	Common pipistrell	FP-2	31/05/2016	01:30:34	Common pipistrell	FP-2	31/05/2016	01:50:26	Common pipistrelle
FP-2	31/05/2016	00:44:13	Common pipistrell	FP-2	31/05/2016	01:10:40	Common pipistrell	FP-2	31/05/2016	01:31:12	Common pipistrell	FP-2	31/05/2016	01:50:49	Common pipistrelle
FP-2	31/05/2016	00:44:31	Common pipistrell	FP-2	31/05/2016	01:12:57	Common pipistrell	FP-2	31/05/2016	01:31:19	Common pipistrell	FP-2	31/05/2016	01:50:59	Common pipistrelle
FP-2	31/05/2016	00:45:16	Common pipistrell	FP-2	31/05/2016	01:14:06	Common pipistrell	FP-2	31/05/2016	01:31:33	Common pipistrell	FP-2	31/05/2016	01:51:15	Common pipistrelle
FP-2	31/05/2016	00:45:38	Common pipistrell	FP-2	31/05/2016	01:14:22	Common pipistrell	FP-2	31/05/2016	01:31:41	Common pipistrell	FP-2	31/05/2016	01:51:27	Common pipistrelle
FP-2	31/05/2016	00:45:48	Common pipistrell	FP-2	31/05/2016	01:14:28	Pipistrelle sp.	FP-2	31/05/2016	01:32:41	Common pipistrell	FP-2	31/05/2016	01:51:34	Common pipistrelle
FP-2	31/05/2016	00:46:09	Common pipistrell	FP-2	31/05/2016	01:14:40	Common pipistrell	FP-2	31/05/2016	01:32:52	Common pipistrell	FP-2	31/05/2016	01:51:44	Common pipistrelle
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FP-2	31/05/2016	00:48:14	Common pipistrell	FP-2	31/05/2016	01:15:57	Common pipistrell	FP-2	31/05/2016	01:33:26	Common pipistrell	FP-2	31/05/2016	01:52:22	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	31/05/2016	01:52:47	Common pipistrell	FP-2	31/05/2016	02:11:10	Common pipistrell	FP-2	31/05/2016	02:34:46	Pipistrelle sp.	FP-2	31/05/2016	03:05:42	Pipistrelle sp.
FP-2	31/05/2016	01:53:00	Common pipistrell	FP-2	31/05/2016	02:11:25	Common pipistrell	FP-2	31/05/2016	02:34:53	Pipistrelle sp.	FP-2	31/05/2016	03:06:18	Common pipistrelle
FP-2	31/05/2016	01:54:45	Common pipistrell	FP-2	31/05/2016	02:11:34	Common pipistrell	FP-2	31/05/2016	02:35:15	Pipistrelle sp.	FP-2	31/05/2016	03:09:12	Pipistrelle sp.
FP-2	31/05/2016	01:54:55	Common pipistrell	FP-2	31/05/2016	02:12:23	Common pipistrell	FP-2	31/05/2016	02:35:58	Pipistrelle sp.	FP-2	31/05/2016	03:11:52	Common pipistrelle
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FP-2	31/05/2016	01:55:47	Common pipistrell	FP-2	31/05/2016	02:13:11	Common pipistrell	FP-2	31/05/2016	02:37:45	Common pipistrell	FP-2	31/05/2016	03:15:38	Pipistrelle sp.
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FP-2	31/05/2016	01:56:59	Common pipistrell	FP-2	31/05/2016	02:13:53	Common pipistrell	FP-2	31/05/2016	02:38:57	Pipistrelle sp.	FP-2	31/05/2016	03:16:47	Pipistrelle sp.
FP-2	31/05/2016	01:57:11	Common pipistrell	FP-2	31/05/2016	02:14:09	Common pipistrell	FP-2	31/05/2016	02:39:13	Pipistrelle sp.	FP-2	31/05/2016	03:17:31	Common pipistrelle
FP-2	31/05/2016	01:57:25	Common pipistrell	FP-2	31/05/2016	02:14:30	Common pipistrell	FP-2	31/05/2016	02:39:34	Pipistrelle sp.	FP-2	31/05/2016	03:19:54	Common pipistrelle
FP-2	31/05/2016	01:57:37	Common pipistrell	FP-2	31/05/2016	02:14:49	Pipistrelle sp.	FP-2	31/05/2016	02:40:00	Pipistrelle sp.	FP-2	31/05/2016	03:25:53	Soprano pipistrelle
FP-2	31/05/2016	01:58:28	Common pipistrell	FP-2	31/05/2016	02:15:03	Pipistrelle sp.	FP-2	31/05/2016	02:40:24	Pipistrelle sp.	FP-2	31/05/2016	03:30:51	Common pipistrelle
FP-2	31/05/2016	01:58:52	Common pipistrell	FP-2	31/05/2016	02:15:48	Pipistrelle sp.	FP-2	31/05/2016	02:40:43	Pipistrelle sp.	FP-2	31/05/2016	03:31:35	Common pipistrelle
FP-2	31/05/2016	01:59:09	Common pipistrell	FP-2	31/05/2016	02:16:24	Pipistrelle sp.	FP-2	31/05/2016	02:42:11	Pipistrelle sp.	FP-2	31/05/2016	03:37:05	Common pipistrelle
FP-2	31/05/2016	02:00:00	Common pipistrell	FP-2	31/05/2016	02:17:03	Pipistrelle sp.	FP-2	31/05/2016	02:42:54	Pipistrelle sp.	FP-2	31/05/2016	03:37:28	Common pipistrelle
FP-2	31/05/2016	02:01:14	Common pipistrell	FP-2	31/05/2016	02:18:34	Pipistrelle sp.	FP-2	31/05/2016	02:45:15	Pipistrelle sp.	FP-2	31/05/2016	03:50:37	Common pipistrelle
FP-2	31/05/2016	02:01:14	Leisler's bat	FP-2	31/05/2016	02:18:41	Pipistrelle sp.	FP-2	31/05/2016	02:47:11	Pipistrelle sp.	FP-2	31/05/2016	03:59:12	Leisler's bat
FP-2	31/05/2016	02:01:45	Pipistrelle sp.	FP-2	31/05/2016	02:18:57	Pipistrelle sp.	FP-2	31/05/2016	02:47:24	Pipistrelle sp.	FP-2	31/05/2016	22:36:46	Soprano pipistrelle
FP-2	31/05/2016	02:02:19	Common pipistrell	FP-2	31/05/2016	02:19:23	Pipistrelle sp.	FP-2	31/05/2016	02:47:34	Pipistrelle sp.	FP-2	31/05/2016	22:43:10	Common pipistrelle
FP-2	31/05/2016	02:02:52	Common pipistrell	FP-2	31/05/2016	02:22:08	Common pipistrell	FP-2	31/05/2016	02:47:45	Pipistrelle sp.	FP-2	31/05/2016	22:54:57	Soprano pipistrelle
FP-2	31/05/2016	02:03:08	Common pipistrell	FP-2	31/05/2016	02:22:18	Pipistrelle sp.	FP-2	31/05/2016	02:47:54	Pipistrelle sp.	FP-2	31/05/2016	22:55:14	Soprano pipistrelle
FP-2	31/05/2016	02:03:38	Common pipistrell	FP-2	31/05/2016	02:22:45	Pipistrelle sp.	FP-2	31/05/2016	02:49:31	Pipistrelle sp.	FP-2	31/05/2016	23:05:20	Common pipistrelle
FP-2	31/05/2016	02:03:59	Common pipistrell	FP-2	31/05/2016	02:22:57	Pipistrelle sp.	FP-2	31/05/2016	02:50:01	Pipistrelle sp.	FP-2	31/05/2016	23:08:08	Common pipistrelle
FP-2	31/05/2016	02:04:24	Common pipistrell	FP-2	31/05/2016	02:23:54	Pipistrelle sp.	FP-2	31/05/2016	02:50:11	Pipistrelle sp.	FP-2	31/05/2016	23:08:57	Leisler's bat
FP-2	31/05/2016	02:05:13	Common pipistrell	FP-2	31/05/2016	02:24:06	Pipistrelle sp.	FP-2	31/05/2016	02:50:47	Pipistrelle sp.	FP-2	31/05/2016	23:11:28	Common pipistrelle
FP-2	31/05/2016	02:05:23	Pipistrelle sp.	FP-2	31/05/2016	02:24:14	Pipistrelle sp.	FP-2	31/05/2016	02:51:10	Pipistrelle sp.	FP-2	31/05/2016	23:15:46	Common pipistrelle
FP-2	31/05/2016	02:05:30	Pipistrelle sp.	FP-2	31/05/2016	02:24:24	Soprano pipistrelle	FP-2	31/05/2016	02:51:20	Pipistrelle sp.	FP-2	31/05/2016	23:16:25	Common pipistrelle
FP-2	31/05/2016	02:05:46	Pipistrelle sp.	FP-2	31/05/2016	02:24:57	Soprano pipistrelle	FP-2	31/05/2016	02:52:51	Pipistrelle sp.	FP-2	31/05/2016	23:18:32	Common pipistrelle
FP-2	31/05/2016	02:06:26	Common pipistrell	FP-2	31/05/2016	02:25:23	Common pipistrell	FP-2	31/05/2016	02:53:21	Pipistrelle sp.	FP-2	31/05/2016	23:57:29	Common pipistrelle
FP-2	31/05/2016	02:06:45	Common pipistrell	FP-2	31/05/2016	02:25:54	Common pipistrell	FP-2	31/05/2016	02:53:49	Pipistrelle sp.	FP-2	31/05/2016	23:57:41	Common pipistrelle
FP-2	31/05/2016	02:06:57	Pipistrelle sp.	FP-2	31/05/2016	02:26:16	Common pipistrell	FP-2	31/05/2016	02:54:00	Pipistrelle sp.	FP-2	31/05/2016	23:58:06	Common pipistrelle
FP-2	31/05/2016	02:07:25	Common pipistrell	FP-2	31/05/2016	02:26:32	Pipistrelle sp.	FP-2	31/05/2016	02:54:09	Pipistrelle sp.	FP-2	31/05/2016	23:58:15	Common pipistrelle
FP-2	31/05/2016	02:07:34	Common pipistrell	FP-2	31/05/2016	02:26:42	Pipistrelle sp.	FP-2	31/05/2016	02:54:39	Pipistrelle sp.	FP-2	31/05/2016	23:58:34	Common pipistrelle
FP-2	31/05/2016	02:07:47	Common pipistrell	FP-2	31/05/2016	02:27:04	Pipistrelle sp.	FP-2	31/05/2016	02:55:17	Pipistrelle sp.	FP-2	31/05/2016	23:59:47	Common pipistrelle
FP-2	31/05/2016	02:08:02	Common pipistrell	FP-2	31/05/2016	02:27:23	Pipistrelle sp.	FP-2	31/05/2016	02:55:52	Pipistrelle sp.	FP-2	01/06/2016	00:00:35	Common pipistrelle
FP-2	31/05/2016	02:08:16	Common pipistrell	FP-2	31/05/2016	02:27:43	Pipistrelle sp.	FP-2	31/05/2016	02:56:42	Pipistrelle sp.	FP-2	01/06/2016	00:00:51	Common pipistrelle
FP-2	31/05/2016	02:08:23	Common pipistrell	FP-2	31/05/2016	02:28:09	Pipistrelle sp.	FP-2	31/05/2016	02:57:31	Common pipistrell	FP-2	01/06/2016	00:01:14	Common pipistrelle
FP-2	31/05/2016	02:08:47	Common pipistrell	FP-2	31/05/2016	02:28:32	Common pipistrell	FP-2	31/05/2016	02:58:02	Pipistrelle sp.	FP-2	01/06/2016	00:01:58	Common pipistrelle
FP-2	31/05/2016	02:09:03	Common pipistrell	FP-2	31/05/2016	02:28:52	Common pipistrell	FP-2	31/05/2016	02:58:51	Pipistrelle sp.	FP-2	01/06/2016	00:02:12	Common pipistrelle
FP-2	31/05/2016	02:09:42	Common pipistrell	FP-2	31/05/2016	02:31:45	Common pipistrell	FP-2	31/05/2016	02:59:16	Pipistrelle sp.	FP-2	01/06/2016	00:02:55	Common pipistrelle
FP-2	31/05/2016	02:10:21	Common pipistrell	FP-2	31/05/2016	02:32:20	Pipistrelle sp.	FP-2	31/05/2016	02:59:40	Pipistrelle sp.	FP-2	01/06/2016	00:03:52	Common pipistrelle
FP-2	31/05/2016	02:10:28	Common pipistrell	FP-2	31/05/2016	02:34:14	Common pipistrell	FP-2	31/05/2016	03:00:54	Pipistrelle sp.	FP-2	01/06/2016	00:07:28	Common pipistrelle
FP-2	31/05/2016	02:10:38	Common pipistrell	FP-2	31/05/2016	02:34:39	Common pipistrell	FP-2	31/05/2016	03:05:35	Pipistrelle sp.	FP-2	01/06/2016	00:09:29	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	01/06/2016	00:11:40	Common pipistrell	FP-2	01/06/2016	03:17:25	Common pipistrell	FP-2	01/06/2016	23:48:53	Soprano pipistrelle	FP-2	02/06/2016	00:46:35	Pipistrelle sp.
FP-2	01/06/2016	00:12:36	Common pipistrell	FP-2	01/06/2016	03:17:32	Common pipistrell	FP-2	01/06/2016	23:49:18	Common pipistrell	FP-2	02/06/2016	00:51:41	Pipistrelle sp.
FP-2	01/06/2016	00:14:00	Common pipistrell	FP-2	01/06/2016	03:26:22	Common pipistrell	FP-2	01/06/2016	23:49:36	Common pipistrell	FP-2	02/06/2016	00:56:02	Pipistrelle sp.
FP-2	01/06/2016	00:18:42	Common pipistrell	FP-2	01/06/2016	03:27:10	Common pipistrell	FP-2	01/06/2016	23:49:48	Pipistrelle sp.	FP-2	02/06/2016	00:56:13	Pipistrelle sp.
FP-2	01/06/2016	00:26:36	Pipistrelle sp.	FP-2	01/06/2016	03:28:35	Common pipistrell	FP-2	01/06/2016	23:50:16	Pipistrelle sp.	FP-2	02/06/2016	00:59:32	Leisler's bat
FP-2	01/06/2016	00:34:07	Common pipistrell	FP-2	01/06/2016	03:39:01	Common pipistrell	FP-2	01/06/2016	23:51:25	Pipistrelle sp.	FP-2	02/06/2016	01:01:05	Common pipistrelle
FP-2	01/06/2016	00:35:55	Pipistrelle sp.	FP-2	01/06/2016	22:18:26	Leisler's bat	FP-2	01/06/2016	23:51:49	Common pipistrell	FP-2	02/06/2016	01:01:36	Pipistrelle sp.
FP-2	01/06/2016	00:50:35	Pipistrelle sp.	FP-2	01/06/2016	22:18:44	Leisler's bat	FP-2	01/06/2016	23:52:19	Common pipistrell	FP-2	02/06/2016	01:02:23	Common pipistrelle
FP-2	01/06/2016	00:58:54	Common pipistrell	FP-2	01/06/2016	22:32:27	Leisler's bat	FP-2	01/06/2016	23:52:38	Common pipistrell	FP-2	02/06/2016	01:04:07	Pipistrelle sp.
FP-2	01/06/2016	01:02:55	Common pipistrell	FP-2	01/06/2016	22:35:32	Leisler's bat	FP-2	01/06/2016	23:54:32	Common pipistrell	FP-2	02/06/2016	01:04:19	Pipistrelle sp.
FP-2	01/06/2016	01:07:38	Common pipistrell	FP-2	01/06/2016	22:37:41	Leisler's bat	FP-2	01/06/2016	23:55:08	Pipistrelle sp.	FP-2	02/06/2016	01:04:42	Pipistrelle sp.
FP-2	01/06/2016	01:10:08	Common pipistrell	FP-2	01/06/2016	22:38:42	Leisler's bat	FP-2	01/06/2016	23:55:48	Pipistrelle sp.	FP-2	02/06/2016	01:05:16	Common pipistrelle
FP-2	01/06/2016	01:12:45	Common pipistrell	FP-2	01/06/2016	22:57:57	Common pipistrell	FP-2	01/06/2016	23:56:20	Pipistrelle sp.	FP-2	02/06/2016	01:05:28	Common pipistrelle
FP-2	01/06/2016	01:15:35	Common pipistrell	FP-2	01/06/2016	22:58:08	Pipistrelle sp.	FP-2	02/06/2016	00:01:18	Pipistrelle sp.	FP-2	02/06/2016	01:05:50	Common pipistrelle
FP-2	01/06/2016	01:26:56	Common pipistrell	FP-2	01/06/2016	22:58:26	Common pipistrell	FP-2	02/06/2016	00:05:33	Pipistrelle sp.	FP-2	02/06/2016	01:06:07	Common pipistrelle
FP-2	01/06/2016	01:29:48	Common pipistrell	FP-2	01/06/2016	23:03:02	Soprano pipistrelle	FP-2	02/06/2016	00:06:25	Pipistrelle sp.	FP-2	02/06/2016	01:06:30	Common pipistrelle
FP-2	01/06/2016	01:39:17	Common pipistrell	FP-2	01/06/2016	23:05:10	Common pipistrell	FP-2	02/06/2016	00:10:01	Pipistrelle sp.	FP-2	02/06/2016	01:07:11	Common pipistrelle
FP-2	01/06/2016	01:40:00	Pipistrelle sp.	FP-2	01/06/2016	23:05:30	Pipistrelle sp.	FP-2	02/06/2016	00:10:25	Leisler's bat	FP-2	02/06/2016	01:08:04	Common pipistrelle
FP-2	01/06/2016	01:41:23	Common pipistrell	FP-2	01/06/2016	23:16:15	Pipistrelle sp.	FP-2	02/06/2016	00:11:25	Pipistrelle sp.	FP-2	02/06/2016	01:08:26	Common pipistrelle
FP-2	01/06/2016	01:41:23	Myotis sp.	FP-2	01/06/2016	23:20:46	Common pipistrell	FP-2	02/06/2016	00:14:35	Pipistrelle sp.	FP-2	02/06/2016	01:11:45	Common pipistrelle
FP-2	01/06/2016	01:42:15	Common pipistrell	FP-2	01/06/2016	23:20:59	Pipistrelle sp.	FP-2	02/06/2016	00:16:32	Pipistrelle sp.	FP-2	02/06/2016	01:12:05	Common pipistrelle
FP-2	01/06/2016	01:42:41	Common pipistrell	FP-2	01/06/2016	23:21:15	Common pipistrell	FP-2	02/06/2016	00:17:40	Pipistrelle sp.	FP-2	02/06/2016	01:13:30	Common pipistrelle
FP-2	01/06/2016	01:43:09	Common pipistrell	FP-2	01/06/2016	23:25:07	Common pipistrell	FP-2	02/06/2016	00:17:48	Pipistrelle sp.	FP-2	02/06/2016	01:14:02	Common pipistrelle
FP-2	01/06/2016	01:43:49	Common pipistrell	FP-2	01/06/2016	23:25:17	Common pipistrell	FP-2	02/06/2016	00:23:09	Pipistrelle sp.	FP-2	02/06/2016	01:14:11	Common pipistrelle
FP-2	01/06/2016	01:44:29	Common pipistrell	FP-2	01/06/2016	23:25:35	Pipistrelle sp.	FP-2	02/06/2016	00:24:36	Pipistrelle sp.	FP-2	02/06/2016	01:14:51	Pipistrelle sp.
FP-2	01/06/2016	01:44:36	Common pipistrell	FP-2	01/06/2016	23:31:50	Common pipistrell	FP-2	02/06/2016	00:28:32	Pipistrelle sp.	FP-2	02/06/2016	01:15:28	Common pipistrelle
FP-2	01/06/2016	01:45:19	Common pipistrell	FP-2	01/06/2016	23:32:51	Soprano pipistrelle	FP-2	02/06/2016	00:28:52	Pipistrelle sp.	FP-2	02/06/2016	01:17:30	Pipistrelle sp.
FP-2	01/06/2016	01:45:39	Pipistrelle sp.	FP-2	01/06/2016	23:37:53	Common pipistrell	FP-2	02/06/2016	00:29:40	Pipistrelle sp.	FP-2	02/06/2016	01:27:13	Common pipistrelle
FP-2	01/06/2016	01:45:46	Common pipistrell	FP-2	01/06/2016	23:38:15	Soprano pipistrelle	FP-2	02/06/2016	00:29:48	Pipistrelle sp.	FP-2	02/06/2016	01:27:34	Pipistrelle sp.
FP-2	01/06/2016	01:46:32	Common pipistrell	FP-2	01/06/2016	23:39:02	Common pipistrell	FP-2	02/06/2016	00:29:58	Pipistrelle sp.	FP-2	02/06/2016	01:28:08	Pipistrelle sp.
FP-2	01/06/2016	01:47:36	Common pipistrell	FP-2	01/06/2016	23:40:10	Common pipistrell	FP-2	02/06/2016	00:30:10	Pipistrelle sp.	FP-2	02/06/2016	01:28:38	Common pipistrelle
FP-2	01/06/2016	01:48:02	Common pipistrell	FP-2	01/06/2016	23:40:37	Common pipistrell	FP-2	02/06/2016	00:32:02	Pipistrelle sp.	FP-2	02/06/2016	01:29:36	Pipistrelle sp.
FP-2	01/06/2016	01:48:20	Common pipistrell	FP-2	01/06/2016	23:40:59	Common pipistrell	FP-2	02/06/2016	00:32:13	Pipistrelle sp.	FP-2	02/06/2016	01:29:58	Common pipistrelle
FP-2	01/06/2016	01:48:41	Common pipistrell	FP-2	01/06/2016	23:41:27	Common pipistrell	FP-2	02/06/2016	00:41:48	Common pipistrell	FP-2	02/06/2016	01:30:10	Common pipistrelle
FP-2	01/06/2016	01:49:23	Common pipistrell	FP-2	01/06/2016	23:42:50	Common pipistrell	FP-2	02/06/2016	00:42:18	Common pipistrell	FP-2	02/06/2016	01:30:26	Common pipistrelle
FP-2	01/06/2016	01:49:37	Common pipistrell	FP-2	01/06/2016	23:43:07	Pipistrelle sp.	FP-2	02/06/2016	00:42:49	Common pipistrell	FP-2	02/06/2016	01:30:39	Pipistrelle sp.
FP-2	01/06/2016	01:51:13	Common pipistrell	FP-2	01/06/2016	23:44:50	Common pipistrell	FP-2	02/06/2016	00:43:19	Pipistrelle sp.	FP-2	02/06/2016	01:30:49	Common pipistrelle
FP-2	01/06/2016	01:51:32	Common pipistrell	FP-2	01/06/2016	23:45:00	Common pipistrell	FP-2	02/06/2016	00:43:29	Common pipistrell	FP-2	02/06/2016	01:31:07	Common pipistrelle
FP-2	01/06/2016	01:57:35	Common pipistrell	FP-2	01/06/2016	23:45:14	Common pipistrell	FP-2	02/06/2016	00:43:29	Leisler's bat	FP-2	02/06/2016	01:31:22	Common pipistrelle
FP-2	01/06/2016	01:58:18	Common pipistrell	FP-2	01/06/2016	23:45:22	Common pipistrell	FP-2	02/06/2016	00:44:34	Leisler's bat	FP-2	02/06/2016	01:31:30	Common pipistrelle
FP-2	01/06/2016	02:23:56	Leisler's bat	FP-2	01/06/2016	23:45:37	Common pipistrell	FP-2	02/06/2016	00:45:40	Common pipistrell	FP-2	02/06/2016	01:31:36	Common pipistrelle
FP-2	01/06/2016	02:24:08	Leisler's bat	FP-2	01/06/2016	23:45:56	Common pipistrell	FP-2	02/06/2016	00:45:47	Common pipistrell	FP-2	02/06/2016	01:31:54	Common pipistrelle
FP-2	01/06/2016	03:00:36	Leisler's bat	FP-2	01/06/2016	23:46:21	Pipistrelle sp.	FP-2	02/06/2016	00:46:06	Leisler's bat	FP-2	02/06/2016	01:32:26	Common pipistrelle
FP-2	01/06/2016	03:01:51	Common pipistrell	FP-2	01/06/2016	23:47:09	Common pipistrell	FP-2	02/06/2016	00:46:26	Common pipistrell	FP-2	02/06/2016	01:32:34	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	02/06/2016	01:32:45	Common pipistrell	FP-2	02/06/2016	01:48:51	Common pipistrell	FP-2	02/06/2016	02:08:51	Common pipistrell	FP-2	02/06/2016	02:22:17	Common pipistrelle
FP-2	02/06/2016	01:32:53	Pipistrelle sp.	FP-2	02/06/2016	01:50:25	Common pipistrell	FP-2	02/06/2016	02:08:58	Common pipistrell	FP-2	02/06/2016	02:22:28	Common pipistrelle
FP-2	02/06/2016	01:33:14	Common pipistrell	FP-2	02/06/2016	01:50:38	Common pipistrell	FP-2	02/06/2016	02:09:19	Common pipistrell	FP-2	02/06/2016	02:22:36	Common pipistrelle
FP-2	02/06/2016	01:33:27	Common pipistrell	FP-2	02/06/2016	01:51:26	Common pipistrell	FP-2	02/06/2016	02:09:39	Common pipistrell	FP-2	02/06/2016	02:22:46	Common pipistrelle
FP-2	02/06/2016	01:33:46	Common pipistrell	FP-2	02/06/2016	01:51:39	Common pipistrell	FP-2	02/06/2016	02:10:09	Common pipistrell	FP-2	02/06/2016	02:22:56	Common pipistrelle
FP-2	02/06/2016	01:33:59	Pipistrelle sp.	FP-2	02/06/2016	01:51:53	Common pipistrell	FP-2	02/06/2016	02:10:18	Common pipistrell	FP-2	02/06/2016	02:23:10	Common pipistrelle
FP-2	02/06/2016	01:34:08	Pipistrelle sp.	FP-2	02/06/2016	01:52:04	Common pipistrell	FP-2	02/06/2016	02:10:34	Common pipistrell	FP-2	02/06/2016	02:23:19	Common pipistrelle
FP-2	02/06/2016	01:34:38	Pipistrelle sp.	FP-2	02/06/2016	01:52:42	Common pipistrell	FP-2	02/06/2016	02:10:47	Common pipistrell	FP-2	02/06/2016	02:23:35	Common pipistrelle
FP-2	02/06/2016	01:34:48	Common pipistrell	FP-2	02/06/2016	01:52:57	Common pipistrell	FP-2	02/06/2016	02:10:59	Common pipistrell	FP-2	02/06/2016	02:23:45	Common pipistrelle
FP-2	02/06/2016	01:35:11	Common pipistrell	FP-2	02/06/2016	01:53:10	Common pipistrell	FP-2	02/06/2016	02:11:12	Common pipistrell	FP-2	02/06/2016	02:23:56	Common pipistrelle
FP-2	02/06/2016	01:35:18	Common pipistrell	FP-2	02/06/2016	01:53:20	Common pipistrell	FP-2	02/06/2016	02:11:30	Common pipistrell	FP-2	02/06/2016	02:24:40	Common pipistrelle
FP-2	02/06/2016	01:35:26	Common pipistrell	FP-2	02/06/2016	01:53:34	Common pipistrell	FP-2	02/06/2016	02:11:55	Common pipistrell	FP-2	02/06/2016	02:24:54	Pipistrelle sp.
FP-2	02/06/2016	01:35:38	Common pipistrell	FP-2	02/06/2016	01:54:07	Pipistrelle sp.	FP-2	02/06/2016	02:12:03	Common pipistrell	FP-2	02/06/2016	02:25:39	Leisler's bat
FP-2	02/06/2016	01:35:51	Common pipistrell	FP-2	02/06/2016	01:54:31	Common pipistrell	FP-2	02/06/2016	02:12:33	Pipistrelle sp.	FP-2	02/06/2016	02:25:39	Pipistrelle sp.
FP-2	02/06/2016	01:36:02	Common pipistrell	FP-2	02/06/2016	01:55:23	Pipistrelle sp.	FP-2	02/06/2016	02:13:07	Common pipistrell	FP-2	02/06/2016	02:25:47	Leisler's bat
FP-2	02/06/2016	01:36:12	Common pipistrell	FP-2	02/06/2016	01:55:40	Common pipistrell	FP-2	02/06/2016	02:13:18	Common pipistrell	FP-2	02/06/2016	02:26:10	Leisler's bat
FP-2	02/06/2016	01:36:12	Leisler's bat	FP-2	02/06/2016	01:55:50	Common pipistrell	FP-2	02/06/2016	02:14:12	Common pipistrell	FP-2	02/06/2016	02:26:25	Common pipistrelle
FP-2	02/06/2016	01:36:44	Pipistrelle sp.	FP-2	02/06/2016	01:56:01	Common pipistrell	FP-2	02/06/2016	02:14:38	Common pipistrell	FP-2	02/06/2016	02:26:40	Common pipistrelle
FP-2	02/06/2016	01:37:06	Common pipistrell	FP-2	02/06/2016	01:56:57	Pipistrelle sp.	FP-2	02/06/2016	02:14:49	Common pipistrell	FP-2	02/06/2016	02:26:40	Leisler's bat
FP-2	02/06/2016	01:38:01	Common pipistrell	FP-2	02/06/2016	01:57:06	Pipistrelle sp.	FP-2	02/06/2016	02:14:59	Common pipistrell	FP-2	02/06/2016	02:27:07	Leisler's bat
FP-2	02/06/2016	01:39:45	Common pipistrell	FP-2	02/06/2016	01:57:16	Pipistrelle sp.	FP-2	02/06/2016	02:15:41	Common pipistrell	FP-2	02/06/2016	02:27:07	Pipistrelle sp.
FP-2	02/06/2016	01:39:54	Common pipistrell	FP-2	02/06/2016	01:57:58	Pipistrelle sp.	FP-2	02/06/2016	02:15:59	Common pipistrell	FP-2	02/06/2016	02:27:19	Leisler's bat
FP-2	02/06/2016	01:40:19	Common pipistrell	FP-2	02/06/2016	01:58:10	Common pipistrell	FP-2	02/06/2016	02:16:20	Common pipistrell	FP-2	02/06/2016	02:27:48	Common pipistrelle
FP-2	02/06/2016	01:40:19	Leisler's bat	FP-2	02/06/2016	01:58:46	Common pipistrell	FP-2	02/06/2016	02:16:34	Common pipistrell	FP-2	02/06/2016	02:27:48	Leisler's bat
FP-2	02/06/2016	01:40:30	Common pipistrell	FP-2	02/06/2016	01:58:58	Pipistrelle sp.	FP-2	02/06/2016	02:16:42	Common pipistrell	FP-2	02/06/2016	02:28:29	Common pipistrelle
FP-2	02/06/2016	01:40:39	Common pipistrell	FP-2	02/06/2016	01:59:14	Common pipistrell	FP-2	02/06/2016	02:16:50	Common pipistrell	FP-2	02/06/2016	02:28:39	Leisler's bat
FP-2	02/06/2016	01:41:28	Pipistrelle sp.	FP-2	02/06/2016	01:59:34	Common pipistrell	FP-2	02/06/2016	02:17:01	Common pipistrell	FP-2	02/06/2016	02:28:57	Common pipistrelle
FP-2	02/06/2016	01:41:52	Common pipistrell	FP-2	02/06/2016	02:00:10	Pipistrelle sp.	FP-2	02/06/2016	02:17:11	Common pipistrell	FP-2	02/06/2016	02:29:04	Common pipistrelle
FP-2	02/06/2016	01:42:17	Common pipistrell	FP-2	02/06/2016	02:00:18	Pipistrelle sp.	FP-2	02/06/2016	02:17:21	Common pipistrell	FP-2	02/06/2016	02:29:14	Common pipistrelle
FP-2	02/06/2016	01:44:49	Common pipistrell	FP-2	02/06/2016	02:00:57	Common pipistrell	FP-2	02/06/2016	02:17:29	Common pipistrell	FP-2	02/06/2016	02:30:19	Common pipistrelle
FP-2	02/06/2016	01:45:33	Pipistrelle sp.	FP-2	02/06/2016	02:02:15	Pipistrelle sp.	FP-2	02/06/2016	02:17:41	Common pipistrell	FP-2	02/06/2016	02:30:27	Common pipistrelle
FP-2	02/06/2016	01:45:42	Common pipistrell	FP-2	02/06/2016	02:02:37	Pipistrelle sp.	FP-2	02/06/2016	02:18:03	Common pipistrell	FP-2	02/06/2016	02:30:38	Common pipistrelle
FP-2	02/06/2016	01:45:42	Leisler's bat	FP-2	02/06/2016	02:03:06	Common pipistrell	FP-2	02/06/2016	02:18:41	Common pipistrell	FP-2	02/06/2016	02:31:55	Leisler's bat
FP-2	02/06/2016	01:46:01	Pipistrelle sp.	FP-2	02/06/2016	02:03:22	Common pipistrell	FP-2	02/06/2016	02:19:03	Common pipistrell	FP-2	02/06/2016	02:32:12	Pipistrelle sp.
FP-2	02/06/2016	01:46:18	Common pipistrell	FP-2	02/06/2016	02:03:32	Common pipistrell	FP-2	02/06/2016	02:19:28	Common pipistrell	FP-2	02/06/2016	02:32:38	Common pipistrelle
FP-2	02/06/2016	01:46:25	Common pipistrell	FP-2	02/06/2016	02:04:02	Common pipistrell	FP-2	02/06/2016	02:19:42	Common pipistrell	FP-2	02/06/2016	02:33:21	Pipistrelle sp.
FP-2	02/06/2016	01:46:33	Common pipistrell	FP-2	02/06/2016	02:04:14	Common pipistrell	FP-2	02/06/2016	02:20:05	Common pipistrell	FP-2	02/06/2016	02:33:52	Common pipistrelle
FP-2	02/06/2016	01:46:46	Pipistrelle sp.	FP-2	02/06/2016	02:04:52	Common pipistrell	FP-2	02/06/2016	02:20:23	Common pipistrell	FP-2	02/06/2016	02:34:02	Common pipistrelle
FP-2	02/06/2016	01:47:02	Common pipistrell	FP-2	02/06/2016	02:05:16	Common pipistrell	FP-2	02/06/2016	02:20:49	Common pipistrell	FP-2	02/06/2016	02:34:30	Common pipistrelle
FP-2	02/06/2016	01:47:12	Pipistrelle sp.	FP-2	02/06/2016	02:05:38	Common pipistrell	FP-2	02/06/2016	02:21:33	Common pipistrell	FP-2	02/06/2016	02:34:40	Leisler's bat
FP-2	02/06/2016	01:47:38	Common pipistrell	FP-2	02/06/2016	02:06:21	Common pipistrell	FP-2	02/06/2016	02:21:42	Common pipistrell	FP-2	02/06/2016	02:34:49	Leisler's bat
FP-2	02/06/2016	01:47:54	Common pipistrell	FP-2	02/06/2016	02:08:13	Common pipistrell	FP-2	02/06/2016	02:21:49	Common pipistrell	FP-2	02/06/2016	02:34:59	Common pipistrelle
FP-2	02/06/2016	01:48:22	Common pipistrell	FP-2	02/06/2016	02:08:20	Common pipistrell	FP-2	02/06/2016	02:21:57	Common pipistrell	FP-2	02/06/2016	02:35:16	Common pipistrelle
FP-2	02/06/2016	01:48:43	Common pipistrell	FP-2	02/06/2016	02:08:29	Common pipistrell	FP-2	02/06/2016	02:22:05	Common pipistrell	FP-2	02/06/2016	02:35:44	Leisler's bat

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	02/06/2016	02:36:10	Leisler's bat	FP-2	02/06/2016	02:54:36	Pipistrelle sp.	FP-2	02/06/2016	03:28:16	Common pipistrelle	FP-2	03/06/2016	00:29:52	Common pipistrelle
FP-2	02/06/2016	02:37:03	Leisler's bat	FP-2	02/06/2016	02:54:44	Pipistrelle sp.	FP-2	02/06/2016	04:19:30	Leisler's bat	FP-2	03/06/2016	00:30:17	Common pipistrelle
FP-2	02/06/2016	02:38:20	Common pipistrelle	FP-2	02/06/2016	02:55:21	Common pipistrelle	FP-2	02/06/2016	22:24:22	Leisler's bat	FP-2	03/06/2016	00:31:12	Common pipistrelle
FP-2	02/06/2016	02:38:50	Common pipistrelle	FP-2	02/06/2016	02:56:03	Pipistrelle sp.	FP-2	02/06/2016	22:27:49	Leisler's bat	FP-2	03/06/2016	00:33:05	Common pipistrelle
FP-2	02/06/2016	02:39:47	Common pipistrelle	FP-2	02/06/2016	02:56:41	Pipistrelle sp.	FP-2	02/06/2016	22:28:41	Leisler's bat	FP-2	03/06/2016	00:33:29	Common pipistrelle
FP-2	02/06/2016	02:39:59	Common pipistrelle	FP-2	02/06/2016	02:56:55	Pipistrelle sp.	FP-2	02/06/2016	22:30:18	Soprano pipistrelle	FP-2	03/06/2016	00:33:40	Common pipistrelle
FP-2	02/06/2016	02:40:06	Common pipistrelle	FP-2	02/06/2016	02:57:03	Pipistrelle sp.	FP-2	02/06/2016	22:57:23	Common pipistrelle	FP-2	03/06/2016	00:34:10	Common pipistrelle
FP-2	02/06/2016	02:40:30	Pipistrelle sp.	FP-2	02/06/2016	02:57:22	Pipistrelle sp.	FP-2	02/06/2016	22:59:20	Pipistrelle sp.	FP-2	03/06/2016	00:36:47	Common pipistrelle
FP-2	02/06/2016	02:40:38	Pipistrelle sp.	FP-2	02/06/2016	02:58:12	Common pipistrelle	FP-2	02/06/2016	23:01:18	Common pipistrelle	FP-2	03/06/2016	00:37:38	Common pipistrelle
FP-2	02/06/2016	02:40:49	Pipistrelle sp.	FP-2	02/06/2016	02:58:22	Common pipistrelle	FP-2	02/06/2016	23:03:30	Common pipistrelle	FP-2	03/06/2016	00:48:01	Leisler's bat
FP-2	02/06/2016	02:41:16	Pipistrelle sp.	FP-2	02/06/2016	02:58:41	Common pipistrelle	FP-2	02/06/2016	23:07:48	Pipistrelle sp.	FP-2	03/06/2016	00:49:17	Myotis sp.
FP-2	02/06/2016	02:42:16	Common pipistrelle	FP-2	02/06/2016	02:59:08	Common pipistrelle	FP-2	02/06/2016	23:10:49	Leisler's bat	FP-2	03/06/2016	00:59:24	Common pipistrelle
FP-2	02/06/2016	02:42:42	Common pipistrelle	FP-2	02/06/2016	02:59:39	Common pipistrelle	FP-2	02/06/2016	23:14:45	Common pipistrelle	FP-2	03/06/2016	00:59:57	Common pipistrelle
FP-2	02/06/2016	02:43:02	Common pipistrelle	FP-2	02/06/2016	02:59:48	Common pipistrelle	FP-2	02/06/2016	23:15:47	Pipistrelle sp.	FP-2	03/06/2016	01:00:35	Common pipistrelle
FP-2	02/06/2016	02:43:19	Common pipistrelle	FP-2	02/06/2016	02:59:59	Common pipistrelle	FP-2	02/06/2016	23:16:40	Common pipistrelle	FP-2	03/06/2016	01:26:18	Common pipistrelle
FP-2	02/06/2016	02:43:41	Common pipistrelle	FP-2	02/06/2016	03:00:35	Pipistrelle sp.	FP-2	02/06/2016	23:23:44	Pipistrelle sp.	FP-2	03/06/2016	01:28:28	Common pipistrelle
FP-2	02/06/2016	02:44:11	Pipistrelle sp.	FP-2	02/06/2016	03:01:05	Common pipistrelle	FP-2	02/06/2016	23:24:13	Common pipistrelle	FP-2	03/06/2016	01:37:25	Common pipistrelle
FP-2	02/06/2016	02:45:42	Common pipistrelle	FP-2	02/06/2016	03:01:41	Common pipistrelle	FP-2	02/06/2016	23:37:07	Pipistrelle sp.	FP-2	03/06/2016	01:38:26	Common pipistrelle
FP-2	02/06/2016	02:46:33	Pipistrelle sp.	FP-2	02/06/2016	03:02:29	Common pipistrelle	FP-2	02/06/2016	23:39:28	Pipistrelle sp.	FP-2	03/06/2016	01:45:00	Soprano pipistrelle
FP-2	02/06/2016	02:47:24	Pipistrelle sp.	FP-2	02/06/2016	03:03:02	Common pipistrelle	FP-2	02/06/2016	23:50:01	Common pipistrelle	FP-2	03/06/2016	01:46:38	Common pipistrelle
FP-2	02/06/2016	02:47:49	Pipistrelle sp.	FP-2	02/06/2016	03:03:57	Common pipistrelle	FP-2	03/06/2016	00:05:20	Pipistrelle sp.	FP-2	03/06/2016	01:47:46	Common pipistrelle
FP-2	02/06/2016	02:48:03	Common pipistrelle	FP-2	02/06/2016	03:04:54	Common pipistrelle	FP-2	03/06/2016	00:10:11	Pipistrelle sp.	FP-2	03/06/2016	01:48:56	Common pipistrelle
FP-2	02/06/2016	02:48:20	Pipistrelle sp.	FP-2	02/06/2016	03:05:17	Pipistrelle sp.	FP-2	03/06/2016	00:11:27	Common pipistrelle	FP-2	03/06/2016	01:50:26	Common pipistrelle
FP-2	02/06/2016	02:48:40	Pipistrelle sp.	FP-2	02/06/2016	03:05:54	Pipistrelle sp.	FP-2	03/06/2016	00:17:59	Common pipistrelle	FP-2	03/06/2016	01:52:11	Common pipistrelle
FP-2	02/06/2016	02:49:02	Pipistrelle sp.	FP-2	02/06/2016	03:06:03	Common pipistrelle	FP-2	03/06/2016	00:18:11	Common pipistrelle	FP-2	03/06/2016	01:53:42	Common pipistrelle
FP-2	02/06/2016	02:49:14	Pipistrelle sp.	FP-2	02/06/2016	03:12:54	Pipistrelle sp.	FP-2	03/06/2016	00:18:25	Common pipistrelle	FP-2	03/06/2016	02:21:37	Common pipistrelle
FP-2	02/06/2016	02:49:31	Pipistrelle sp.	FP-2	02/06/2016	03:18:57	Pipistrelle sp.	FP-2	03/06/2016	00:18:41	Common pipistrelle	FP-2	03/06/2016	02:22:34	Common pipistrelle
FP-2	02/06/2016	02:49:38	Pipistrelle sp.	FP-2	02/06/2016	03:20:15	Common pipistrelle	FP-2	03/06/2016	00:19:07	Common pipistrelle	FP-2	03/06/2016	02:23:20	Common pipistrelle
FP-2	02/06/2016	02:49:50	Pipistrelle sp.	FP-2	02/06/2016	03:20:39	Common pipistrelle	FP-2	03/06/2016	00:20:44	Common pipistrelle	FP-2	03/06/2016	02:23:57	Common pipistrelle
FP-2	02/06/2016	02:50:16	Pipistrelle sp.	FP-2	02/06/2016	03:20:46	Common pipistrelle	FP-2	03/06/2016	00:20:52	Common pipistrelle	FP-2	03/06/2016	02:26:50	Common pipistrelle
FP-2	02/06/2016	02:50:41	Pipistrelle sp.	FP-2	02/06/2016	03:23:02	Common pipistrelle	FP-2	03/06/2016	00:21:33	Common pipistrelle	FP-2	03/06/2016	02:27:27	Common pipistrelle
FP-2	02/06/2016	02:50:50	Pipistrelle sp.	FP-2	02/06/2016	03:23:49	Common pipistrelle	FP-2	03/06/2016	00:21:43	Common pipistrelle	FP-2	03/06/2016	02:28:10	Common pipistrelle
FP-2	02/06/2016	02:51:07	Pipistrelle sp.	FP-2	02/06/2016	03:23:57	Common pipistrelle	FP-2	03/06/2016	00:22:04	Common pipistrelle	FP-2	03/06/2016	02:28:56	Common pipistrelle
FP-2	02/06/2016	02:51:21	Pipistrelle sp.	FP-2	02/06/2016	03:24:15	Common pipistrelle	FP-2	03/06/2016	00:22:44	Common pipistrelle	FP-2	03/06/2016	02:29:31	Common pipistrelle
FP-2	02/06/2016	02:51:40	Pipistrelle sp.	FP-2	02/06/2016	03:24:50	Common pipistrelle	FP-2	03/06/2016	00:24:54	Common pipistrelle	FP-2	03/06/2016	03:32:33	Common pipistrelle
FP-2	02/06/2016	02:51:48	Leisler's bat	FP-2	02/06/2016	03:25:48	Common pipistrelle	FP-2	03/06/2016	00:25:02	Common pipistrelle	FP-2	03/06/2016	22:36:39	Soprano pipistrelle
FP-2	02/06/2016	02:51:48	Pipistrelle sp.	FP-2	02/06/2016	03:26:03	Pipistrelle sp.	FP-2	03/06/2016	00:25:26	Common pipistrelle	FP-2	03/06/2016	22:56:12	Soprano pipistrelle
FP-2	02/06/2016	02:52:00	Common pipistrelle	FP-2	02/06/2016	03:26:29	Common pipistrelle	FP-2	03/06/2016	00:25:39	Common pipistrelle	FP-2	03/06/2016	23:11:46	Common pipistrelle
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FP-2	02/06/2016	02:52:43	Pipistrelle sp.	FP-2	02/06/2016	03:26:53	Common pipistrelle	FP-2	03/06/2016	00:26:25	Common pipistrelle	FP-2	03/06/2016	23:37:35	Common pipistrelle
FP-2	02/06/2016	02:52:57	Pipistrelle sp.	FP-2	02/06/2016	03:27:10	Common pipistrelle	FP-2	03/06/2016	00:27:52	Common pipistrelle	FP-2	03/06/2016	23:37:47	Common pipistrelle
FP-2	02/06/2016	02:53:11	Pipistrelle sp.	FP-2	02/06/2016	03:27:24	Common pipistrelle	FP-2	03/06/2016	00:29:01	Common pipistrelle	FP-2	03/06/2016	23:38:22	Common pipistrelle
FP-2	02/06/2016	02:53:23	Pipistrelle sp.	FP-2	02/06/2016	03:27:41	Common pipistrelle	FP-2	03/06/2016	00:29:25	Common pipistrelle	FP-2	03/06/2016	23:45:52	Pipistrelle sp.
FP-2	02/06/2016	02:53:32	Pipistrelle sp.	FP-2	02/06/2016	03:27:56	Common pipistrelle	FP-2	03/06/2016	00:29:33	Common pipistrelle	FP-2	03/06/2016	23:47:03	Pipistrelle sp.

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	03/06/2016	23:47:10	Leisler's bat	FP-2	04/06/2016	01:57:40	Common pipistrell	FP-2	05/06/2016	03:14:49	Common pipistrell	FP-2	06/06/2016	01:04:07	Common pipistrelle
FP-2	03/06/2016	23:48:26	Common pipistrell	FP-2	04/06/2016	01:58:09	Common pipistrell	FP-2	05/06/2016	03:22:14	Common pipistrell	FP-2	06/06/2016	01:04:21	Common pipistrelle
FP-2	03/06/2016	23:48:36	Common pipistrell	FP-2	04/06/2016	01:58:43	Common pipistrell	FP-2	05/06/2016	03:23:49	Pipistrelle sp.	FP-2	06/06/2016	01:04:34	Common pipistrelle
FP-2	03/06/2016	23:48:45	Common pipistrell	FP-2	04/06/2016	01:59:27	Common pipistrell	FP-2	05/06/2016	03:34:23	Common pipistrell	FP-2	06/06/2016	01:04:55	Common pipistrelle
FP-2	03/06/2016	23:48:52	Common pipistrell	FP-2	04/06/2016	02:00:00	Common pipistrell	FP-2	05/06/2016	03:51:10	Common pipistrell	FP-2	06/06/2016	01:05:04	Common pipistrelle
FP-2	03/06/2016	23:49:35	Common pipistrell	FP-2	04/06/2016	02:01:40	Common pipistrell	FP-2	05/06/2016	03:53:21	Pipistrelle sp.	FP-2	06/06/2016	01:05:20	Common pipistrelle
FP-2	03/06/2016	23:50:55	Pipistrelle sp.	FP-2	04/06/2016	02:24:13	Common pipistrell	FP-2	05/06/2016	03:57:09	Common pipistrell	FP-2	06/06/2016	01:05:41	Common pipistrelle
FP-2	03/06/2016	23:52:03	Leisler's bat	FP-2	04/06/2016	02:36:09	Leisler's bat	FP-2	05/06/2016	04:11:18	Common pipistrell	FP-2	06/06/2016	01:06:11	Common pipistrelle
FP-2	03/06/2016	23:59:03	Common pipistrell	FP-2	04/06/2016	03:04:46	Common pipistrell	FP-2	05/06/2016	04:19:34	Soprano pipistrelle	FP-2	06/06/2016	01:06:20	Common pipistrelle
FP-2	04/06/2016	00:07:07	Common pipistrell	FP-2	04/06/2016	22:13:28	Leisler's bat	FP-2	05/06/2016	04:30:49	Leisler's bat	FP-2	06/06/2016	01:06:35	Common pipistrelle
FP-2	04/06/2016	00:07:36	Common pipistrell	FP-2	04/06/2016	22:59:07	Pipistrelle sp.	FP-2	05/06/2016	04:31:01	Leisler's bat	FP-2	06/06/2016	01:06:52	Common pipistrelle
FP-2	04/06/2016	00:07:44	Common pipistrell	FP-2	04/06/2016	23:29:44	Pipistrelle sp.	FP-2	05/06/2016	04:34:41	Leisler's bat	FP-2	06/06/2016	01:07:00	Common pipistrelle
FP-2	04/06/2016	00:07:51	Common pipistrell	FP-2	04/06/2016	23:36:59	Pipistrelle sp.	FP-2	05/06/2016	04:35:12	Leisler's bat	FP-2	06/06/2016	01:07:29	Common pipistrelle
FP-2	04/06/2016	00:08:11	Common pipistrell	FP-2	04/06/2016	23:38:28	Pipistrelle sp.	FP-2	05/06/2016	22:39:12	Soprano pipistrelle	FP-2	06/06/2016	01:07:38	Common pipistrelle
FP-2	04/06/2016	00:09:20	Common pipistrell	FP-2	04/06/2016	23:43:06	Leisler's bat	FP-2	05/06/2016	23:17:27	Common pipistrell	FP-2	06/06/2016	01:07:48	Common pipistrelle
FP-2	04/06/2016	00:09:32	Common pipistrell	FP-2	04/06/2016	23:43:15	Leisler's bat	FP-2	05/06/2016	23:17:34	Common pipistrell	FP-2	06/06/2016	01:08:11	Common pipistrelle
FP-2	04/06/2016	00:11:47	Common pipistrell	FP-2	04/06/2016	23:57:14	Common pipistrell	FP-2	05/06/2016	23:17:44	Common pipistrell	FP-2	06/06/2016	01:08:38	Common pipistrelle
FP-2	04/06/2016	00:11:59	Common pipistrell	FP-2	05/06/2016	00:24:53	Pipistrelle sp.	FP-2	05/06/2016	23:18:00	Common pipistrell	FP-2	06/06/2016	01:08:50	Common pipistrelle
FP-2	04/06/2016	00:13:26	Common pipistrell	FP-2	05/06/2016	00:25:55	Common pipistrell	FP-2	05/06/2016	23:20:47	Pipistrelle sp.	FP-2	06/06/2016	01:09:02	Common pipistrelle
FP-2	04/06/2016	00:13:39	Common pipistrell	FP-2	05/06/2016	00:28:10	Common pipistrell	FP-2	05/06/2016	23:24:36	Common pipistrell	FP-2	06/06/2016	01:09:28	Common pipistrelle
FP-2	04/06/2016	00:13:52	Common pipistrell	FP-2	05/06/2016	00:37:58	Common pipistrell	FP-2	05/06/2016	23:34:38	Common pipistrell	FP-2	06/06/2016	01:09:48	Common pipistrelle
FP-2	04/06/2016	00:14:44	Common pipistrell	FP-2	05/06/2016	00:45:02	Common pipistrell	FP-2	05/06/2016	23:41:40	Common pipistrell	FP-2	06/06/2016	01:10:05	Common pipistrelle
FP-2	04/06/2016	00:14:53	Common pipistrell	FP-2	05/06/2016	00:48:51	Common pipistrell	FP-2	05/06/2016	23:42:23	Common pipistrell	FP-2	06/06/2016	01:10:14	Common pipistrelle
FP-2	04/06/2016	00:15:13	Common pipistrell	FP-2	05/06/2016	00:56:10	Leisler's bat	FP-2	05/06/2016	23:45:20	Common pipistrell	FP-2	06/06/2016	01:11:02	Common pipistrelle
FP-2	04/06/2016	00:15:49	Common pipistrell	FP-2	05/06/2016	01:07:09	Common pipistrell	FP-2	05/06/2016	23:47:24	Soprano pipistrelle	FP-2	06/06/2016	01:11:11	Common pipistrelle
FP-2	04/06/2016	00:21:49	Common pipistrell	FP-2	05/06/2016	01:29:46	Common pipistrell	FP-2	05/06/2016	23:48:42	Common pipistrell	FP-2	06/06/2016	01:11:43	Common pipistrelle
FP-2	04/06/2016	00:23:14	Common pipistrell	FP-2	05/06/2016	01:30:04	Pipistrelle sp.	FP-2	05/06/2016	23:48:56	Common pipistrell	FP-2	06/06/2016	01:12:04	Common pipistrelle
FP-2	04/06/2016	00:26:38	Common pipistrell	FP-2	05/06/2016	01:30:39	Common pipistrell	FP-2	05/06/2016	23:49:04	Common pipistrell	FP-2	06/06/2016	01:12:12	Common pipistrelle
FP-2	04/06/2016	00:27:51	Soprano pipistrelle	FP-2	05/06/2016	01:33:16	Common pipistrell	FP-2	05/06/2016	23:52:09	Common pipistrell	FP-2	06/06/2016	01:12:24	Common pipistrelle
FP-2	04/06/2016	00:30:12	Leisler's bat	FP-2	05/06/2016	01:41:44	Pipistrelle sp.	FP-2	05/06/2016	23:54:46	Common pipistrell	FP-2	06/06/2016	01:13:13	Common pipistrelle
FP-2	04/06/2016	00:40:10	Common pipistrell	FP-2	05/06/2016	01:43:40	Pipistrelle sp.	FP-2	05/06/2016	23:59:08	Common pipistrell	FP-2	06/06/2016	01:13:30	Pipistrelle sp.
FP-2	04/06/2016	00:40:20	Common pipistrell	FP-2	05/06/2016	01:45:14	Common pipistrell	FP-2	06/06/2016	00:00:18	Common pipistrell	FP-2	06/06/2016	01:13:43	Common pipistrelle
FP-2	04/06/2016	00:42:04	Common pipistrell	FP-2	05/06/2016	02:01:10	Common pipistrell	FP-2	06/06/2016	00:01:21	Common pipistrell	FP-2	06/06/2016	01:13:55	Common pipistrelle
FP-2	04/06/2016	00:42:47	Common pipistrell	FP-2	05/06/2016	02:03:56	Common pipistrell	FP-2	06/06/2016	00:04:47	Common pipistrell	FP-2	06/06/2016	01:14:16	Common pipistrelle
FP-2	04/06/2016	00:43:43	Common pipistrell	FP-2	05/06/2016	02:04:52	Common pipistrell	FP-2	06/06/2016	00:07:17	Leisler's bat	FP-2	06/06/2016	01:14:27	Common pipistrelle
FP-2	04/06/2016	00:48:25	Leisler's bat	FP-2	05/06/2016	02:23:15	Soprano pipistrelle	FP-2	06/06/2016	00:12:45	Common pipistrell	FP-2	06/06/2016	01:14:51	Common pipistrelle
FP-2	04/06/2016	01:10:26	Common pipistrell	FP-2	05/06/2016	02:39:00	Common pipistrell	FP-2	06/06/2016	00:13:18	Common pipistrell	FP-2	06/06/2016	01:15:02	Common pipistrelle
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FP-2	04/06/2016	01:23:51	Common pipistrell	FP-2	05/06/2016	02:50:45	Pipistrelle sp.	FP-2	06/06/2016	00:26:03	Soprano pipistrelle	FP-2	06/06/2016	01:15:50	Common pipistrelle
FP-2	04/06/2016	01:28:53	Soprano pipistrelle	FP-2	05/06/2016	02:54:55	Common pipistrell	FP-2	06/06/2016	00:31:43	Soprano pipistrelle	FP-2	06/06/2016	01:16:16	Common pipistrelle
FP-2	04/06/2016	01:30:10	Common pipistrell	FP-2	05/06/2016	03:01:56	Leisler's bat	FP-2	06/06/2016	00:50:42	Common pipistrell	FP-2	06/06/2016	01:16:28	Pipistrelle sp.
FP-2	04/06/2016	01:30:23	Common pipistrell	FP-2	05/06/2016	03:07:30	Pipistrelle sp.	FP-2	06/06/2016	01:03:51	Common pipistrell	FP-2	06/06/2016	01:17:11	Common pipistrelle
FP-2	04/06/2016	01:57:32	Common pipistrell	FP-2	05/06/2016	03:11:17	Common pipistrell	FP-2	06/06/2016	01:03:59	Common pipistrell	FP-2	06/06/2016	01:17:34	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	06/06/2016	01:17:45	Common pipistrell	FP-2	06/06/2016	01:32:01	Common pipistrell	FP-2	06/06/2016	01:46:59	Common pipistrell	FP-2	06/06/2016	02:03:36	Common pipistrelle
FP-2	06/06/2016	01:17:59	Common pipistrell	FP-2	06/06/2016	01:32:42	Common pipistrell	FP-2	06/06/2016	01:47:12	Common pipistrell	FP-2	06/06/2016	02:04:04	Common pipistrelle
FP-2	06/06/2016	01:18:08	Common pipistrell	FP-2	06/06/2016	01:32:52	Common pipistrell	FP-2	06/06/2016	01:47:22	Common pipistrell	FP-2	06/06/2016	02:04:25	Pipistrelle sp.
FP-2	06/06/2016	01:18:19	Pipistrelle sp.	FP-2	06/06/2016	01:32:52	Leisler's bat	FP-2	06/06/2016	01:47:33	Pipistrelle sp.	FP-2	06/06/2016	02:04:40	Common pipistrelle
FP-2	06/06/2016	01:18:29	Pipistrelle sp.	FP-2	06/06/2016	01:33:53	Common pipistrell	FP-2	06/06/2016	01:47:51	Common pipistrell	FP-2	06/06/2016	02:05:02	Common pipistrelle
FP-2	06/06/2016	01:18:46	Common pipistrell	FP-2	06/06/2016	01:34:08	Common pipistrell	FP-2	06/06/2016	01:48:06	Common pipistrell	FP-2	06/06/2016	02:05:21	Common pipistrelle
FP-2	06/06/2016	01:19:13	Common pipistrell	FP-2	06/06/2016	01:34:17	Common pipistrell	FP-2	06/06/2016	01:48:18	Common pipistrell	FP-2	06/06/2016	02:05:42	Pipistrelle sp.
FP-2	06/06/2016	01:19:25	Common pipistrell	FP-2	06/06/2016	01:34:36	Common pipistrell	FP-2	06/06/2016	01:48:37	Common pipistrell	FP-2	06/06/2016	02:06:22	Pipistrelle sp.
FP-2	06/06/2016	01:19:39	Common pipistrell	FP-2	06/06/2016	01:35:12	Common pipistrell	FP-2	06/06/2016	01:48:50	Common pipistrell	FP-2	06/06/2016	02:06:36	Common pipistrelle
FP-2	06/06/2016	01:20:07	Common pipistrell	FP-2	06/06/2016	01:35:36	Common pipistrell	FP-2	06/06/2016	01:49:16	Pipistrelle sp.	FP-2	06/06/2016	02:07:27	Pipistrelle sp.
FP-2	06/06/2016	01:20:16	Common pipistrell	FP-2	06/06/2016	01:36:04	Common pipistrell	FP-2	06/06/2016	01:49:24	Common pipistrell	FP-2	06/06/2016	02:07:47	Pipistrelle sp.
FP-2	06/06/2016	01:20:51	Pipistrelle sp.	FP-2	06/06/2016	01:36:12	Common pipistrell	FP-2	06/06/2016	01:49:45	Common pipistrell	FP-2	06/06/2016	02:08:06	Common pipistrelle
FP-2	06/06/2016	01:21:36	Common pipistrell	FP-2	06/06/2016	01:36:45	Common pipistrell	FP-2	06/06/2016	01:49:54	Common pipistrell	FP-2	06/06/2016	02:08:38	Pipistrelle sp.
FP-2	06/06/2016	01:22:11	Common pipistrell	FP-2	06/06/2016	01:36:56	Common pipistrell	FP-2	06/06/2016	01:50:06	Common pipistrell	FP-2	06/06/2016	02:09:45	Myotis sp.
FP-2	06/06/2016	01:22:21	Common pipistrell	FP-2	06/06/2016	01:37:14	Common pipistrell	FP-2	06/06/2016	01:50:38	Common pipistrell	FP-2	06/06/2016	02:25:19	Common pipistrelle
FP-2	06/06/2016	01:22:35	Common pipistrell	FP-2	06/06/2016	01:37:40	Common pipistrell	FP-2	06/06/2016	01:51:09	Common pipistrell	FP-2	06/06/2016	02:25:58	Pipistrelle sp.
FP-2	06/06/2016	01:22:45	Common pipistrell	FP-2	06/06/2016	01:37:51	Common pipistrell	FP-2	06/06/2016	01:51:18	Common pipistrell	FP-2	06/06/2016	02:30:13	Pipistrelle sp.
FP-2	06/06/2016	01:22:55	Common pipistrell	FP-2	06/06/2016	01:38:38	Common pipistrell	FP-2	06/06/2016	01:51:36	Pipistrelle sp.	FP-2	06/06/2016	02:34:20	Pipistrelle sp.
FP-2	06/06/2016	01:23:42	Common pipistrell	FP-2	06/06/2016	01:39:01	Common pipistrell	FP-2	06/06/2016	01:52:01	Pipistrelle sp.	FP-2	06/06/2016	02:36:06	Pipistrelle sp.
FP-2	06/06/2016	01:24:03	Common pipistrell	FP-2	06/06/2016	01:39:35	Pipistrelle sp.	FP-2	06/06/2016	01:52:34	Common pipistrell	FP-2	06/06/2016	02:48:56	Common pipistrelle
FP-2	06/06/2016	01:24:22	Common pipistrell	FP-2	06/06/2016	01:39:42	Pipistrelle sp.	FP-2	06/06/2016	01:53:00	Pipistrelle sp.	FP-2	06/06/2016	02:51:48	Common pipistrelle
FP-2	06/06/2016	01:24:46	Common pipistrell	FP-2	06/06/2016	01:39:50	Common pipistrell	FP-2	06/06/2016	01:53:57	Common pipistrell	FP-2	06/06/2016	03:09:56	Pipistrelle sp.
FP-2	06/06/2016	01:24:55	Common pipistrell	FP-2	06/06/2016	01:40:24	Common pipistrell	FP-2	06/06/2016	01:54:05	Common pipistrell	FP-2	06/06/2016	03:11:51	Common pipistrelle
FP-2	06/06/2016	01:25:02	Common pipistrell	FP-2	06/06/2016	01:40:42	Common pipistrell	FP-2	06/06/2016	01:54:16	Common pipistrell	FP-2	06/06/2016	03:19:24	Common pipistrelle
FP-2	06/06/2016	01:25:44	Common pipistrell	FP-2	06/06/2016	01:41:01	Common pipistrell	FP-2	06/06/2016	01:54:53	Pipistrelle sp.	FP-2	06/06/2016	03:33:16	Common pipistrelle
FP-2	06/06/2016	01:25:52	Common pipistrell	FP-2	06/06/2016	01:41:33	Common pipistrell	FP-2	06/06/2016	01:55:15	Pipistrelle sp.	FP-2	06/06/2016	03:38:52	Myotis sp.
FP-2	06/06/2016	01:26:08	Common pipistrell	FP-2	06/06/2016	01:41:54	Common pipistrell	FP-2	06/06/2016	01:55:51	Pipistrelle sp.	FP-2	06/06/2016	04:15:32	Common pipistrelle
FP-2	06/06/2016	01:26:32	Common pipistrell	FP-2	06/06/2016	01:42:05	Pipistrelle sp.	FP-2	06/06/2016	01:56:13	Soprano pipistrelle	FP-2	06/06/2016	04:31:34	Leisler's bat
FP-2	06/06/2016	01:26:45	Common pipistrell	FP-2	06/06/2016	01:42:26	Common pipistrell	FP-2	06/06/2016	01:56:25	Pipistrelle sp.	FP-2	06/06/2016	23:04:22	Leisler's bat
FP-2	06/06/2016	01:27:00	Common pipistrell	FP-2	06/06/2016	01:42:45	Common pipistrell	FP-2	06/06/2016	01:56:32	Common pipistrell	FP-2	06/06/2016	23:09:56	Common pipistrelle
FP-2	06/06/2016	01:27:23	Common pipistrell	FP-2	06/06/2016	01:42:54	Common pipistrell	FP-2	06/06/2016	01:56:45	Pipistrelle sp.	FP-2	06/06/2016	23:21:38	Common pipistrelle
FP-2	06/06/2016	01:27:37	Common pipistrell	FP-2	06/06/2016	01:43:09	Common pipistrell	FP-2	06/06/2016	01:57:00	Common pipistrell	FP-2	06/06/2016	23:21:45	Common pipistrelle
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FP-2	06/06/2016	01:28:14	Common pipistrell	FP-2	06/06/2016	01:44:05	Common pipistrell	FP-2	06/06/2016	01:57:23	Pipistrelle sp.	FP-2	06/06/2016	23:34:17	Common pipistrelle
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FP-2	06/06/2016	01:28:53	Common pipistrell	FP-2	06/06/2016	01:44:46	Common pipistrell	FP-2	06/06/2016	01:57:51	Pipistrelle sp.	FP-2	06/06/2016	23:34:48	Common pipistrelle
FP-2	06/06/2016	01:29:04	Common pipistrell	FP-2	06/06/2016	01:44:57	Common pipistrell	FP-2	06/06/2016	01:58:01	Common pipistrell	FP-2	06/06/2016	23:34:57	Common pipistrelle
FP-2	06/06/2016	01:29:25	Common pipistrell	FP-2	06/06/2016	01:45:13	Common pipistrell	FP-2	06/06/2016	01:58:10	Pipistrelle sp.	FP-2	06/06/2016	23:35:11	Common pipistrelle
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FP-2	06/06/2016	01:30:00	Common pipistrell	FP-2	06/06/2016	01:45:37	Common pipistrell	FP-2	06/06/2016	01:58:49	Common pipistrell	FP-2	06/06/2016	23:35:52	Common pipistrelle
FP-2	06/06/2016	01:30:52	Common pipistrell	FP-2	06/06/2016	01:45:53	Common pipistrell	FP-2	06/06/2016	01:59:10	Pipistrelle sp.	FP-2	06/06/2016	23:36:04	Common pipistrelle
FP-2	06/06/2016	01:31:02	Common pipistrell	FP-2	06/06/2016	01:46:28	Common pipistrell	FP-2	06/06/2016	01:59:19	Common pipistrell	FP-2	06/06/2016	23:36:14	Common pipistrelle
FP-2	06/06/2016	01:31:17	Common pipistrell	FP-2	06/06/2016	01:46:42	Pipistrelle sp.	FP-2	06/06/2016	02:00:35	Common pipistrell	FP-2	06/06/2016	23:36:22	Common pipistrelle
FP-2	06/06/2016	01:31:52	Common pipistrell	FP-2	06/06/2016	01:46:51	Pipistrelle sp.	FP-2	06/06/2016	02:03:21	Common pipistrell	FP-2	06/06/2016	23:36:35	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	06/06/2016	23:36:50	Common pipistrelle	FP-2	07/06/2016	02:28:21	Common pipistrelle	FP-2	07/06/2016	02:40:55	Common pipistrelle	FP-2	07/06/2016	02:58:53	Common pipistrelle
FP-2	06/06/2016	23:37:00	Common pipistrelle	FP-2	07/06/2016	02:28:35	Common pipistrelle	FP-2	07/06/2016	02:41:55	Common pipistrelle	FP-2	07/06/2016	02:59:50	Common pipistrelle
FP-2	06/06/2016	23:37:25	Common pipistrelle	FP-2	07/06/2016	02:29:10	Common pipistrelle	FP-2	07/06/2016	02:42:15	Common pipistrelle	FP-2	07/06/2016	03:00:14	Common pipistrelle
FP-2	06/06/2016	23:37:35	Common pipistrelle	FP-2	07/06/2016	02:29:31	Common pipistrelle	FP-2	07/06/2016	02:42:28	Common pipistrelle	FP-2	07/06/2016	03:00:34	Common pipistrelle
FP-2	06/06/2016	23:37:54	Common pipistrelle	FP-2	07/06/2016	02:29:43	Common pipistrelle	FP-2	07/06/2016	02:42:41	Common pipistrelle	FP-2	07/06/2016	03:01:07	Common pipistrelle
FP-2	06/06/2016	23:38:15	Common pipistrelle	FP-2	07/06/2016	02:30:28	Common pipistrelle	FP-2	07/06/2016	02:43:01	Common pipistrelle	FP-2	07/06/2016	03:01:23	Common pipistrelle
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FP-2	06/06/2016	23:43:54	Common pipistrelle	FP-2	07/06/2016	02:31:10	Common pipistrelle	FP-2	07/06/2016	02:43:33	Common pipistrelle	FP-2	07/06/2016	03:02:12	Common pipistrelle
FP-2	06/06/2016	23:45:05	Common pipistrelle	FP-2	07/06/2016	02:31:25	Common pipistrelle	FP-2	07/06/2016	02:43:47	Common pipistrelle	FP-2	07/06/2016	03:02:30	Common pipistrelle
FP-2	06/06/2016	23:52:02	Common pipistrelle	FP-2	07/06/2016	02:31:38	Common pipistrelle	FP-2	07/06/2016	02:44:02	Common pipistrelle	FP-2	07/06/2016	03:02:45	Common pipistrelle
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FP-2	07/06/2016	00:18:10	Common pipistrelle	FP-2	07/06/2016	02:32:20	Common pipistrelle	FP-2	07/06/2016	02:44:47	Common pipistrelle	FP-2	07/06/2016	03:04:38	Pipistrelle sp.
FP-2	07/06/2016	00:18:40	Soprano pipistrelle	FP-2	07/06/2016	02:32:30	Common pipistrelle	FP-2	07/06/2016	02:45:00	Common pipistrelle	FP-2	07/06/2016	03:04:55	Pipistrelle sp.
FP-2	07/06/2016	00:31:44	Leisler's bat	FP-2	07/06/2016	02:32:40	Common pipistrelle	FP-2	07/06/2016	02:45:25	Common pipistrelle	FP-2	07/06/2016	03:05:38	Pipistrelle sp.
FP-2	07/06/2016	00:35:28	Common pipistrelle	FP-2	07/06/2016	02:32:50	Common pipistrelle	FP-2	07/06/2016	02:45:37	Common pipistrelle	FP-2	07/06/2016	03:06:12	Pipistrelle sp.
FP-2	07/06/2016	00:35:43	Common pipistrelle	FP-2	07/06/2016	02:33:02	Common pipistrelle	FP-2	07/06/2016	02:45:45	Common pipistrelle	FP-2	07/06/2016	03:06:23	Common pipistrelle
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FP-2	07/06/2016	02:28:09	Common pipistrelle	FP-2	07/06/2016	02:40:44	Common pipistrelle	FP-2	07/06/2016	02:58:30	Common pipistrelle	FP-2	07/06/2016	03:17:32	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-2	07/06/2016	03:18:10	Common pipistrell	FP-2	07/06/2016	03:33:06	Common pipistrell	FP-2	08/06/2016	01:02:18	Common pipistrell	FP-2	08/06/2016	01:42:45	Common pipistrelle
FP-2	07/06/2016	03:18:28	Common pipistrell	FP-2	07/06/2016	03:33:24	Pipistrelle sp.	FP-2	08/06/2016	01:02:36	Common pipistrell	FP-2	08/06/2016	01:43:42	Common pipistrelle
FP-2	07/06/2016	03:18:40	Common pipistrell	FP-2	07/06/2016	03:35:05	Common pipistrell	FP-2	08/06/2016	01:03:08	Common pipistrell	FP-2	08/06/2016	01:46:11	Pipistrelle sp.
FP-2	07/06/2016	03:19:14	Common pipistrell	FP-2	07/06/2016	03:43:02	Common pipistrell	FP-2	08/06/2016	01:03:19	Common pipistrell	FP-2	08/06/2016	01:49:37	Common pipistrelle
FP-2	07/06/2016	03:20:03	Common pipistrell	FP-2	07/06/2016	04:22:47	Soprano pipistrelle	FP-2	08/06/2016	01:03:37	Common pipistrell	FP-2	08/06/2016	01:50:01	Pipistrelle sp.
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FP-2	07/06/2016	03:22:01	Common pipistrell	FP-2	07/06/2016	23:23:12	Leisler's bat	FP-2	08/06/2016	01:16:32	Pipistrelle sp.	FP-2	08/06/2016	01:52:19	Common pipistrelle
FP-2	07/06/2016	03:22:33	Common pipistrell	FP-2	07/06/2016	23:56:50	Common pipistrell	FP-2	08/06/2016	01:26:02	Common pipistrell	FP-2	08/06/2016	01:52:36	Common pipistrelle
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FP-2	07/06/2016	03:23:00	Common pipistrell	FP-2	08/06/2016	00:00:10	Common pipistrell	FP-2	08/06/2016	01:27:52	Common pipistrell	FP-2	08/06/2016	01:53:08	Common pipistrelle
FP-2	07/06/2016	03:23:32	Common pipistrell	FP-2	08/06/2016	00:04:49	Common pipistrell	FP-2	08/06/2016	01:28:25	Pipistrelle sp.	FP-2	08/06/2016	01:53:17	Common pipistrelle
FP-2	07/06/2016	03:23:44	Common pipistrell	FP-2	08/06/2016	00:07:33	Pipistrelle sp.	FP-2	08/06/2016	01:28:43	Common pipistrell	FP-2	08/06/2016	01:53:39	Common pipistrelle
FP-2	07/06/2016	03:24:10	Common pipistrell	FP-2	08/06/2016	00:11:22	Common pipistrell	FP-2	08/06/2016	01:29:17	Common pipistrell	FP-2	08/06/2016	01:53:50	Common pipistrelle
FP-2	07/06/2016	03:24:27	Common pipistrell	FP-2	08/06/2016	00:12:05	Pipistrelle sp.	FP-2	08/06/2016	01:29:30	Common pipistrell	FP-2	08/06/2016	01:54:58	Common pipistrelle
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FP-2	07/06/2016	03:24:52	Common pipistrell	FP-2	08/06/2016	00:16:53	Myotis sp.	FP-2	08/06/2016	01:33:35	Common pipistrell	FP-2	08/06/2016	01:55:34	Common pipistrelle
FP-2	07/06/2016	03:25:13	Common pipistrell	FP-2	08/06/2016	00:24:21	Soprano pipistrelle	FP-2	08/06/2016	01:34:37	Common pipistrell	FP-2	08/06/2016	01:55:55	Common pipistrelle
FP-2	07/06/2016	03:25:42	Common pipistrell	FP-2	08/06/2016	00:24:36	Common pipistrell	FP-2	08/06/2016	01:34:55	Common pipistrell	FP-2	08/06/2016	01:56:28	Common pipistrelle
FP-2	07/06/2016	03:25:51	Leisler's bat	FP-2	08/06/2016	00:26:38	Pipistrelle sp.	FP-2	08/06/2016	01:35:04	Common pipistrell	FP-2	08/06/2016	01:57:07	Common pipistrelle
FP-2	07/06/2016	03:26:24	Common pipistrell	FP-2	08/06/2016	00:34:48	Leisler's bat	FP-2	08/06/2016	01:35:04	Leisler's bat	FP-2	08/06/2016	01:57:45	Common pipistrelle
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FP-2	07/06/2016	03:27:56	Common pipistrell	FP-2	08/06/2016	00:43:29	Pipistrelle sp.	FP-2	08/06/2016	01:35:51	Leisler's bat	FP-2	08/06/2016	02:05:57	Common pipistrelle
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FP-2	07/06/2016	03:32:28	Common pipistrell	FP-2	08/06/2016	01:01:50	Common pipistrell	FP-2	08/06/2016	01:42:01	Common pipistrell	FP-2	08/06/2016	02:24:23	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-2	08/06/2016	02:25:22	Common pipistrell	FP-2	08/06/2016	03:09:19	Pipistrelle sp.	FP-2	09/06/2016	01:53:37	Common pipistrell	FP-2	10/06/2016	01:42:48	Common pipistrelle
FP-2	08/06/2016	02:25:37	Common pipistrell	FP-2	08/06/2016	03:15:57	Pipistrelle sp.	FP-2	09/06/2016	01:54:06	Common pipistrell	FP-2	10/06/2016	01:43:04	Common pipistrelle
FP-2	08/06/2016	02:25:46	Common pipistrell	FP-2	08/06/2016	03:17:09	Leisler's bat	FP-2	09/06/2016	01:55:12	Common pipistrell	FP-2	10/06/2016	01:43:15	Common pipistrelle
FP-2	08/06/2016	02:25:59	Common pipistrell	FP-2	08/06/2016	03:17:32	Common pipistrell	FP-2	09/06/2016	02:35:54	Common pipistrell	FP-2	10/06/2016	01:43:47	Common pipistrelle
FP-2	08/06/2016	02:26:16	Common pipistrell	FP-2	08/06/2016	03:17:50	Common pipistrell	FP-2	09/06/2016	03:06:32	Myotis sp.	FP-2	10/06/2016	01:44:02	Common pipistrelle
FP-2	08/06/2016	02:26:25	Common pipistrell	FP-2	08/06/2016	03:17:59	Common pipistrell	FP-2	09/06/2016	03:07:44	Common pipistrell	FP-2	10/06/2016	01:44:19	Common pipistrelle
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FP-2	08/06/2016	02:27:03	Common pipistrell	FP-2	08/06/2016	03:18:19	Common pipistrell	FP-2	09/06/2016	03:14:03	Soprano pipistrelle	FP-2	10/06/2016	01:44:53	Common pipistrelle
FP-2	08/06/2016	02:27:17	Common pipistrell	FP-2	08/06/2016	03:21:14	Common pipistrell	FP-2	09/06/2016	03:22:10	Leisler's bat	FP-2	10/06/2016	01:45:07	Common pipistrelle
FP-2	08/06/2016	02:27:35	Common pipistrell	FP-2	08/06/2016	03:26:10	Common pipistrell	FP-2	09/06/2016	03:31:37	Leisler's bat	FP-2	10/06/2016	01:46:06	Common pipistrelle
FP-2	08/06/2016	02:27:55	Common pipistrell	FP-2	08/06/2016	03:27:53	Pipistrelle sp.	FP-2	09/06/2016	04:02:59	Soprano pipistrelle	FP-2	10/06/2016	01:46:19	Common pipistrelle
FP-2	08/06/2016	02:28:25	Common pipistrell	FP-2	08/06/2016	03:42:40	Common pipistrell	FP-2	09/06/2016	22:52:34	Common pipistrell	FP-2	10/06/2016	01:46:54	Common pipistrelle
FP-2	08/06/2016	02:28:39	Common pipistrell	FP-2	08/06/2016	03:46:29	Common pipistrell	FP-2	09/06/2016	22:52:47	Common pipistrell	FP-2	10/06/2016	01:47:46	Common pipistrelle
FP-2	08/06/2016	02:29:28	Common pipistrell	FP-2	08/06/2016	22:47:49	Common pipistrell	FP-2	09/06/2016	23:06:14	Pipistrelle sp.	FP-2	10/06/2016	01:47:58	Common pipistrelle
FP-2	08/06/2016	02:29:37	Common pipistrell	FP-2	08/06/2016	23:14:18	Common pipistrell	FP-2	09/06/2016	23:09:54	Pipistrelle sp.	FP-2	10/06/2016	01:48:21	Common pipistrelle
FP-2	08/06/2016	02:29:45	Common pipistrell	FP-2	08/06/2016	23:15:21	Leisler's bat	FP-2	09/06/2016	23:19:22	Common pipistrell	FP-2	10/06/2016	01:48:32	Common pipistrelle
FP-2	08/06/2016	02:30:01	Common pipistrell	FP-2	08/06/2016	23:37:16	Common pipistrell	FP-2	09/06/2016	23:28:35	Leisler's bat	FP-2	10/06/2016	01:48:41	Common pipistrelle
FP-2	08/06/2016	02:30:19	Common pipistrell	FP-2	08/06/2016	23:37:27	Common pipistrell	FP-2	09/06/2016	23:31:30	Common pipistrell	FP-2	10/06/2016	01:48:52	Common pipistrelle
FP-2	08/06/2016	02:30:50	Common pipistrell	FP-2	08/06/2016	23:38:39	Common pipistrell	FP-2	09/06/2016	23:33:47	Common pipistrell	FP-2	10/06/2016	01:50:00	Common pipistrelle
FP-2	08/06/2016	02:31:07	Common pipistrell	FP-2	08/06/2016	23:55:14	Leisler's bat	FP-2	09/06/2016	23:36:47	Pipistrelle sp.	FP-2	10/06/2016	01:50:11	Common pipistrelle
FP-2	08/06/2016	02:31:21	Common pipistrell	FP-2	08/06/2016	23:57:54	Common pipistrell	FP-2	09/06/2016	23:42:01	Common pipistrell	FP-2	10/06/2016	01:50:33	Common pipistrelle
FP-2	08/06/2016	02:31:35	Common pipistrell	FP-2	09/06/2016	00:16:45	Common pipistrell	FP-2	09/06/2016	23:42:12	Common pipistrell	FP-2	10/06/2016	01:50:44	Common pipistrelle
FP-2	08/06/2016	02:31:47	Common pipistrell	FP-2	09/06/2016	00:17:28	Common pipistrell	FP-2	09/06/2016	23:42:32	Common pipistrell	FP-2	10/06/2016	01:50:53	Common pipistrelle
FP-2	08/06/2016	02:31:56	Common pipistrell	FP-2	09/06/2016	00:23:05	Common pipistrell	FP-2	09/06/2016	23:51:43	Common pipistrell	FP-2	10/06/2016	01:51:14	Common pipistrelle
FP-2	08/06/2016	02:32:10	Common pipistrell	FP-2	09/06/2016	00:55:12	Common pipistrell	FP-2	10/06/2016	00:08:45	Leisler's bat	FP-2	10/06/2016	01:51:33	Common pipistrelle
FP-2	08/06/2016	02:32:39	Pipistrelle sp.	FP-2	09/06/2016	00:55:12	Soprano pipistrelle	FP-2	10/06/2016	00:09:18	Common pipistrell	FP-2	10/06/2016	01:52:38	Common pipistrelle
FP-2	08/06/2016	02:32:57	Common pipistrell	FP-2	09/06/2016	01:08:50	Pipistrelle sp.	FP-2	10/06/2016	00:10:38	Common pipistrell	FP-2	10/06/2016	01:52:49	Common pipistrelle
FP-2	08/06/2016	02:33:29	Common pipistrell	FP-2	09/06/2016	01:08:57	Common pipistrell	FP-2	10/06/2016	00:22:24	Common pipistrell	FP-2	10/06/2016	01:53:07	Common pipistrelle
FP-2	08/06/2016	02:33:47	Common pipistrell	FP-2	09/06/2016	01:17:59	Leisler's bat	FP-2	10/06/2016	00:23:31	Leisler's bat	FP-2	10/06/2016	01:53:18	Common pipistrelle
FP-2	08/06/2016	02:34:06	Common pipistrell	FP-2	09/06/2016	01:26:35	Common pipistrell	FP-2	10/06/2016	00:26:51	Leisler's bat	FP-2	10/06/2016	01:53:39	Common pipistrelle
FP-2	08/06/2016	02:34:21	Common pipistrell	FP-2	09/06/2016	01:34:39	Common pipistrell	FP-2	10/06/2016	00:27:00	Leisler's bat	FP-2	10/06/2016	01:53:50	Common pipistrelle
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FP-2	08/06/2016	02:36:29	Pipistrelle sp.	FP-2	09/06/2016	01:48:54	Common pipistrell	FP-2	10/06/2016	00:48:28	Common pipistrell	FP-2	10/06/2016	02:00:53	Common pipistrelle
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FP-2	08/06/2016	02:43:21	Soprano pipistrelle	FP-2	09/06/2016	01:50:33	Common pipistrell	FP-2	10/06/2016	01:07:21	Common pipistrell	FP-2	10/06/2016	02:01:35	Common pipistrelle
FP-2	08/06/2016	02:48:53	Common pipistrell	FP-2	09/06/2016	01:51:02	Common pipistrell	FP-2	10/06/2016	01:30:07	Common pipistrell	FP-2	10/06/2016	02:02:16	Pipistrelle sp.
FP-2	08/06/2016	02:49:20	Common pipistrell	FP-2	09/06/2016	01:51:12	Common pipistrell	FP-2	10/06/2016	01:32:20	Common pipistrell	FP-2	10/06/2016	02:02:24	Common pipistrelle
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FP-2	08/06/2016	02:52:18	Pipistrelle sp.	FP-2	09/06/2016	01:52:08	Common pipistrell	FP-2	10/06/2016	01:41:56	Common pipistrell	FP-2	10/06/2016	02:03:56	Common pipistrelle
FP-2	08/06/2016	03:04:28	Common pipistrell	FP-2	09/06/2016	01:52:44	Common pipistrell	FP-2	10/06/2016	01:42:18	Common pipistrell	FP-2	10/06/2016	02:04:08	Common pipistrelle
FP-2	08/06/2016	03:06:07	Leisler's bat	FP-2	09/06/2016	01:53:02	Common pipistrell	FP-2	10/06/2016	01:42:28	Common pipistrell	FP-2	10/06/2016	02:04:14	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-2	10/06/2016	02:04:55	Common pipistrell	FP-2	10/06/2016	02:29:42	Common pipistrell	FP-2	10/06/2016	02:59:21	Common pipistrell	FP-2	10/06/2016	03:42:31	Common pipistrelle
FP-2	10/06/2016	02:05:10	Common pipistrell	FP-2	10/06/2016	02:30:03	Common pipistrell	FP-2	10/06/2016	02:59:33	Common pipistrell	FP-2	10/06/2016	03:42:54	Common pipistrelle
FP-2	10/06/2016	02:05:49	Common pipistrell	FP-2	10/06/2016	02:30:32	Common pipistrell	FP-2	10/06/2016	02:59:48	Common pipistrell	FP-2	10/06/2016	03:43:14	Common pipistrelle
FP-2	10/06/2016	02:06:07	Common pipistrell	FP-2	10/06/2016	02:30:47	Common pipistrell	FP-2	10/06/2016	03:00:01	Common pipistrell	FP-2	10/06/2016	03:43:39	Common pipistrelle
FP-2	10/06/2016	02:06:48	Common pipistrell	FP-2	10/06/2016	02:31:02	Common pipistrell	FP-2	10/06/2016	03:00:14	Common pipistrell	FP-2	10/06/2016	03:43:59	Common pipistrelle
FP-2	10/06/2016	02:11:08	Common pipistrell	FP-2	10/06/2016	02:31:26	Common pipistrell	FP-2	10/06/2016	03:00:23	Common pipistrell	FP-2	10/06/2016	03:44:08	Common pipistrelle
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FP-2	10/06/2016	02:19:03	Common pipistrell	FP-2	10/06/2016	02:40:27	Common pipistrell	FP-2	10/06/2016	03:07:52	Common pipistrell	FP-2	10/06/2016	03:50:50	Common pipistrelle
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FP-2	10/06/2016	02:20:05	Common pipistrell	FP-2	10/06/2016	02:44:49	Common pipistrell	FP-2	10/06/2016	03:09:15	Common pipistrell	FP-2	10/06/2016	03:51:42	Common pipistrelle
FP-2	10/06/2016	02:20:26	Common pipistrell	FP-2	10/06/2016	02:52:02	Common pipistrell	FP-2	10/06/2016	03:09:41	Common pipistrell	FP-2	10/06/2016	03:51:54	Common pipistrelle
FP-2	10/06/2016	02:20:58	Common pipistrell	FP-2	10/06/2016	02:52:27	Common pipistrell	FP-2	10/06/2016	03:10:22	Common pipistrell	FP-2	10/06/2016	03:52:04	Common pipistrelle
FP-2	10/06/2016	02:21:13	Common pipistrell	FP-2	10/06/2016	02:52:41	Common pipistrell	FP-2	10/06/2016	03:10:32	Common pipistrell	FP-2	10/06/2016	03:52:11	Common pipistrelle
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FP-2	10/06/2016	02:21:36	Common pipistrell	FP-2	10/06/2016	02:54:38	Common pipistrell	FP-2	10/06/2016	03:11:12	Common pipistrell	FP-2	10/06/2016	03:52:31	Common pipistrelle
FP-2	10/06/2016	02:21:36	Myotis sp.	FP-2	10/06/2016	02:55:20	Common pipistrell	FP-2	10/06/2016	03:11:24	Common pipistrell	FP-2	10/06/2016	04:11:01	Common pipistrelle
FP-2	10/06/2016	02:22:06	Common pipistrell	FP-2	10/06/2016	02:55:35	Common pipistrell	FP-2	10/06/2016	03:11:33	Common pipistrell	FP-2	10/06/2016	04:25:42	Leisler's bat
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FP-2	10/06/2016	02:28:49	Common pipistrell	FP-2	10/06/2016	02:58:32	Common pipistrell	FP-2	10/06/2016	03:15:03	Common pipistrell	FP-2	10/06/2016	23:47:52	Common pipistrelle
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ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	10/06/2016	23:49:06	Common pipistrell	FP-2	11/06/2016	00:35:05	Common pipistrell	FP-2	11/06/2016	00:45:58	Common pipistrell	FP-2	11/06/2016	01:07:27	Common pipistrelle
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FP-2	10/06/2016	23:49:24	Common pipistrell	FP-2	11/06/2016	00:35:37	Common pipistrell	FP-2	11/06/2016	00:51:10	Leisler's bat	FP-2	11/06/2016	01:08:08	Common pipistrelle
FP-2	10/06/2016	23:50:04	Common pipistrell	FP-2	11/06/2016	00:35:49	Common pipistrell	FP-2	11/06/2016	00:53:21	Common pipistrell	FP-2	11/06/2016	01:08:53	Common pipistrelle
FP-2	10/06/2016	23:50:51	Common pipistrell	FP-2	11/06/2016	00:36:09	Common pipistrell	FP-2	11/06/2016	00:53:47	Common pipistrell	FP-2	11/06/2016	01:09:03	Common pipistrelle
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FP-2	11/06/2016	00:21:33	Common pipistrell	FP-2	11/06/2016	00:36:32	Common pipistrell	FP-2	11/06/2016	00:54:35	Common pipistrell	FP-2	11/06/2016	01:10:04	Common pipistrelle
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FP-2	11/06/2016	00:23:16	Common pipistrell	FP-2	11/06/2016	00:38:28	Common pipistrell	FP-2	11/06/2016	00:57:05	Common pipistrell	FP-2	11/06/2016	01:11:54	Common pipistrelle
FP-2	11/06/2016	00:23:38	Common pipistrell	FP-2	11/06/2016	00:38:37	Common pipistrell	FP-2	11/06/2016	00:57:32	Common pipistrell	FP-2	11/06/2016	01:12:14	Common pipistrelle
FP-2	11/06/2016	00:24:06	Common pipistrell	FP-2	11/06/2016	00:38:51	Common pipistrell	FP-2	11/06/2016	00:57:46	Common pipistrell	FP-2	11/06/2016	01:14:21	Common pipistrelle
FP-2	11/06/2016	00:24:19	Common pipistrell	FP-2	11/06/2016	00:39:02	Common pipistrell	FP-2	11/06/2016	00:57:58	Common pipistrell	FP-2	11/06/2016	01:14:35	Common pipistrelle
FP-2	11/06/2016	00:24:45	Common pipistrell	FP-2	11/06/2016	00:39:36	Common pipistrell	FP-2	11/06/2016	00:58:12	Common pipistrell	FP-2	11/06/2016	01:15:00	Common pipistrelle
FP-2	11/06/2016	00:26:18	Common pipistrell	FP-2	11/06/2016	00:39:48	Common pipistrell	FP-2	11/06/2016	00:58:43	Common pipistrell	FP-2	11/06/2016	01:15:13	Common pipistrelle
FP-2	11/06/2016	00:27:02	Common pipistrell	FP-2	11/06/2016	00:39:57	Common pipistrell	FP-2	11/06/2016	00:59:01	Common pipistrell	FP-2	11/06/2016	01:15:22	Common pipistrelle
FP-2	11/06/2016	00:27:13	Common pipistrell	FP-2	11/06/2016	00:40:05	Common pipistrell	FP-2	11/06/2016	00:59:12	Common pipistrell	FP-2	11/06/2016	01:15:55	Common pipistrelle
FP-2	11/06/2016	00:27:30	Common pipistrell	FP-2	11/06/2016	00:40:18	Common pipistrell	FP-2	11/06/2016	00:59:27	Common pipistrell	FP-2	11/06/2016	01:16:07	Common pipistrelle
FP-2	11/06/2016	00:27:39	Common pipistrell	FP-2	11/06/2016	00:40:36	Common pipistrell	FP-2	11/06/2016	00:59:42	Common pipistrell	FP-2	11/06/2016	01:16:39	Common pipistrelle
FP-2	11/06/2016	00:27:50	Common pipistrell	FP-2	11/06/2016	00:40:53	Common pipistrell	FP-2	11/06/2016	01:00:12	Common pipistrell	FP-2	11/06/2016	01:16:52	Common pipistrelle
FP-2	11/06/2016	00:27:58	Common pipistrell	FP-2	11/06/2016	00:41:06	Common pipistrell	FP-2	11/06/2016	01:00:31	Common pipistrell	FP-2	11/06/2016	01:17:56	Common pipistrelle
FP-2	11/06/2016	00:28:13	Common pipistrell	FP-2	11/06/2016	00:41:28	Common pipistrell	FP-2	11/06/2016	01:00:45	Common pipistrell	FP-2	11/06/2016	01:18:15	Common pipistrelle
FP-2	11/06/2016	00:28:25	Common pipistrell	FP-2	11/06/2016	00:41:49	Common pipistrell	FP-2	11/06/2016	01:00:57	Common pipistrell	FP-2	11/06/2016	01:18:56	Common pipistrelle
FP-2	11/06/2016	00:28:47	Common pipistrell	FP-2	11/06/2016	00:41:58	Common pipistrell	FP-2	11/06/2016	01:01:16	Common pipistrell	FP-2	11/06/2016	01:19:42	Common pipistrelle
FP-2	11/06/2016	00:28:59	Common pipistrell	FP-2	11/06/2016	00:42:07	Common pipistrell	FP-2	11/06/2016	01:01:32	Common pipistrell	FP-2	11/06/2016	01:20:08	Common pipistrelle
FP-2	11/06/2016	00:29:14	Common pipistrell	FP-2	11/06/2016	00:42:16	Common pipistrell	FP-2	11/06/2016	01:01:41	Common pipistrell	FP-2	11/06/2016	01:20:19	Common pipistrelle
FP-2	11/06/2016	00:29:21	Common pipistrell	FP-2	11/06/2016	00:42:25	Common pipistrell	FP-2	11/06/2016	01:01:51	Common pipistrell	FP-2	11/06/2016	01:20:54	Common pipistrelle
FP-2	11/06/2016	00:29:50	Common pipistrell	FP-2	11/06/2016	00:42:39	Common pipistrell	FP-2	11/06/2016	01:02:06	Common pipistrell	FP-2	11/06/2016	01:21:12	Common pipistrelle
FP-2	11/06/2016	00:30:01	Common pipistrell	FP-2	11/06/2016	00:42:52	Common pipistrell	FP-2	11/06/2016	01:02:20	Common pipistrell	FP-2	11/06/2016	01:21:22	Common pipistrelle
FP-2	11/06/2016	00:30:11	Common pipistrell	FP-2	11/06/2016	00:43:02	Common pipistrell	FP-2	11/06/2016	01:02:39	Common pipistrell	FP-2	11/06/2016	01:21:33	Common pipistrelle
FP-2	11/06/2016	00:30:22	Common pipistrell	FP-2	11/06/2016	00:43:36	Common pipistrell	FP-2	11/06/2016	01:02:52	Common pipistrell	FP-2	11/06/2016	01:21:42	Common pipistrelle
FP-2	11/06/2016	00:30:46	Common pipistrell	FP-2	11/06/2016	00:43:48	Common pipistrell	FP-2	11/06/2016	01:03:20	Common pipistrell	FP-2	11/06/2016	01:21:55	Common pipistrelle
FP-2	11/06/2016	00:30:58	Common pipistrell	FP-2	11/06/2016	00:44:03	Common pipistrell	FP-2	11/06/2016	01:03:31	Common pipistrell	FP-2	11/06/2016	01:22:09	Common pipistrelle
FP-2	11/06/2016	00:31:59	Common pipistrell	FP-2	11/06/2016	00:44:10	Common pipistrell	FP-2	11/06/2016	01:03:57	Common pipistrell	FP-2	11/06/2016	01:22:25	Common pipistrelle
FP-2	11/06/2016	00:32:33	Common pipistrell	FP-2	11/06/2016	00:44:20	Common pipistrell	FP-2	11/06/2016	01:04:13	Common pipistrell	FP-2	11/06/2016	01:23:00	Common pipistrelle
FP-2	11/06/2016	00:32:45	Common pipistrell	FP-2	11/06/2016	00:44:36	Common pipistrell	FP-2	11/06/2016	01:04:52	Common pipistrell	FP-2	11/06/2016	01:23:14	Common pipistrelle
FP-2	11/06/2016	00:33:18	Common pipistrell	FP-2	11/06/2016	00:44:45	Common pipistrell	FP-2	11/06/2016	01:05:05	Common pipistrell	FP-2	11/06/2016	01:23:56	Common pipistrelle
FP-2	11/06/2016	00:33:30	Common pipistrell	FP-2	11/06/2016	00:44:55	Common pipistrell	FP-2	11/06/2016	01:06:09	Common pipistrell	FP-2	11/06/2016	01:24:08	Common pipistrelle
FP-2	11/06/2016	00:33:58	Common pipistrell	FP-2	11/06/2016	00:45:05	Common pipistrell	FP-2	11/06/2016	01:06:16	Common pipistrell	FP-2	11/06/2016	01:24:45	Common pipistrelle
FP-2	11/06/2016	00:34:10	Common pipistrell	FP-2	11/06/2016	00:45:20	Common pipistrell	FP-2	11/06/2016	01:06:44	Common pipistrell	FP-2	11/06/2016	01:24:56	Common pipistrelle
FP-2	11/06/2016	00:34:54	Common pipistrell	FP-2	11/06/2016	00:45:40	Common pipistrell	FP-2	11/06/2016	01:06:56	Common pipistrell	FP-2	11/06/2016	01:27:29	Myotis sp.

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	11/06/2016	01:33:10	Myotis sp.	FP-2	11/06/2016	23:44:07	Common pipistrell	FP-2	12/06/2016	00:02:47	Common pipistrell	FP-2	12/06/2016	02:06:06	Common pipistrelle
FP-2	11/06/2016	01:44:50	Common pipistrell	FP-2	11/06/2016	23:44:15	Common pipistrell	FP-2	12/06/2016	00:03:00	Common pipistrell	FP-2	12/06/2016	02:17:37	Common pipistrelle
FP-2	11/06/2016	03:33:27	Common pipistrell	FP-2	11/06/2016	23:44:58	Common pipistrell	FP-2	12/06/2016	00:03:32	Common pipistrell	FP-2	12/06/2016	02:22:39	Common pipistrelle
FP-2	11/06/2016	03:39:54	Common pipistrell	FP-2	11/06/2016	23:45:08	Common pipistrell	FP-2	12/06/2016	00:03:39	Common pipistrell	FP-2	12/06/2016	02:24:08	Common pipistrelle
FP-2	11/06/2016	03:44:36	Common pipistrell	FP-2	11/06/2016	23:45:18	Common pipistrell	FP-2	12/06/2016	00:03:48	Common pipistrell	FP-2	12/06/2016	02:24:16	Common pipistrelle
FP-2	11/06/2016	04:02:51	Common pipistrell	FP-2	11/06/2016	23:45:30	Common pipistrell	FP-2	12/06/2016	00:04:05	Common pipistrell	FP-2	12/06/2016	02:24:39	Common pipistrelle
FP-2	11/06/2016	04:08:49	Soprano pipistrelle	FP-2	11/06/2016	23:45:45	Common pipistrell	FP-2	12/06/2016	00:04:37	Common pipistrell	FP-2	12/06/2016	02:25:14	Common pipistrelle
FP-2	11/06/2016	04:13:07	Leisler's bat	FP-2	11/06/2016	23:45:53	Common pipistrell	FP-2	12/06/2016	00:05:25	Common pipistrell	FP-2	12/06/2016	02:25:32	Common pipistrelle
FP-2	11/06/2016	23:24:34	Common pipistrell	FP-2	11/06/2016	23:46:22	Common pipistrell	FP-2	12/06/2016	00:06:27	Common pipistrell	FP-2	12/06/2016	02:26:41	Common pipistrelle
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FP-2	11/06/2016	23:25:45	Common pipistrell	FP-2	11/06/2016	23:46:46	Common pipistrell	FP-2	12/06/2016	00:07:09	Common pipistrell	FP-2	12/06/2016	02:27:25	Common pipistrelle
FP-2	11/06/2016	23:25:55	Common pipistrell	FP-2	11/06/2016	23:47:01	Common pipistrell	FP-2	12/06/2016	00:07:26	Common pipistrell	FP-2	12/06/2016	02:59:11	Common pipistrelle
FP-2	11/06/2016	23:26:37	Common pipistrell	FP-2	11/06/2016	23:47:24	Common pipistrell	FP-2	12/06/2016	00:07:34	Common pipistrell	FP-2	12/06/2016	03:42:38	Common pipistrelle
FP-2	11/06/2016	23:26:48	Common pipistrell	FP-2	11/06/2016	23:47:40	Common pipistrell	FP-2	12/06/2016	00:08:51	Common pipistrell	FP-2	12/06/2016	03:48:25	Common pipistrelle
FP-2	11/06/2016	23:27:37	Common pipistrell	FP-2	11/06/2016	23:48:08	Common pipistrell	FP-2	12/06/2016	00:08:58	Common pipistrell	FP-2	12/06/2016	04:13:55	Common pipistrelle
FP-2	11/06/2016	23:27:47	Common pipistrell	FP-2	11/06/2016	23:48:17	Common pipistrell	FP-2	12/06/2016	00:09:33	Common pipistrell	FP-2	12/06/2016	22:28:32	Leisler's bat
FP-2	11/06/2016	23:28:02	Common pipistrell	FP-2	11/06/2016	23:48:25	Common pipistrell	FP-2	12/06/2016	00:19:34	Common pipistrell	FP-2	12/06/2016	22:46:37	Common pipistrelle
FP-2	11/06/2016	23:28:16	Common pipistrell	FP-2	11/06/2016	23:48:34	Common pipistrell	FP-2	12/06/2016	00:19:54	Common pipistrell	FP-2	12/06/2016	23:08:32	Common pipistrelle
FP-2	11/06/2016	23:28:33	Common pipistrell	FP-2	11/06/2016	23:48:48	Common pipistrell	FP-2	12/06/2016	00:20:30	Common pipistrell	FP-2	12/06/2016	23:12:03	Leisler's bat
FP-2	11/06/2016	23:29:40	Common pipistrell	FP-2	11/06/2016	23:49:00	Common pipistrell	FP-2	12/06/2016	00:25:50	Common pipistrell	FP-2	12/06/2016	23:20:31	Soprano pipistrelle
FP-2	11/06/2016	23:30:01	Common pipistrell	FP-2	11/06/2016	23:49:13	Common pipistrell	FP-2	12/06/2016	00:47:20	Brown Long-eared	FP-2	12/06/2016	23:26:46	Common pipistrelle
FP-2	11/06/2016	23:30:41	Common pipistrell	FP-2	11/06/2016	23:51:15	Common pipistrell	FP-2	12/06/2016	00:56:55	Common pipistrell	FP-2	12/06/2016	23:42:36	Common pipistrelle
FP-2	11/06/2016	23:30:54	Common pipistrell	FP-2	11/06/2016	23:51:35	Common pipistrell	FP-2	12/06/2016	00:57:13	Common pipistrell	FP-2	12/06/2016	23:58:07	Common pipistrelle
FP-2	11/06/2016	23:31:55	Common pipistrell	FP-2	11/06/2016	23:51:46	Common pipistrell	FP-2	12/06/2016	01:04:20	Common pipistrell	FP-2	13/06/2016	00:09:25	Common pipistrelle
FP-2	11/06/2016	23:32:04	Common pipistrell	FP-2	11/06/2016	23:52:00	Common pipistrell	FP-2	12/06/2016	01:04:53	Common pipistrell	FP-2	13/06/2016	00:26:23	Common pipistrelle
FP-2	11/06/2016	23:32:31	Common pipistrell	FP-2	11/06/2016	23:52:27	Common pipistrell	FP-2	12/06/2016	01:05:04	Common pipistrell	FP-2	13/06/2016	00:30:31	Common pipistrelle
FP-2	11/06/2016	23:32:39	Common pipistrell	FP-2	11/06/2016	23:52:35	Common pipistrell	FP-2	12/06/2016	01:05:12	Common pipistrell	FP-2	13/06/2016	00:44:10	Common pipistrelle
FP-2	11/06/2016	23:32:53	Common pipistrell	FP-2	11/06/2016	23:52:46	Common pipistrell	FP-2	12/06/2016	01:06:13	Common pipistrell	FP-2	13/06/2016	02:36:55	Common pipistrelle
FP-2	11/06/2016	23:33:04	Common pipistrell	FP-2	11/06/2016	23:53:00	Common pipistrell	FP-2	12/06/2016	01:07:25	Common pipistrell	FP-2	13/06/2016	02:37:05	Common pipistrelle
FP-2	11/06/2016	23:33:32	Common pipistrell	FP-2	11/06/2016	23:53:14	Common pipistrell	FP-2	12/06/2016	01:07:40	Common pipistrell	FP-2	13/06/2016	02:37:18	Common pipistrelle
FP-2	11/06/2016	23:33:42	Common pipistrell	FP-2	11/06/2016	23:53:38	Common pipistrell	FP-2	12/06/2016	01:07:54	Common pipistrell	FP-2	13/06/2016	04:27:28	Leisler's bat
FP-2	11/06/2016	23:33:55	Common pipistrell	FP-2	11/06/2016	23:53:53	Common pipistrell	FP-2	12/06/2016	01:08:13	Common pipistrell	FP-2	13/06/2016	22:36:56	Common pipistrelle
FP-2	11/06/2016	23:34:14	Common pipistrell	FP-2	11/06/2016	23:54:08	Common pipistrell	FP-2	12/06/2016	01:22:13	Common pipistrell	FP-2	13/06/2016	23:11:51	Common pipistrelle
FP-2	11/06/2016	23:34:44	Common pipistrell	FP-2	11/06/2016	23:54:18	Common pipistrell	FP-2	12/06/2016	01:22:23	Common pipistrell	FP-2	13/06/2016	23:20:59	Common pipistrelle
FP-2	11/06/2016	23:35:18	Common pipistrell	FP-2	11/06/2016	23:54:27	Common pipistrell	FP-2	12/06/2016	01:22:34	Common pipistrell	FP-2	13/06/2016	23:31:14	Pipistrelle sp.
FP-2	11/06/2016	23:35:33	Common pipistrell	FP-2	11/06/2016	23:54:35	Common pipistrell	FP-2	12/06/2016	01:22:45	Common pipistrell	FP-2	13/06/2016	23:53:01	Common pipistrelle
FP-2	11/06/2016	23:35:45	Common pipistrell	FP-2	12/06/2016	00:00:23	Common pipistrell	FP-2	12/06/2016	01:23:01	Common pipistrell	FP-2	13/06/2016	23:59:46	Leisler's bat
FP-2	11/06/2016	23:36:02	Common pipistrell	FP-2	12/06/2016	00:00:50	Common pipistrell	FP-2	12/06/2016	01:23:09	Common pipistrell	FP-2	14/06/2016	00:04:38	Common pipistrelle
FP-2	11/06/2016	23:37:01	Common pipistrell	FP-2	12/06/2016	00:01:02	Common pipistrell	FP-2	12/06/2016	02:03:04	Common pipistrell	FP-2	14/06/2016	00:33:08	Common pipistrelle
FP-2	11/06/2016	23:37:08	Common pipistrell	FP-2	12/06/2016	00:01:11	Common pipistrell	FP-2	12/06/2016	02:03:23	Common pipistrell	FP-2	14/06/2016	00:33:49	Common pipistrelle
FP-2	11/06/2016	23:38:17	Myotis sp.	FP-2	12/06/2016	00:01:21	Common pipistrell	FP-2	12/06/2016	02:04:44	Common pipistrell	FP-2	14/06/2016	00:34:44	Common pipistrelle
FP-2	11/06/2016	23:43:30	Common pipistrell	FP-2	12/06/2016	00:01:35	Common pipistrell	FP-2	12/06/2016	02:05:24	Common pipistrell	FP-2	14/06/2016	00:34:56	Common pipistrelle
FP-2	11/06/2016	23:43:49	Common pipistrell	FP-2	12/06/2016	00:01:46	Common pipistrell	FP-2	12/06/2016	02:05:45	Common pipistrell	FP-2	14/06/2016	01:04:00	Common pipistrelle
FP-2	11/06/2016	23:43:59	Common pipistrell	FP-2	12/06/2016	00:02:02	Common pipistrell	FP-2	12/06/2016	02:05:51	Common pipistrell	FP-2	14/06/2016	01:04:10	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	14/06/2016	01:04:31	Common pipistrell	FP-2	15/06/2016	23:13:28	Common pipistrell	FP-2	16/06/2016	00:44:43	Common pipistrell	FP-2	16/06/2016	03:44:49	Common pipistrelle
FP-2	14/06/2016	01:05:31	Common pipistrell	FP-2	15/06/2016	23:14:15	Common pipistrell	FP-2	16/06/2016	00:44:43	Leisler's bat	FP-2	16/06/2016	03:45:15	Common pipistrelle
FP-2	14/06/2016	01:19:00	Common pipistrell	FP-2	15/06/2016	23:14:57	Common pipistrell	FP-2	16/06/2016	00:45:24	Common pipistrell	FP-2	16/06/2016	03:45:51	Common pipistrelle
FP-2	14/06/2016	01:21:36	Common pipistrell	FP-2	15/06/2016	23:15:38	Common pipistrell	FP-2	16/06/2016	00:45:24	Leisler's bat	FP-2	16/06/2016	03:46:39	Common pipistrelle
FP-2	14/06/2016	04:20:41	Leisler's bat	FP-2	15/06/2016	23:15:59	Common pipistrell	FP-2	16/06/2016	00:46:06	Common pipistrell	FP-2	16/06/2016	03:46:48	Common pipistrelle
FP-2	14/06/2016	22:45:08	Common pipistrell	FP-2	15/06/2016	23:17:35	Common pipistrell	FP-2	16/06/2016	00:46:06	Leisler's bat	FP-2	16/06/2016	03:47:50	Common pipistrelle
FP-2	14/06/2016	22:52:20	Leisler's bat	FP-2	15/06/2016	23:19:55	Common pipistrell	FP-2	16/06/2016	00:46:35	Leisler's bat	FP-2	16/06/2016	03:50:11	Common pipistrelle
FP-2	14/06/2016	22:59:29	Pipistrelle sp.	FP-2	15/06/2016	23:21:43	Common pipistrell	FP-2	16/06/2016	00:47:12	Leisler's bat	FP-2	16/06/2016	03:51:38	Common pipistrelle
FP-2	14/06/2016	23:03:14	Leisler's bat	FP-2	15/06/2016	23:22:33	Pipistrelle sp.	FP-2	16/06/2016	00:47:45	Common pipistrell	FP-2	16/06/2016	04:05:26	Common pipistrelle
FP-2	14/06/2016	23:08:59	Common pipistrell	FP-2	15/06/2016	23:22:47	Common pipistrell	FP-2	16/06/2016	00:47:45	Leisler's bat	FP-2	16/06/2016	04:19:05	Common pipistrelle
FP-2	14/06/2016	23:10:17	Common pipistrell	FP-2	15/06/2016	23:25:11	Leisler's bat	FP-2	16/06/2016	00:48:13	Leisler's bat	FP-2	16/06/2016	22:29:21	Leisler's bat
FP-2	14/06/2016	23:12:28	Leisler's bat	FP-2	15/06/2016	23:27:29	Common pipistrell	FP-2	16/06/2016	00:48:27	Common pipistrell	FP-2	16/06/2016	22:51:14	Common pipistrelle
FP-2	14/06/2016	23:56:27	Pipistrelle sp.	FP-2	15/06/2016	23:28:24	Common pipistrell	FP-2	16/06/2016	00:48:46	Common pipistrell	FP-2	16/06/2016	22:51:23	Common pipistrelle
FP-2	15/06/2016	00:10:47	Leisler's bat	FP-2	15/06/2016	23:36:24	Common pipistrell	FP-2	16/06/2016	00:48:46	Leisler's bat	FP-2	16/06/2016	22:51:33	Common pipistrelle
FP-2	15/06/2016	01:07:37	Common pipistrell	FP-2	15/06/2016	23:38:16	Common pipistrell	FP-2	16/06/2016	00:49:59	Common pipistrell	FP-2	16/06/2016	22:51:47	Common pipistrelle
FP-2	15/06/2016	01:07:48	Common pipistrell	FP-2	15/06/2016	23:38:39	Common pipistrell	FP-2	16/06/2016	00:49:59	Leisler's bat	FP-2	16/06/2016	22:52:00	Common pipistrelle
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FP-2	17/06/2016	03:17:58	Common pipistrell	FP-4	31/07/2016	23:58:03	Pipistrelle sp.				

Bat Survey Report

Proposed Wind Farm Development at Cloncreen & Adjacent Townlands, Co. Offaly

McCarthy
Keville
O'Sullivan

Planning & Environmental Consultants

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1 INTRODUCTION

McCarthy Keville O'Sullivan (MKO) was commissioned by Bord na Móna Powergen Ltd to prepare an Environmental Impact Statement (EIS) for a proposed wind farm at Cloncreen, Co. Offaly. This report contains all information specifically relating to the assessment of potential impacts on bats, and will be included as an Appendix to the EIS. Other ecological impact assessments are available Chapter 5: Flora & Fauna of the main EIS.

A bat survey plan was devised in accordance with best practice and bat surveys were completed by MKO ecologists between April and August, 2016. Surveys in 2016 required a combination of methods which included roost surveys, manual transects and fixed point monitoring.

The aim of these surveys was to:

- determine to what extent bats are using the proposed development site
- identify the species present
- locate any roosts, foraging areas and commuting routes

In addition to bat survey work completed in 2016, reference was made to previous bat survey work. INIS Environmental Consultants and Malachy Walsh and Partners carried out bat surveys at the site in 2013 and 2015 respectively. All available bat data was used to assess how the proposed development may impact on bat populations. Where potential adverse impacts were identified, mitigation measures are provided to offset these impacts.

1.1 Statement of Authority

All bat surveys undertaken in 2016 were conducted by MKO ecologists; Pat Roberts (BSc, MCIEEM), John Hynes (BSc, MSc) and Laoise Kelly (BSc). All MKO staff have relevant academic qualifications and are competent experts in undertaking bat surveys to this level.

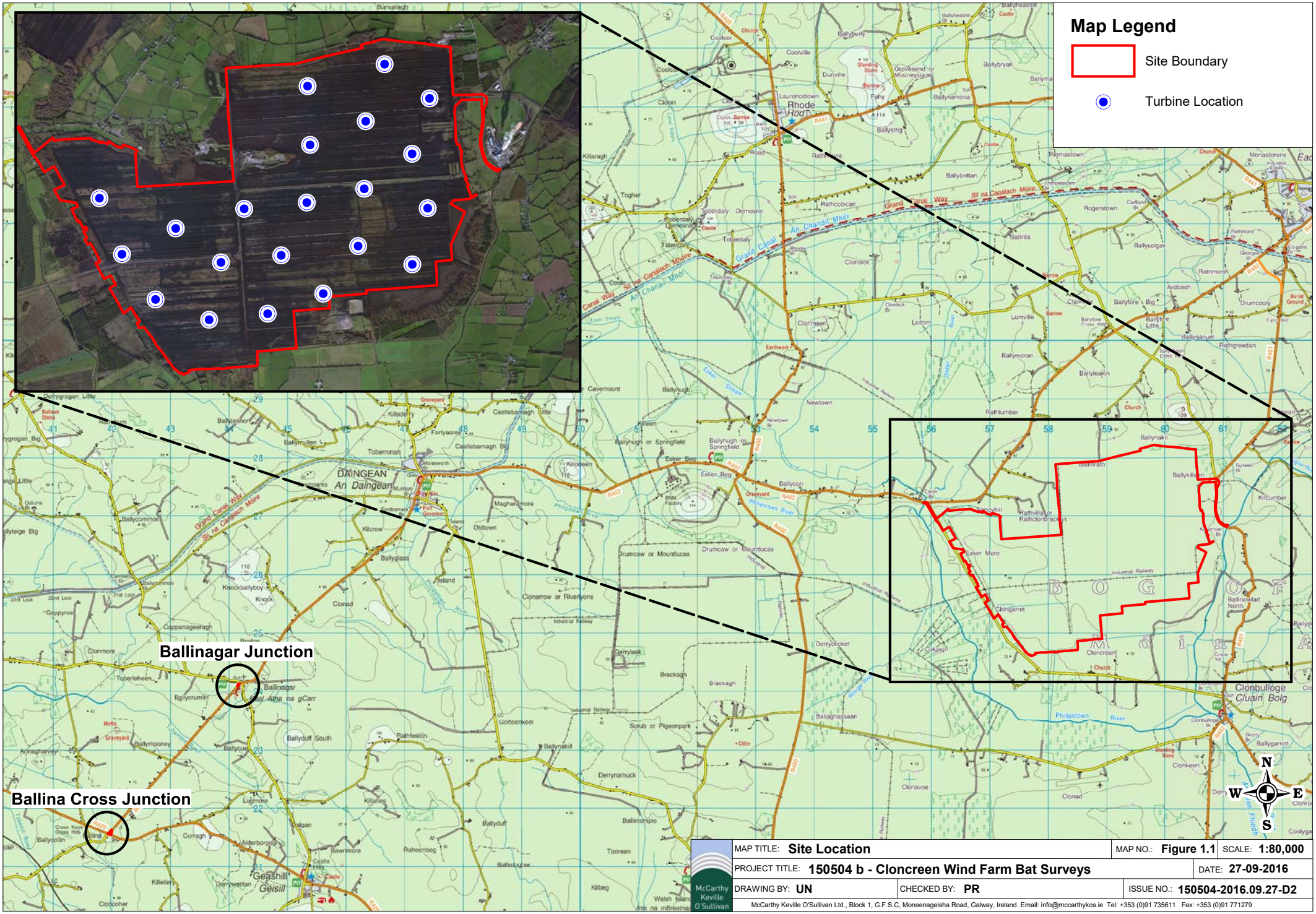
All bat survey results were compiled and assessed by Úna Nealon (BSc, PhD). Úna's primary expertise lies in bat ecology, particularly in relation to wind farm EIA. Building on her previous consultancy experience, she completed her PhD with the Centre for Irish Bat Research, examining the impacts of wind farms on Irish bat species. Her unique background leaves her ideally suited to undertake scope development for wind energy bat surveys, including the practical application of bat survey guidelines at Irish wind energy sites. She is also practiced in bat survey methods at potential development sites using multiple techniques. Furthermore, she is skilled in bat impact assessment and the design of mitigation measures where she applies scientific and technical knowledge to produce practical solutions.

Previous bat survey work also informed this impact assessment. INIS Environmental Consultants and Malachy Walsh and Partners carried out bat surveys at the site in 2013 and 2015 respectively. These ecological consultants have significant experience in undertaking survey work of this kind.

1.2 Study Area

The proposed wind farm is located at Cloncreen bog in Co. Offaly, approximately 4.5 kilometres southwest of Edenderry at its nearest point. The villages of Clonbullogue and Rhode are located approximately 2.0 kilometres southeast and 7.0 kilometres northwest of the site respectively (Figure 1.1).

The proposed wind energy development will encompass 21 No. wind turbines up to a maximum tip height of 170 metres and all associated ancillary works. In accordance with best practice, the Study Area was defined by the developable area and included a 200m buffer (Hundt, 2012).



MAP TITLE: **Site Location**		MAP NO.: **Figure 1.1**	SCALE: **1:80,000**
PROJECT TITLE: **150504 b - Cloncreen Wind Farm Bat Surveys**			DATE: **27-09-2016**
DRAWING BY: **UN**	CHECKED BY: **PR**	ISSUE NO.: **150504-2016.09.27-D2**	

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2 BACKGROUND

2.1 Introduction

Wind energy provides a clean, sustainable alternative to fossil fuels in generating electricity. However, wind energy development can impact wildlife, directly through mortality and indirectly through disturbance and habitat loss. Bat fatalities have been reported at wind energy facilities around the world, raising concern about the cumulative impacts of such developments on bat populations (Arnett et al. 2016). To date, no bat mortality studies at Irish wind farms have been published. However, evidence available from the UK estimates bat fatalities at 0 – 5.25 bats per turbine per month (Mathews et al. 2016).

Investigative research in North America and mainland Europe have revealed the mechanisms for bat mortality at wind turbines. Bat fatalities result from direct collision with moving turbine blades (Horn et al. 2008, Cryan et al. 2014) and barotrauma (Baerwald et al. 2008), i.e. internal injuries caused by air pressure changes. Why bats fly in the vicinity of wind turbines remains unclear, with several behavioural and environmental factors proposed, e.g. habitat associations, weather conditions, species ecology, etc. Any spatial, temporal or behavioural factors that may put bats at greater risk were fully considered in the design of bat surveys at the proposed wind farm at Cloncreen and in the analyses of all survey results.

2.2 Policy

All Irish bats are protected under European legislation, namely the Habitats Directive (92/43/EEC). All Irish species are listed under Annex IV of the Directive, requiring strict protection. The Lesser horseshoe bat (*Rhinolophus hipposideros*) is further listed under Annex II of the Directive, requiring the designation of conservation areas for the species. Under this Directive, Ireland is obliged to maintain the favourable conservation status of Annex-listed species. This Directive has been transposed into Irish law through the European Communities (Birds and Natural Habitats) Regulations 2011.

In addition, Irish species are further protected by national legislation (Wildlife Acts 1976-2012). Under these legislation, it is an offence to intentionally disturb, injure or kill a bat or disturb its roost. Any work at a roost site must be carried out with the support of the National Parks and Wildlife Service.

The National Parks and Wildlife Service (NPWS) monitors the conservation status of European protected habitats and species and reports their findings to the European Commission every 6 years. The most recent report for the Republic of Ireland was submitted in 2013. Table 2.1 summarises the current conservation status of Irish bat species and identified threats to Irish bat populations.

Table 2.1: Irish Bat Species Conservation Status and Threats

Bat Species	Conservation Status	Principal Threats
Common pipistrelle *Pipistrellus pipistrellus*	Favourable	▪ Urbanised areas (e.g. light pollution) ▪ Bridge/viaduct repairs ▪ Pesticides usage ▪ Removal of hedges, scrub, forestry ▪ Water pollution ▪ Other pollution and human impacts (e.g. renovation of dwellings with roosts) ▪ Infillings of ditches, dykes, ponds, pools and marshes ▪ Management of aquatic and bank vegetation for drainage purposes ▪ Abandonment of pastoral systems ▪ Spieleology and vandalism ▪ Communication routes: roads - forestry management
Soprano pipistrelle *Pipistrellus pygmaeus*	Favourable	
Nathusius' pipistrelle *Pipistrellus nathusii*	Favourable	
Leisler's bat *Nyctalus leisleri*	Favourable	
Daubenton's bat *Myotis daubentoni*	Favourable	
Natterer's bat *Myotis nattereri*	Favourable	
Whiskered bat *Myotis mystacinus*	Favourable	
Brown long-eared bat *Plecotus auritus*	Favourable	
Lesser horseshoe *Rhinolophus hipposideros*	Favourable	

2.3 Guidance

In response to growing concerns regarding the impact of wind energy developments on bats, a number of guidelines have been produced in Europe, the UK and Ireland. These guidelines aid in designing bat surveys at potential wind energy sites, assessing risk and developing mitigation and compensation strategies to minimise negative impacts. The various guidelines differ in their level of technical detail and reference to published research findings. It is important that every assessment considers the scale of any likely impacts and takes a proportionate approach, with reference to all published advice and guidelines.

2.3.1 EUROBATS

At a European level, the Advisory Committee to the EUROBATS Agreement, to which Ireland is a signatory, have produced *Guidelines for Consideration of Bats in Wind Farm Projects* which outlines an approach for assessing the potential impacts of wind turbines on bats during planning, construction and operation phases (Rodrigues, 2015). However, these guidelines are based on continental scenarios and include more diverse species and behaviours than those typical of Ireland. As such, EUROBATS guidance may recommend a level of survey that may prove inappropriate in Irish scenarios. Nevertheless, the guidance is evidence-based and provides a useful European context, within which Member States are encouraged to produce specific national guidance, focusing on local circumstances.

2.3.2 Bat Conservation Trust (BCT)

The second edition of the BCT's *Bat Survey Good Practice Guidelines* (Hundt, 2012) includes a chapter on survey methodologies for assessing the potential impacts of wind turbines on bats. The document provides technical guidance for consultants carrying out impact assessments. However, the recommendations are not based on any research findings specific to the UK.

A third edition to the guidelines, published in early 2016, removed the chapter on surveying wind turbine developments. New wind farm guidance is being drafted in

partnership with relevant organisations and with regard to recent research findings in the UK. This new guidance is due for publication later in 2016. Until this new guidance is published, the chapter in the 2nd edition is still applicable.

2.3.3 Bat Conservation Ireland (BCI)

BCI produced *Wind Turbine/Wind Farm Development Bat Survey Guidelines* (BCI, 2012a). This document provides advice to practitioners and decision makers in Ireland on necessary qualifications for surveyors, health and safety considerations, pre-construction and post-construction survey methodologies and information to be included in a report. In the absence of Irish research, these guidelines provide generalised methodology rather than detailed technical advice.

2.3.4 Other Useful Publications

Prior to the publication of the BCT guidelines, *Natural England's Bat and Onshore Wind Turbines: Interim Guidance* provided a pragmatic interpretation of the EUROBATS recommendations, as applied to onshore wind energy facilities in the UK (Natural England, 2014). In addition, the Chartered Institute of Ecology and Environmental Management (CIEEM) publishes advice on best practice as well as updates on the current state of knowledge in the *Technical Guidance Series* and in the quarterly publication *In Practice*.

In addition to specific wind farm guidance documents, other sources on bat survey, assessment and mitigation were consulted. Conservatively, these included

- Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn) (Collins, 2016)
- The Bat Worker's Manual, 3rd Edition (Mitchell-Jones and McLeish, 2004).
- Ecological and Behavioral Methods for the Study of Bats, 2nd Edition (Kunz and Parsons, 2009).
- Irish Bats in the 21st Century (Roche et al., 2014)
- British Bat Calls: A guide to species identification (Russ, 2012)
- Handbook of Biodiversity Methods: Survey, Evaluation and Monitoring (Hill, 2005)
- The Lesser Horseshoe Bat: Conservation Handbook (Schofield, 2008).
- Bats and Appropriate Assessment Guidelines, Version 1 (BCI, 2012b)
- Bat Mitigation Guidelines (Mitchell-Jones, 2004).
- Bat Mitigation Guidelines for Ireland. (Kelleher and Marnell, 2006)
- Bat Conservation: Global evidence for the effects of interventions (Berthinussen et al., 2014)
- Best practice guidelines for the conservation of bats in the planning of national road schemes (NRA, 2006a)
- Guidelines for the treatment of bats during the construction of national road schemes (NRA, 2006b)
- Bat Survey – Specific Requirements for Wind Farm Proposals (Northern Ireland Environment Agency, 2011)

2.4 Irish Species at Risk

Ireland has nine resident bat species, comprising more than half of Ireland's native terrestrial mammals (Montgomery et al., 2014). This is considerably less than the 53 bat species found in mainland Europe (Rodrigues, 2015) and 17 in Great Britain (Hundt, 2012). At present, there are no available data on bat activity or fatality at Irish wind farms.

Species at high risk of collision share several morphological and ecological similarities. Species at high risk tend to be open-air foragers with long narrow wings and use high-intensity, narrow-band echolocation calls (Schuster, 2015). This pattern is consistent in North America, Europe and Australia.

Guidance provided by Natural England (2014) utilised this information to provide a collision risk assessment for British bat species. Table 2.2 summarises the results of this risk assessment with respect to species that occur in Ireland. Four species are identified as high or medium risk. They are Common pipistrelle (*Pipistrellus pipistrellus*), Soprano pipistrelle (*Pipistrellus pygmaeus*), Nathusius pipistrelle (*Pipistrellus nathusii*) and Leisler's bat (*Nyctalus leisleri*). These four species have also displayed significant mortality at wind energy facilities in mainland Europe (EUROBATS, 2016).

Table 2.2: Collision Risk Level for Irish Bat Species (Natural England, 2014)

Low Risk	Medium Risk	High Risk
Myotis species	Common pipistrelle	Leisler's bat
Brown long-eared bats	Soprano pipistrelle	Nathusius pipistrelle
Lesser horseshoe bats		

3 SURVEY METHODS

3.1 Consultation

A consultation exercise was undertaken as part of the EIS for the proposed development. A Scoping Document, comprising a description of the site, proposed development and the EIS scope, was circulated to consultees in September 2015. In addition, a description of the final proposed turbine layout was circulated in April 2016. As part of this exercise, prominent Irish conservation groups were contacted and Bat Conservation Ireland (BCI) was specifically invited to comment on the potential of the proposed development to impact on bats. No response had been received from BCI at the time of preparing this report. See Section 5.1 of this report for further details on scoping responses in relation to bats.

3.2 Desktop Study

A desktop review of published and unpublished material was undertaken to inform all subsequent field studies and impact assessment. The aim of the desktop review was to identify the presence of species of interest or designated sites within the Study Area and surrounding region.

3.2.1 Bat Survey Reports

Previous bat survey reports were reviewed as part of the desktop study. Bord na Móna previously commissioned two bat surveys, within the Ballydermot/ Timahoe and Derrygreenagh Bog Groups. The Study Area lies within the Derrygreenagh Bog Group.

A baseline bat survey was carried out by INIS Environmental Consultants in 2013. No formal bat surveys had been undertaken in the area prior to this study and the aim was to establish indicative levels of bat activity for the area. Surveyors employed a combination of walked and driven transects, passive monitoring and roost surveys to examine bat activity across both Bog Groups and determine bat habitat use within 33 individual bogs, including Cloncreen Bog. The relevant extracts from the INIS Environmental report in relation to the Cloncreen site are provided in Annex 1 of this report.

A second year of baseline bat surveys was undertaken at the Cloncreen Bog site in 2015 by Malachy Walsh and Partners. Here, surveyors used a combination of activity surveys, passive surveys, roost inspections and emergence surveys within and adjacent to the site. The goal was to provide insight on local bat populations, including species composition, level of activity and bat habitat use. In addition, this study included activity surveys at height and surveys of all potential roost sites. The Malachy Walsh and Partners report is provided in Annex 2.

3.2.2 National Bat Database of Ireland

The National Bat Database of Ireland holds records of bat observations received and maintained by BCI. These records include results of national monitoring schemes, roost records as well as ad-hoc observations. A data request was submitted to BCI to search the National Bat Database of Ireland for bat presence and roost records within a 10 km radius of the Study Area.

In addition, the following BCI monitoring reports were reviewed:

- All Ireland Daubenton's Bat Waterway Monitoring Scheme 2006-2011. Irish Wildlife Manuals, No. 61 (Aughney et al., 2012)
- Car-based bat monitoring in Ireland 2003-2011. Irish Wildlife Manuals, No. 60. (Roche et al., 2012)
- Brown long-eared bat roost monitoring scheme for the Republic of Ireland: synthesis report 2007-2010. Irish Wildlife Manuals, No.56. (Aughney et al., 2011)
- BATLAS 2020 Pilot Project Report (Abbott et al., 2015)
- Irish Bat Monitoring Schemes. BATLAS Republic of Ireland Report for 2008-2009 (Carden et al., 2010)
- An investigation of the impact of development projects on bat populations: Comparing pre- and post-development bat faunas (Aughney, 2008)
- Lesser Horseshoe bat: population trends and status of its roosting resource. Irish Wildlife Manuals, No 85 (Roche et al., 2015)

3.2.3 Designated Sites

The National Parks and Wildlife Service (NPWS) map viewer and website provides information on rare and protected species, sites designated for nature conservation and their conservation objectives. A search was undertaken of sites, specifically designated for the conservation of bats, within a 15 km radius of the Study Area. This included European designated sites, i.e. SACs, and nationally designated sites, i.e. NHAs and pNHAs.

3.2.4 Habitat and Landscape

Ordnance survey maps (OSI 1:5,000 and 1: 50,000) and aerial imagery (ortho-based maps) were reviewed to identify any habitats and features likely to be used by bats. Maps and images of the Study Area and general landscape were examined for suitable foraging or commuting habitats including woodlands and forestry, hedgerows, treelines and watercourses. In addition, any potential roost sites, such as buildings and bridges, were noted for further investigation.

Furthermore, the Geological Survey Ireland (GSI) online mapping tool and UBSS Cave Database for the Republic of Ireland were consulted for any indication of suitable subterranean bat sites, such as caves.

3.3 Study Site Assessment

The likely impact of a proposed development on bats is related to the size of the development, the extent, the quality of the habitat and the availability of buildings or other features that may support roosting bats. The scale of impacts is likely to increase in relation to the number and quality of such features. The BCT guidelines provide recommendations for assessing site characteristics and determining the minimum level of survey effort required (Hundt, 2012). All BCT assessment criteria are provided in Annex 3 to this Appendix.

In relation to the Cloncreen Wind Farm site, desk study and scoping results were reviewed with BCT advice and the Study Area was conservatively assigned a *Medium* value. Table 3.1 details the assessment of site features with relation to all BCT assessment criteria.

Table 3.1: Assessment of Required Survey Effort (as determined from Hundt, 2012)

Item	Assessment of Site	Assessment of Survey Effort
Quality of habitat, number of features likely to contribute to potential mortality rates	Small number of low potential roost features	Low
	Low quality foraging habitat that could be used by low numbers of foraging bats	Low
	Site is connected to the wider landscape by linear features such as scrub tree lines and streams	Medium
Species likely to use the site	Low number of medium and single high risk species	Medium
Importance of roost to species likely to use site, which may be affected	Local, Parish	Low
Overall assessment of required survey effort		**Medium**

3.4 2016 Field Survey

3.4.1 Survey Design

The aim of surveying bats at wind energy sites is to identify and assess the potential impacts on local, and hence national, bat populations (BCI, 2012a). To do this, surveys must compile the following information (Hundt, 2012):

- Bat species assemblages on site, noting high, medium and low risk groups
- Relative frequency of site use by different species throughout the active season
- Spatial and temporal distribution of activity for different species
- Nature of activity for different species where possible, e.g. foraging, commuting, roosting

BCT guidelines provide recommendations on minimum survey standards. The Study Area was assigned a *Medium* effort value (Table 3.1). For a medium effort value site, roost surveys are recommended within 200 m of the developable area, including an assessment of roosting potential, an inspection of all potential roost sites and activity surveys of roosts of high/medium risk species and roosts of district importance and above. For manual surveys, transect routes should be representative of all habitats and turbine locations. The guidelines recommend a minimum survey effort of one visit per transect per month between April and October. For fixed point surveys, detectors should be deployed in sufficient numbers so as to represent the extent of the site and the range of habitats present. At least 5 consecutive nights recording per detector per month is recommended. A description of minimum survey standards for all risk levels is included in Annex 4 and further detail is available in the BCT guidelines (Collins 2016, Hundt 2012).

3.4.2 Habitat Assessment

Multi-disciplinary ecological surveys were carried out on the 28th and 29th April and 10th June 2016. These surveys comprised a walkover of the Study Area, recording habitat

types. Habitats were assessed for their suitability to support bats according to Collins (2016), which provides a grading protocol for roosting habitats and for commuting and foraging areas. Suitability categories, divided into *High*, *Moderate*, *Low* and *Negligible*, are described fully in Annex 5.

The results of the desktop study, walkover survey and site assessment were used to determine any outstanding bat survey requirements. In accordance with best practice, a combination of manual activity surveys, fixed point activity surveys and roost surveys were scheduled for the 2016 activity season. The resulting data were combined with previous survey efforts, as reported by INIS Environmental Consultants and Malachy Walsh and Partners to provide a full impact assessment using roost surveys as well as spatial and temporal bat activity data, gathered at ground level and at height, over multiple years.

3.4.3 Roost Surveys

Structures and trees within the Study Area were assessed for their suitability for roosting bats (see Annex 5 for criteria in assessing roosting habitats). Any potential roost sites identified, during the walkover survey were subject to a preliminary roost assessment. This comprised a detailed inspection of the exterior and interior (if accessible) to look for evidence of bat use, including live and dead specimens, droppings, feeding remains, urine splashes, fur oil staining and noises. Trees were examined for the presence of rot holes, hazard beams, cracks and splits, partially detached bark, knot holes, gaps between overlapping branches and any other potential tree roost features identified by Andrews (2013). The aim of this study was to determine the presence of bats and the need for further survey work or mitigation.

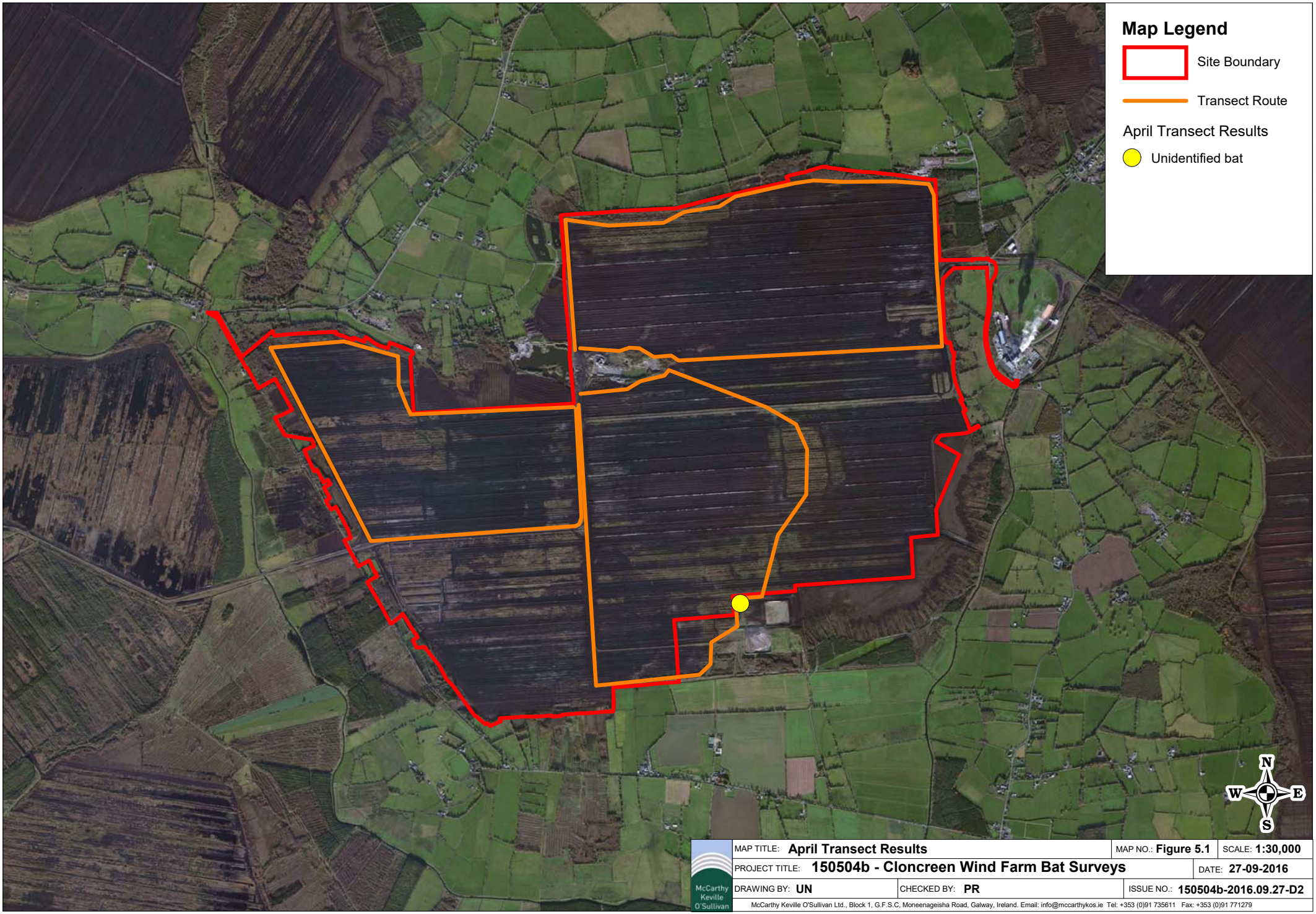
3.4.4 Manual Transects

Manual activity surveys comprised walked transects at dusk and at dawn. The aim of these surveys was to identify bat species using the site and gather any information on bat behaviour and important features used by bats. A series of transect routes, covering the extent of the Study Area and the main habitat features, were prepared with reference to desktop and walkover survey results. Minor deviations to set transect routes occurred depending on site conditions on individual survey nights (Figures 5.1 – 5.5).

During each manual survey, transects were divided between two survey teams and walked separately, recording bats in real time. Surveyors were equipped with an active full spectrum bat detector, the Echo Meter EM3+ (Wildlife Acoustics, Maynard, MA, USA), and a heterodyne bat detector, the D200 Ultrasound Detector (Pettersson Elektronik AB, Uppsala, Sweden). Where possible, species identification was made in the field and any other relevant information was also noted, e.g. numbers, behavior, features used, etc. All bat echolocation was recorded for subsequent analysis to confirm species identifications (see Section 3.4.6).

Dusk surveys commenced 30 minutes before sunset and were completed within 3 hours after sunset. Dawn surveys commenced 1.5-2 hours before sunrise and were completed within 30 minutes after sunrise. The order of transects as well as the start and finish points were alternated between survey nights across the season, to allow for varying emergence times of different bat species.

In total, 5 survey nights, each comprising a dusk and a dawn survey, were completed between April and August 2016. Survey effort is described in full in Section 3.4.7.



MAP TITLE: **April Transect Results**		MAP NO.: **Figure 5.1**	SCALE: **1:30,000**
PROJECT TITLE: **150504b - Cloncreen Wind Farm Bat Surveys**			DATE: **27-09-2016**
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MAP TITLE: **May Transect Results**		MAP NO.: **Figure 5.2**	SCALE: **1:30,000**
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MAP TITLE: **June Transect Results**		MAP NO.: **Figure 5.3**	SCALE: **1:30,000**
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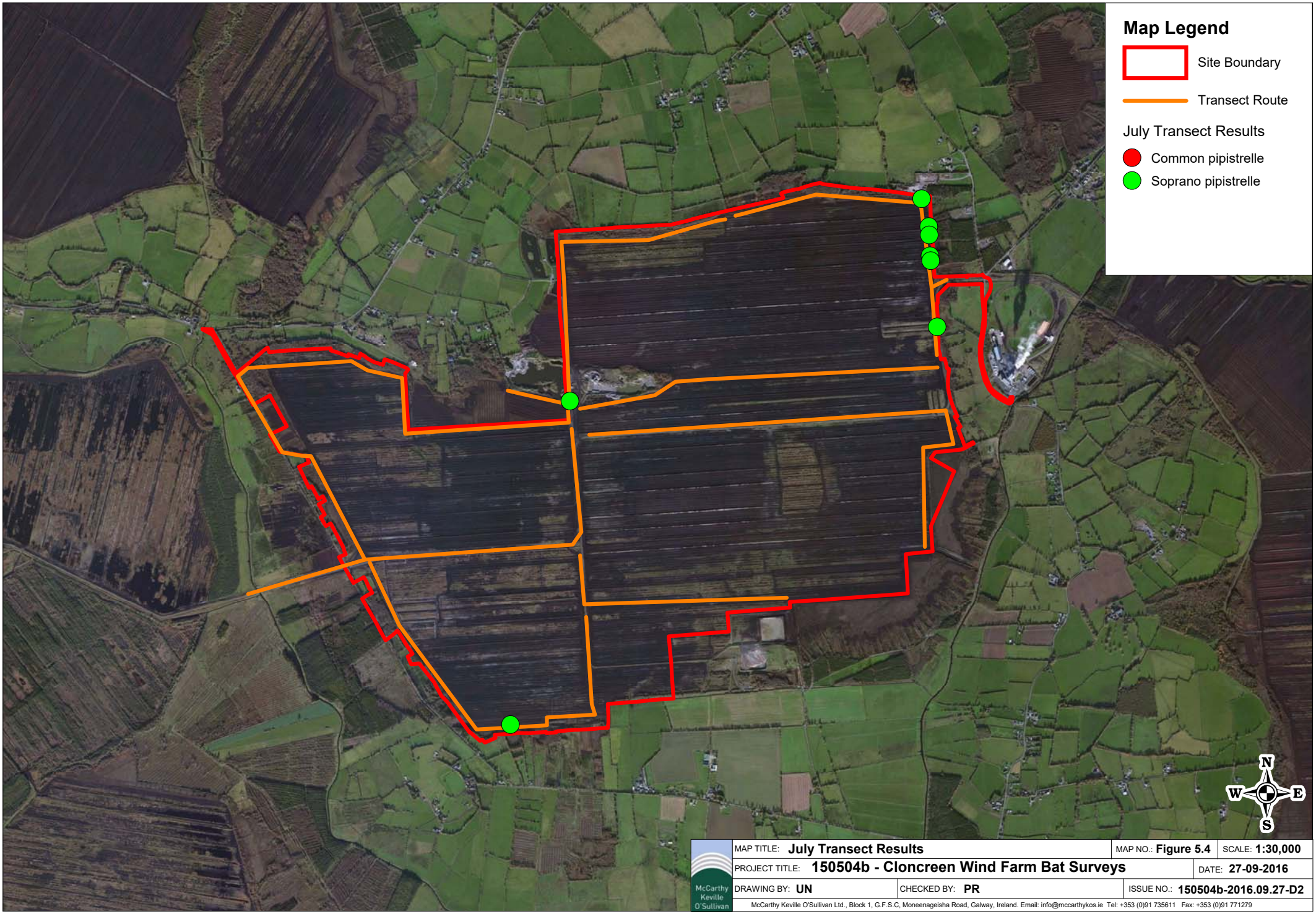

MAP TITLE: **July Transect Results**		MAP NO.: **Figure 5.4**	SCALE: **1:30,000**
PROJECT TITLE: **150504b - Cloncreen Wind Farm Bat Surveys**			DATE: **27-09-2016**
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MAP TITLE: **August Transect Results**		MAP NO.: **Figure 5.5**	SCALE: **1:30,000**
PROJECT TITLE: **150504b - Cloncreen Wind Farm Bat Surveys**			DATE: **27-09-2016**
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3.4.5 Fixed Point Surveys

Manual bat activity surveys provide a snapshot of activity across a site. In order to determine temporal variations in bat activity, automated bat detector systems were used to record activity in fixed locations over prolonged periods of time. The aim of fixed point surveys in 2016 were to identify bat fidelity to particular foraging areas and commuting routes and to allow comparison of temporal variation between open and edge habitats within the Study Area.

Automated bat detectors, the Song Meter SM3BAT (Wildlife Acoustics, Maynard, MA, USA) were used in fixed point surveys. Each detector was equipped with one SMM-U1 ultrasonic microphone (Wildlife Acoustics, Maynard, MA, USA. Detectors were deployed on four occasions, covering at least 5 consecutive nights in April, May, June, July and August 2016.

Locations of fixed point detectors were selected to represent favourable bat habitats as well as turbine locations (Figure 3.1). A single detector was deployed in April, in a favourable piece of edge habitat. In May, paired detectors were installed, one within the same favourable piece of edge habitat and one in a typical turbine location habitat, less favourable open cutover bog. The detectors were deployed for the same period of time, allowing direct comparisons. During the July deployment, one detector was set up at another turbine location habitat, in open bog scrub habitat. The locations of fixed point detectors are displayed in Figure 3.1 and are described in Table 3.2.

Table 3.2: Description of fixed point locations

ID	Survey Period	Grid Reference	Habitat Type
FP-1	28th April – 15th May 2016	258540, 224888	Bog woodland edge, adjacent to cutover bog.
FP-2	27th May – 15th June 2016	258540, 224888	Bog woodland edge, adjacent to cutover bog.
FP-3	27th May – 15th June 2016	258546, 226257	Open cutover bog
FP-4	28th July – 7th August 2016	257625, 225812	Cutover bog & scrub, adjacent to railway tracks

Recording schedules were set using the SM3 Configuration Utility (Wildlife Acoustics, Maynard, MA, USA). Settings used were those recommended by the manufacturer for bats, with minor adjustments in gain settings and band pass filters to reduce background noise when recording. All detectors were set to record from sunset to sunrise. The SM3BAT automatically adjusts sunset and sunrise times using the Solar Calculation Method when provided with GPS coordinates.

3.4.6 Bat Call Analysis

All recordings, collected during manual and fixed point surveys, were made in full spectrum, retaining all amplitude and harmonic information from the original signal for subsequent analysis, and were stored in WAV format. Recordings were later analysed using bat call analysis software, Kaleidoscope Converter and Viewer, v.3.1.7 (Wildlife Acoustics, Maynard, MA, USA). The acoustic scrubbing feature was used to filter false triggers, e.g. wind, rain, etc. All files were split to a maximum 15 s duration and were manually reviewed, using established call parameters, to identify individual species. In addition, any information on bat behavior contained within echolocation calls, e.g. social calls, feeding buzzes, were noted.

MAP TITLE: **Fixed Point Survey Locations**		MAP NO.: **Figure 3.1**	SCALE: **1:30,000**
PROJECT TITLE: **150504b - Cloncreen Bat Surveys**			DATE: **27-09-2016**
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A genus or species was identified from the overall shape of the call and measurements of start frequency, end frequency, frequency of maximum energy, call duration and inter-pulse interval (Russ, 2012). Pipistrelle bats, i.e. species within the genus *Pipistrellus,* were separated by peak frequency as described by Russ (2012). Calls with peak frequencies between 50 – 52 kHz were not identified to species level and were labelled 'Pipistrelle sp.'. Identification of bat species within the genus *Myotis* from echolocation alone is imprecise and all records were identified as 'Myotis sp.'.

Individual bats of the same species cannot be distinguished by their echolocation alone. Thus, 'bat passes' was used as a measure of activity (Collins, 2016). For the purposes of this study, a bat pass is defined as a recording of an individual species/species group's echolocation containing at least two echolocation pulses and of maximum 15s duration. All bat passes recorded in the course of this study follow this criteria, allowing comparison.

3.4.7 Survey Effort 2016

Manual transects were undertaken in April, May, June, July and August 2016. Table 3.3 describes survey effort with regard to manual transects, including the total number of hours spent manually surveying. Figures 5.1-5.5 show the transect routes undertaken each month.

Table 3.3: Summary of Manual Transects Survey Effort in 2016

Date	Surveyor	Type	Sunset/Sunrise (hh:mm)	Start-Finish (hh:mm)	No. hours (hh:mm)
28th/29th April 2016	Pat Roberts	Dusk	20:53	20:30-23:30	03:00
		Dawn	05:56	04:30-06:00	01:30
26th/27th May 2016	John Hynes	Dusk	21:39	21:10-00:20	03:10
		Dawn	05:11	03:45-05:15	01:30
	Laoise Kelly	Dusk	21:39	21:10-00:20	03:10
		Dawn	05:11	03:45-05:15	01:30
30th June/1st July 2016	John Hynes	Dusk	21:59	21:28-23:40	02:12
		Dawn	05:06	02:50-05:00	02:10
28th/29th July 2016	John Hynes	Dusk	21:29	21:00-23:45	02:45
		Dawn	05:41	04:05-05:40	01:35
	Laoise Kelly	Dusk	21:29	21:00-23:35	02:35
		Dawn	05:41	04:00-05:40	01:40
23rd/24th August 2016	John Hynes	Dusk	20:37	20:10-23:10	03:00
		Dawn	06:25	05:00-06:35	01:35
	Laoise Kelly	Dusk	20:37	20:10-23:10	03:00
		Dawn	06:25	05:00-06:35	01:35
Total Survey Time (hh:mm)					**35:57**

Fixed point detectors were deployed in April, May, June and July 2016. Table 3.4 outlines survey effort with regard to fixed point surveys, including total number of nights surveyed and total number of hours surveyed (accounting for varying sunset and sunrise times). Figure 3.1 presents the locations of fixed point detectors.

Table 3.4: Summary of Fixed Point Surveys in 2016

Location	Survey Period	Recording	Grid Ref.	No. Night	No. hours (hh:mm)
FP-1	28th April – 15th May 2016	Sunset-Sunrise	258540, 224888	18	152:31
FP-2	27th May – 15th June 2016	Sunset-Sunrise	258540, 224888	20	142:33
FP-3	27th May – 15th June 2016	Sunset-Sunrise	258546, 226257	20	142:33
FP-4	28th July – 7th August 2016	Sunset-Sunrise	257625, 225812	11	92:49
Total Survey Time				**69**	**530:26**

4 SURVEY LIMITATIONS

Survey design and effort was created in accordance with the most current best practice guidelines for surveying bats and wind farms (Hundt, 2012). The survey design was continually assessed to determine its appropriateness to the bat species diversity and level of activity encountered at the proposed site. Surveys repeatedly recorded low species diversity and low levels of activity. Therefore, the initial proposed survey design was maintained. The surveys carried out in 2016, when combined with previous bat survey results from 2013 and 2015, are considered more than sufficient to meet guideline standards.

The bat activity season lasts from April to September/October each year (Hundt, 2012). INIS Environmental Consultants carried out 3 bat surveys at Cloncreen Bog between June and September 2013. In addition, Malachy Walsh and Partners carried out 3 manual transect surveys in June, August and September 2015 as well as fixed point monitoring at 3 locations in July and September 2015. In 2016, MKO ecologists carried out transect surveys and fixed point monitoring monthly between April and August 2016. Data from 2013, 2015 and 2016 cover all aspects of the main bat activity period and therefore, no seasonal limitations have been identified.

No survey of hibernating bats was undertaken in 2016. However, no sites with hibernation potential were identified during the desktop and walkover surveys. In addition, previous survey work carried out by Malachy Walsh and Partners included winter roost surveys in November and December 2015. Surveyors found no evidence of hibernating bats.

No passive surveying at height was undertaken in 2016. However, in 2015, Malachy Walsh and Partners recorded bat activity at the top of the Cloncreen Met Mast for 55 nights and recorded just a single bat pass.

In general, manual transects were undertaken in optimal survey conditions i.e. no heavy rain or strong winds with dusk temperatures above 7 ˚C (BCI, 2012a). The April survey was an exception, with temperature at dusk recorded as 5 ˚C. However, a review of weather data held by Met Éireann for the nearest synoptic station at Mullingar, revealed temperatures throughout April 2015 were cool (average daily temperatures: 6.5 ˚C) compared to temperatures recorded in May – August (average daily temperatures: 11.7 – 14.9 ˚C) (www.met.ie). Therefore, the April survey is considered representative of site conditions that month.

Detection distances vary between species and method employed. For example, Leisler's bat has a much larger detection distance of 80 m compared to 25 m for Pipistrelle species (Barataud and Tupinier, 2012). This may lead to an overestimation of Leisler's activity when compared to pipistrelles. In addition, automatic detectors have a larger detection distance than manual detectors.

The analysis of bat data is subject to experience. All survey data collected in 2016 were analysed by one MKO ecologist, Úna Nealon (BSc, PhD), with extensive experience in bat call analyses. Species were identified according to Russ (2012). Where reliable identifications were not possible, bat calls were identified to genus level and not to species level. Criteria for species identification are described fully in Section 3.4.6.

5 SURVEY RESULTS

5.1 Consultation

A scoping and consultation exercise was undertaken as part of EIA. These results are described fully in the main EIS. However, the following recommendations were made, specifically in relation to bats, by the Department of Arts, Heritage and the Gaeltacht:

- Bat roosts may be present in trees, buildings and bridges. Bat roosts can only be destroyed under licence under the Wildlife Acts and a derogation under the Habitats Regulations, and such a licence would only be given if suitable mitigation measures were implemented. Where so-called bat friendly lighting is proposed as mitigation, it should be proven to work as mitigation.
- A bat survey will be required.
- EIS should identify any pre and post-construction monitoring which should be carried out. The applicant should not use any proposed post-construction monitoring as mitigation to supplement inadequate information in the assessment. Post-construction monitoring should include bird and bat strikes/fatalities including the impact on any such results of the removal of carcasses by scavengers. Monitoring results should be made available to the competent Authority and copied to this Department. A plan of action needs to be agreed at planning stage with the Planning Authority if the results in future show a significant mortality of birds and/or bat species.

BCI were invited to comment on the proposed development and potential impacts on bats. However, no response was received.

5.2 Desktop Study

5.2.1 Bat Survey Reports

INIS Environmental Consultants' Report

A baseline bat survey was carried out by INIS Environmental Consultants in 2013. No formal bat surveys had been undertaken in the area prior to this study and the aim was to establish indicative levels of bat activity within the Ballydermot/ Timahoe and Derrygreenagh Bog Groups and determine bat habitat use within 33 individual bogs, including Cloncreen Bog.

Three bat surveys were carried out at Cloncreen Bog between June and September 2013. These each comprised 5 transects, covering 6 km. These were designed to survey all available habitats, including open peat, scrub vegetation and well developed hedgerows.

Surveyors employed a combination of methods including:

- Walked transects using handheld heterodyne bat detectors (Batbox Duet)
- Fixed point recording using static bat detectors (Anabat SD1)
- Roost surveys within Bord na Móna land parcels and adjoining habitats

In total, 8 bat contacts were recorded. These included Common pipistrelle (n=5), Whiskered bat (n=2) and Leisler's bat (n=1). These results accounted for 1.3% of all bat records recorded across both Bog Groups. All bats were recorded along hedgerows at the north-western side of the site. One Common pipistrelle was found commuting and all other bat were recorded as foraging.

No bat roosts were identified within the site. However, one significant roost of Soprano pipistrelles was identified in a private dwelling near Clonsast bog, 2.5 km from Cloncreen Bog. The relevant extracts from the INIS Environmental report are provided as Annex 1 to this report.

Malachy Walsh and Partners' Report
Bat surveys were conducted by Malachy Walsh and Partners' between March and November 2015. Three forms of survey were implemented, including:

- Walked and driven transects (using an AnaBat detector).
- Automated bat surveys - at ground level and at height (using an SMZC detector)
- Roost surveys (daytime visual search and bat activity surveys within the Study Area)

On 3 nights in June, August and September 2015, 8 transects were completed at dusk, with a combined length of 11.40 km. Transects were designed to sample all available habitats within the Study Area. Species recorded included Soprano pipistrelle (n=27), Common pipistrelle (n=20), Leisler's bat (n=7) and Natterer's bat (n=1). In general, bat activity was considered low, confined to foraging and commuting along the vegetated fringes of the site.

Fifteen nights of automated bat surveys were undertaken at ground level. This included 5 consecutive nights at one location in July 2015 and at a further 2 locations in September 2015. Overall, Common pipistrelles were most frequently encountered, followed by Soprano pipistrelle, Leisler's bat and Natterer's bat. In general, bat activity was greatest early on survey nights (from approximately one hour after sunset), with little activity during the middle of the night and becoming active again before dawn. The level of bat activity was regarded as low, despite favourable conditions.

Fifty-five nights of automated bat surveys were carried out at height, from the top of the Cloncreen Met Mast. During this time period, just one bat contact was recorded, a single Leisler's bat. This level of activity was assessed as extremely low, particularly with regard to survey effort and favourable conditions.

Structures and trees within the Cloncreen Bog site and adjacent lands were assessed for roost potential across 12 dates between June and December 2015. In summary, no bat roosts were identified within the Cloncreen Bog site. Trees within the site were considered unsuitable to support roosting bats.

Outside the site boundary, two bat roosts in buildings and one in a bridge were identified. The BnM Workshop/Factory (Grid Ref: 253823, 226027) is located approx. 2.8 km from the site, where 9 bats were recorded during emergence surveys. In addition, a total of 8 bats were recorded during emergence surveys at a disused building, approx. 5.3 km away next to Rhode Bridge (Grid Ref: 253463, 231604). These bat roosts in buildings showed some potential as maternity or hibernation sites. Finally, the bat roost in Masonry Bridge (Grid Ref: 252588, 231184) lies approx. 5.5 km from Cloncreen Bog. Surveyors found a single bat and considered the bridge a temporary roost.

Overall, the vegetated linear banks that cut through the bog site showed the greatest use by foraging and commuting bats, albeit in low numbers. Bat activity decreased in the open cutover bogland habitat at the site. The Malachy Walsh and Partners report is presented in Annex 2.

5.2.2 National Bat Database of Ireland

A request was submitted to Bat Conservation Ireland to search the National Bat Database of Ireland for records of bat activity and roosts within a 10 km radius of the Study Area. A number of records have been recorded within 10 km of the proposed works. These included roosts (n=5), transects (n=5) and ad-hoc observations (n=11). The results of the database search are provided in Table 5.1.

Table 5.1: BCI data within 10km radius of Study Area

Survey Type	Location	Species	Survey	Designation
Roost	Carbury, Clonsat; Co. Kildare	**Roost type**: Unknown **Species** Brown Long-eared Bat (Droppings)	A survey for bat roosts in Church of Ireland Churches	Annex IV
	Disused Church Rahan, Edenderry Co Kildare	**Roost type**: Unknown **Species** Unidentified Bat (Droppings)	EIA survey – (Scott Cawley)	Annex IV
	Jonestown House, Edenderry, Co Offaly	**Roost type**: Unknown **Species** Unidentified Bat	Buildings At Risk Grant, The Heritage Council	Annex IV
	Morrissey Residence. Rhode, Co. Offaly	**Roost type**: Unknown **Species** Soprano Pipistrelle species	Bats in Houses Project	Annex IV
	Richard and Sarah Tyrell, Coolcor Carbury, Co. Kildare	**Roost type**: Unknown **Species** Brown Long-eared Bat (Droppings)	EIS Survey	Annex IV
Transect	5 No. Transects consisting of multiple individual surveys	Daubenton's Bat, Leisler's Bat, Soprano Pipistrelle, Common Pipistrelle, Unidentified bat	BCI Car Based Bat Monitoring Scheme, All Ireland Daubenton's Bat Waterway Survey	Annex IV
Other Observation	11 No. observation from multiple surveys	Daubenton's Bat, Leisler's Bat, Soprano Pipistrelle, Common Pipistrelle, Unidentified Pipistrelle, Natterer's Bat, Brown Long-eared Bat	BATLAS 2010	Annex IV

5.2.3 Designated Sites

Within Ireland, the Lesser horseshoe bat is the only bat species requiring the designation of Special Areas of Conservation (SACs) and the Study Area is situated more than 15 km outside the known range of this species. Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) may be designated for any bat species. A search of NHAs and pNHAs within a 15 km radius of the Study Area found no sites designated for the conservation of bats.

5.2.4 Habitat and Landscape

A review of mapping, photography and previous survey reports provided insight into the habitats and landscape features present at the proposed development site. In summary, the Study Area is dominated by cutover raised bog, with patches of scrub and is bordered by treelines and hedgerows. There are no rivers, streams or large watercourses within the Study Area. A bat habitat assessment is described in Section 5.3.1 and a full assessment of flora and habitats is included in the main EIS.

A search of the USBSS Cave Database for the Republic of Ireland found one cave in Co. Offaly. Mount Briscoe Cave is located approximately 10 km from the Study Area. Attributes of this cave include recreation, geology, archaeology, palaeo-environment and folklore. However, it has no known ecological significance. This includes no known use by bats. A review of the GSI online mapper did not indicate any suitable subterranean sites within the Study Area.

5.3 Field Survey 2016

5.3.1 Habitat Assessment

The Study Area is dominated by cutover raised bog and is typical of a milled peat bog. It is bordered by linear hedgerows and treelines and scrub vegetation occurs in small patches throughout. There are no rivers or large watercourses within the Study Area. However, there is a small stream along the northern boundary and standing water is present in drains and low-lying areas of cutaway and peat production bog. Drains flow into silt ponds surrounding the site. In addition, there is a rail network to facilitate the movement of milled peat, a former gravel pit, a telecommunications mast and meteorological mast, and a small building used as a 'Tea Centre'. Habitats are fully described in Chatper 5: Flora and Fauna, of the EIS.

Results from the desktop review and walkover surveys were used to assess habitats for their suitability to support foraging and commuting bats, and roosting bats, according to Collins (2016). Suitability categories, divided into *High*, *Moderate, Low* and *Negligible*, are described fully in Annex 5.

With regard to foraging and commuting bats, areas of scrub as well as vegetated drains and borders of the bog, were classified as *Low* suitability, i.e. habitat that could be used by small numbers of commuting or foraging bats. Cutover raised bog habitats which dominate the Study Area were considered *Negligible* suitability, i.e. negligible habitat features on site likely to be used by commuting or foraging bats.

With regard to roosting bats, habitats within the Study Area showed little potential to support roosting bats. The 'Tea Centre' building and several areas of woodland were subjected to preliminary roost assessments, described in the following Section 5.3.2.

5.3.2 Roost Surveys

One building within the site, the 'Tea Centre' (Grid Ref: 258224, 226887), was subject to a preliminary roost assessment (Collins, 2016). The exterior was inspected from ground level, with the aid of binoculars. The search included the ground, accessible windowsills, window panes, walls, eaves, slates, gutters, soffits, fascias, downspouts, lead flashing and the ridge beam. During inspections, surveyors searched for potential access points, roosting locations and any evidence of bats, including live and dead specimens, droppings, feeding remains, urine splashes, fur oil staining and noises. The 'Tea Centre' showed no evidence of bats and no potential access points. A previous bat emergence survey, carried out by Malachy Walsh and Partners in 2015, found no bats

entering or exiting the building. Therefore, this structure was assigned a *Negligible* suitability value for roosting potential (Annex 5).

The proposed development requires the removal of a number of semi mature ornamental trees including ornamental Maple (*Acer* sp.), Ash (*Fraxinus excelsior*), Elm (*Elmus* sp.) and Birch (*Betula* sp.) along the proposed transport route at Ballinagar (Grid Ref: 244160, 224130). In addition, tree removal is required along the local road L1003 at the proposed western entrance of the site, including semi-mature Ash (*Fraxinus excelsior*) and Birch (*Betula pubescens*). Trees were examined for evidence of bats and for the presence of suitable roosting features, including rot holes, hazard beams, cracks and splits, partially detached bark, knot holes, gaps between overlapping branches and any other potential tree roost features identified by Andrews (2013). All trees examined lacked suitable features likely to be used by bats and were assigned a *Negligible* value in relation to their suitability to support roosting bats (Annex 5).

5.3.3 Manual Transects

In total, 5 dusk and 5 dawn surveys, covering 35.95 hours were completed between April and August 2016. Table 5.2 presents weather conditions recorded during manual transects. In general, conditions were favourable for bat survey (see Section 4 for further details).

Table 5.2: Bat Survey Weather Data

Date	Type	Time	Temp.	Rain	Wind	Cloud
28th April 2016	Dusk	20:30	5˚C	Dry	Moderate breeze	Clear (0%)
29th April 2016	Dawn	04:30	2 ˚C	Dry	Moderate breeze	Clear (0%)
26th May 2016	Dusk	21:10	11 ˚C	Dry	Light breeze	Overcast (100%)
27th May 2016	Dawn	03:45	10 ˚C	Dry	Light breeze	Clearing (50%)
30th June 2016	Dusk	21:28	13 ˚C	Dry*	Moderate breeze	Overcast (85%)
01st July 2016	Dawn	02:50	9 ˚C	Dry	Light breeze	Clear (2%)
28th July 2016	Dusk	21:00	17 ˚C	Misty	Strong breeze	Overcast (100%)
29th July 2016	Dawn	04:05	14.5 ˚C	Drizzle	Light breeze	Overcast (100%)
23rd August 2016	Dusk	20:10	16.5 ˚C	Dry	Calm	Cloudy (85%)
24th August 2016	Dawn	05:00	11 ˚C	Misty	Calm	Overcast (100%)

*Survey abandoned at 23:40 when heavy rain started

In total, 72 bat passes were recorded during manual transect surveys in 2016. Common pipistrelle was encountered most frequently, followed by Soprano pipistrelle. Unidentified Pipistrelle species, Leisler's bat, Brown Long-eared bat and unidentified bat species were recorded less frequently. Table 5.3 presents manual transect results for individual bat species per survey night. Detailed manual transect results are available in Annex 6.

Table 5.3: Manual transect results per survey night, shown as total bat passes

ID	28/29 April 2016	26/27 May 2016	30 June/ 1 July 2016	28/29 July 2016	23/24 August 2016	Total
Common pipistrelle	0	31	6	1	6	44
Soprano pipistrelle	0	0	2	9	4	15
Pipistrelle sp.	0	3	0	0	1	4
Leisler's bat	0	5	0	0	1	6
Brown Long-eared	0	1	0	0	0	1
Unidentified bat	1	0	0	0	1	2
Total	**1**	**40**	**0**	**10**	**13**	**72**

Figures 5.1 – 5.5 present the spatial distribution of bat activity across all surveys. On all survey nights, bat activity was largely confined to foraging and commuting behaviour along the vegetated fringes bordering the bog, with only occasional bat passes recorded on transects bisecting the open bog. Bat activity on bog transects included Common pipistrelle and Leisler's bat during the May survey and Common pipistrelle, Soprano pipistrelle and Leisler's bat during the August survey. There is no apparent reason for differences in habitat use between survey nights but is most likely due to subtle differences in weather conditions.

In addition, survey results were calculated as total bat passes per hour (bpph) to account for any bias in survey effort between survey nights (Table 3.3). Table 5.4 presents these results for individual species per survey night.

Common pipistrelle was encountered most frequently, followed by Soprano pipistrelle. All other bat species were recorded less frequently (Figure 5.6). However, species composition and level of activity was not uniform over all survey nights and very high levels of Common pipistrelle activity can be attributed to the manual survey conducted in May (Figure 5.7).

Table 5.4: Manual transect results per survey night, calculated as bat passes per survey hour (bpph)

ID	28/29 April 2016	26/27 May 2016	30 June/ 1 July 2016	28/29 July 2016	23/24 August 2016
No. hour (h)	4.5	9.33	4.37	8.58	9.17
Common pipistrelle	0	3.32	1.37	0.12	0.65
Soprano pipistrelle	0	0	0.46	1.05	0.44
Pipistrelle sp.	0	0.32	0	0	0.11
Leisler's bat	0	0.54	0	0	0.11
Brown long-eared	0	0.11	0	0	0
Unidentified bat	0.22	0	0	0	0.11
Total	0.22	4.29	1.83	1.17	1.42

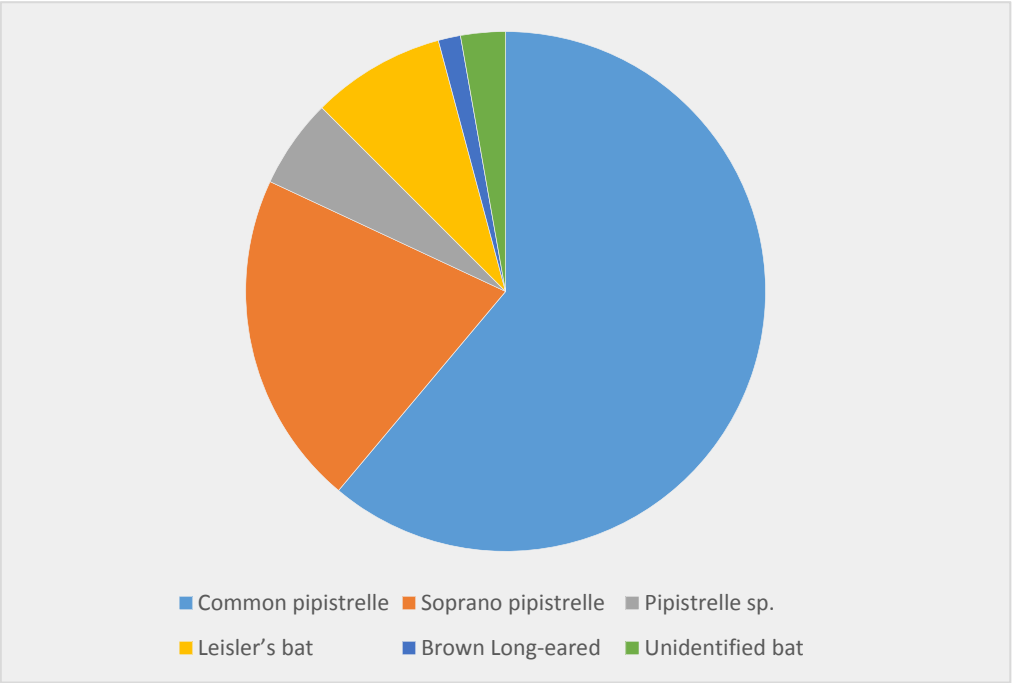

Figure 5.6: Manual transect results: Species composition (total bat passes)

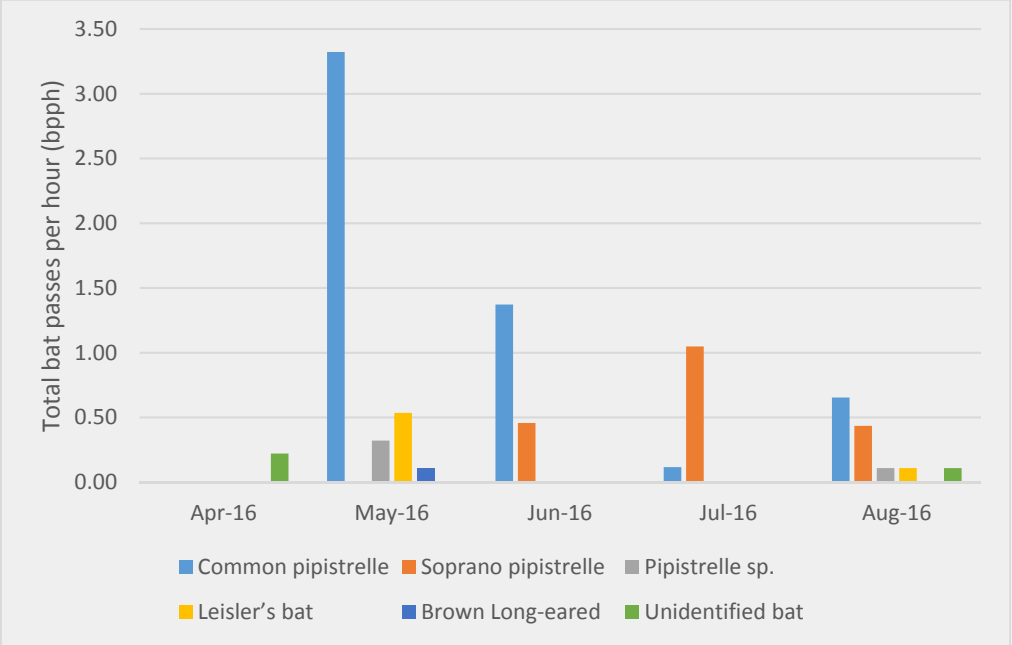

Figure 5.7: Manual transect results: Species composition per survey night (bpph)

5.3.4 Fixed Point Surveys

In total, 6,263 bat passes were recorded during 69 nights of fixed point monitoring in 2016. Most of this activity was attributed to Common pipistrelle, followed by Soprano pipistrelle. Unidentified pipistrelles and Leisler's bat were recorded less frequently and Myotis sp. and Brown Long-eared bat recorded only rarely (Table 5.5 and Figure 5.8). All individual bat records arising from fixed point monitoring are appended to this report as Annex 7.

Table 5.5: Fixed point survey results per location, shown as total bat passes

ID	FP-1	FP-2	FP-3	FP-4	Total
Common pipistrelle	1907	2095	0	20	4022
Soprano pipistrelle	1045	55	0	6	1106
Pipistrelle sp.	327	330	0	5	662
Leisler's bat	242	205	0	1	448
Myotis sp.	12	12	0	0	24
Brown Long-eared bat	0	1	0	0	1
Total	**3533**	**2698**	**0**	**32**	**6263**

Bat activity was calculated as total bat passes per hour (bpph) to account for survey effort bias, resulting from varying night lengths throughout the survey season (Table 3.4). Table 5.6 presents these results for each fixed point location. Bat activity was greatest at the edge habitat surveyed during deployments in April (FP-1) and May (FP-2) and was extremely low in the open cutover bog habitats installed in May (FP-3) and July (FP-4) (Figure 5.9). Two deployments at the same location (FP-1) and (FP-2) show a high fidelity to edge habitats for foraging and commuting. In addition, paired deployments at edge (FP-2) and bog habitats (FP-3) over the same time period show a preference for edge habitat with no bats recorded in the open bog, where wind turbines will be situated.

Table 5.6: Fixed point survey results per location, calculated as total bat passes per survey hour

ID	FP-1	FP-2	FP-3	FP-4
No. hours	152.52	142.55	142.55	92.82
Common pipistrelle	12.5	14.7	0	0.22
Soprano pipistrelle	6.85	0.39	0	0.06
Pipistrelle sp.	2.14	2.31	0	0.05
Leisler's bat	1.59	1.44	0	0.01
Myotis sp.	0.08	0.08	0	0
Brown Long-eared bat	0	0.01	0	0
Total	**23.16**	**18.93**	**0**	**0.34**

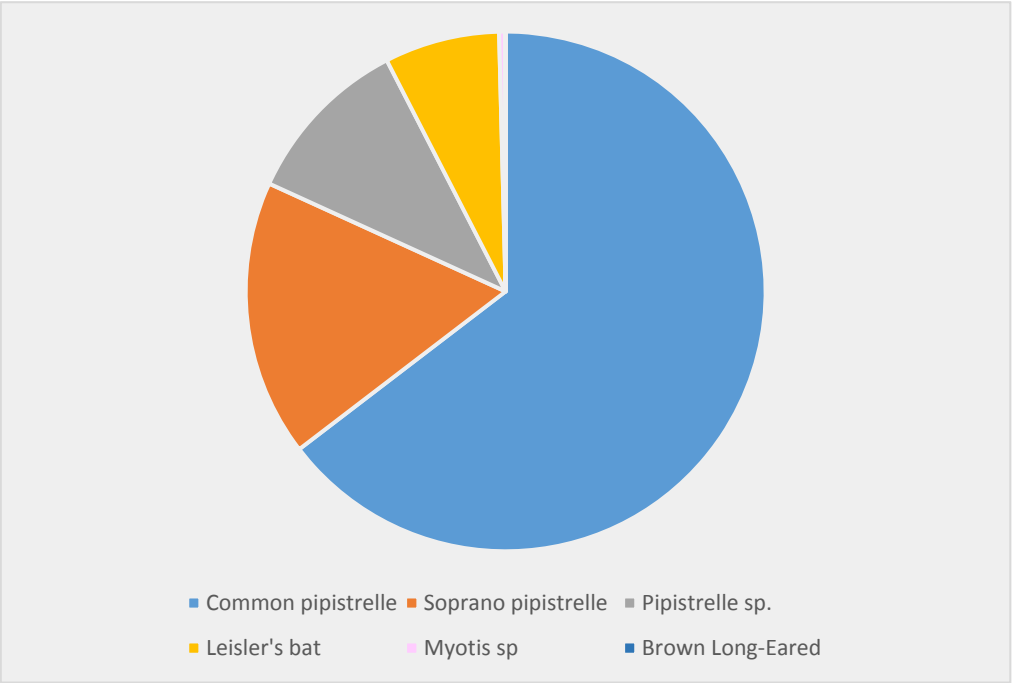

Figure 5.8: Fixed point survey results: Species composition (total bat passes)

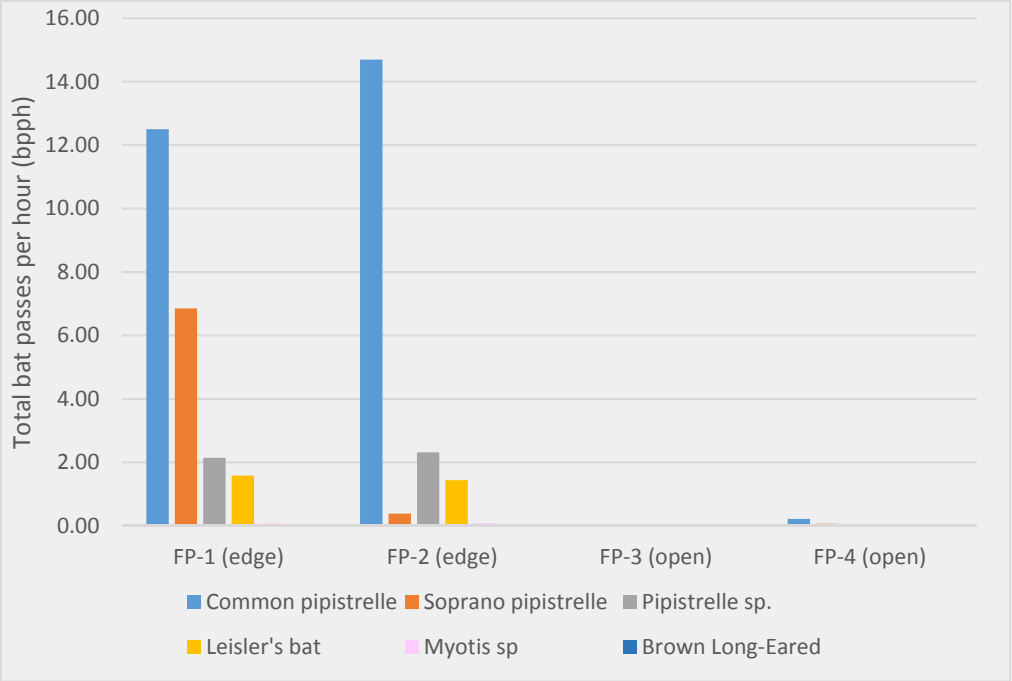

Figure 5.9: Fixed point survey results: Species composition per location (bpph)

6 EVALUATION AND IMPACT ASSESSMENT

6.1 Summary of Results

In 2013, INIS Environmental Consultants carried out 3 bat surveys comprising manual transects. In addition, surveyors screened for any potential roost sites within and adjacent to Cloncreen Bog. In 2015, Malachy Walsh and Partners completed 3 nights of manual transects and 15 nights of fixed point monitoring at 3 locations. In addition, 55 nights of fixed point monitoring at height was undertaken. Furthermore, surveyors carried out roost inspections and emergence surveys at all potential roost sites within and adjacent to the Study Area. In 2016, MKO ecologists carried out a habitat assessment and preliminary roost inspections within the Study Area. In addition, 5 nights of manual transects and 69 nights of fixed point monitoring at 3 locations was also carried out.

Linear woodland habitats and patches of scrub were classified as *Low* suitability for foraging and commuting bats., while cutover raised bog habitats were assessed as *Negligible* suitability (Annex 5). In general, all manual transects in 2013, 2015 and 2016, found bat activity was low and largely confined to the vegetated fringes of the bog. Fixed point monitoring confirmed a high fidelity to these areas with extremely low levels of activity recorded in open areas, where wind turbines will be sited. In addition, surveys at height recorded just a single Leisler's bat contact, despite substantial survey effort and favourable conditions.

Overall, Common pipistrelle, and to a lesser extent Soprano pipistrelle and Pipistrelle sp., were recorded most frequently during manual transects and fixed point monitoring at Cloncreen Bog. These species are frequently recorded as fatalities in mainland Europe (EUROBATS 2016) and estimated collision risk is medium (Table 2.2). These species are the most common and widespread in Ireland (Roche et al. 2014) and Irish populations are considered robust. Therefore, it would take large numbers of fatalities to seriously threaten the Irish population. In addition, as previously stated, these species were recorded in low numbers in the open sections of the site where the turbines are proposed.

Leisler's bat, was less frequently recorded at Cloncreen Bog. This species has shown large numbers of fatalities in mainland Europe (EUROBATS 2016) and is considered a high risk species (Table 2.2). Leisler's bat is widespread and common in Ireland (Roche 2014). However, the Irish population is considered of international importance due its limited distribution elsewhere (Marnell 2009). Again, this species was recorded in extremely low numbers in areas where wind turbines will be sites.

Brown long-eared bat and *Myotis* species were only occasionally recorded and are considered at low risk of collision (Table 2.2).

No roosts within the Study Area were identified by ecologists from INIS Environmental Consultants, Malachy Walsh and Partners or from McCarthy Keville O'Sullivan. In addition, habitats on site were assessed as having *Negligible* roosting potential (Annex 5).

Outside the Study Area, consultation with BCI identified 5 roost sites within a 10 km radius. In addition, four roost sites were identified by INIS Envorponmental Consultants and Malachy Walsh and Partners, within 6 km of the Study Area. The closest was found

2.5 km away. Three roosts of pipistrelle bats were found in buildings and one temporary roost for Daubenton's bat was found in a bridge.

6.2 Assessment of Collision Risk

The main impact associated with the operation phase of the proposed wind farm is injury or death to bats through direct collision or from the effects of barotrauma. At Cloncreen Bog, species at high, medium and low risk of collision were recorded. However, following a full and comprehensive survey over a number of seasons, activity levels were shown to be very low and were largely concentrated away from proposed turbine locations. Surveying at height found just a single bat pass across 55 nights of surveying.

Therefore, it is concluded that bats will only occasionally cross the open bog habitats where turbines will be sited. When they do, they tend not to fly at heights that place them at risk of collision. Therefore, the risk of bat collision is unlikely and a negative impact will not be significant.

6.3 Loss of Habitat

No roost sites were identified within the Study Area. In addition, structures and trees examined within the Study Area showed negligible roosting potential. Four roost sites were identified in structures outside the Study Area. These roost sites are not scheduled to be demolished or developed during construction of the proposed development. Therefore, given the position of these roosts, more than 2.5 km from the developable area, no significant effects on roosting bats are anticipated.

Other habitats identified within the Study Area have limited value for bats. The loss of cutaway bog will have negligible impacts on local bat populations while the loss of scrub and treeline habitats will only marginally reduce foraging and commuting opportunities. Given the abundance of more favourable habitats in the wider area and the small extent of their loss within the Study Area, their loss is not considered significant.

6.4 Disturbance

Bats may be disturbed by noise, vibrations or lighting, particularly during construction activities during the summer months. This may lead to temporary avoidance of the area during turbine erection and construction of access roads. However, it is expected that this effect would be short-term and would not extend beyond the construction phase. In addition, given that no roosts have been identified within the Study Area and the closest identified roost is 2.5 km away from the developable area, any impacts are not considered significant.

7 RECOMMENDATIONS

As previously outlined, the proposed wind farm at Cloncreen Bog is not assessed to lead to any ecologically significant impacts on bats. On a precautionary basis, only standard mitigation recommendations for potential operational effects on bats are therefore recommended.

7.1 Derogation Licence

It is illegal to damage or destroy a bat roost in Ireland. However, no roosts in trees, buildings or other structures were identified within the developable area. Therefore, there is no requirement for a derogation licence. However, should a bat roost be discovered once work has commenced e.g. during tree felling, work will cease immediately and advice sought from the NPWS.

7.2 Habitat Management

Habitats within the Study Area have limited value for bats at present. However, wind farm construction creates linear features and spaces around each turbine, which may provide favourable conditions for flying insects and foraging bats. It is recommended to avoid any planting around wind turbines or along access tracks leading to turbines, that may create suitable shelter for foraging bats or "funnel" commuting bats towards wind turbines. Any habitat management or enhancement programmes should, at a minimum, observe buffer distances recommended by Natural England (2014):

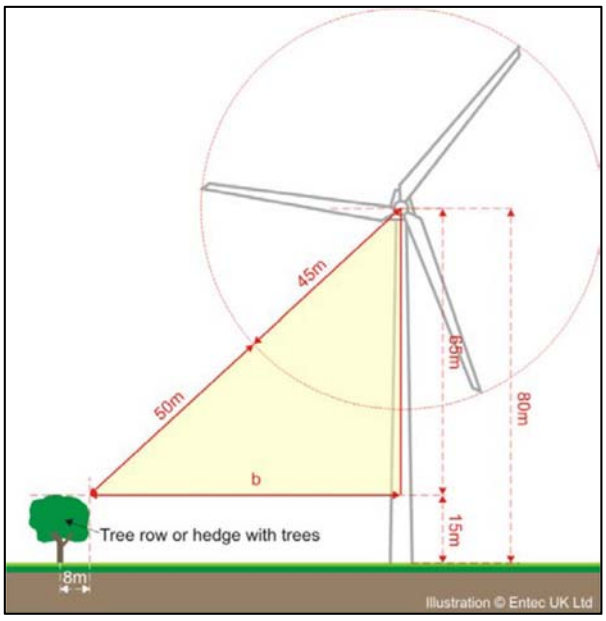

Figure 8.1: Calculation of buffer distances (from Natural England, 2014)

> *"To minimise risk to bat populations our advice is to maintain a 50 m buffer around any feature (trees, hedges) into which no part of the turbine intrudes. This means the edge of the rotor-swept area needs to be at least 50 m from the nearest part of the habitat feature. Therefore, 50m should be the minimum stand-off distance from blade tip to the nearest feature.*
>
> *It is incorrect to measure 50 m from the turbine base to habitat feature at ground level as this would bring the blade tips very close to the canopy of a tall hedgerow tree and potentially put bat populations at risk. Instead, it is*

necessary to calculate the distance between the edge of the feature and the centre of the tower (b) using the formula:

$$b = \sqrt{(50 + bl)^2 - (hh - fh)^2}$$

where: bl = blade length, hh = hub height , fh = feature height (all in metres). For the example above, b = 69.3 m" (Figure 8.1).

7.3 Post-construction Monitoring and Fatality Searches

In line with the consultation response received from the Department of Arts, Heritage and the Gaeltacht, post-construction fatality searches will be carried out during the operational phase of the development. Bat corpse searches can be conducted in conjunction with any bird corpse searches and will follow methods outlined by Rodrigues et al. (2015).

In accordance with best practice guidelines, a minimum of three years post-construction monitoring is recommended (BCI 2012a, Rodrigues et al. 2015). Due to the limited bat potential found at Cloncreen Bog during pre-construction surveys, monitoring the entire activity period is not considered necessary. Late summer and autumn has been previously identified as the highest collision risk period for bats (Mathews et al. 2016). Therefore, searches should be undertaken at monthly intervals between the end of July and the end of September in Years 1, 2 and 3 of the lifetime of the wind farm.

Bat corpses, due to their small size and dark colouring, are exceptionally difficult to detect in the field. Therefore, trained sniffer dogs should be employed in fatality searches. In keeping with consultation responses and best practice guidance, all fatality estimates must incorporate searcher efficiency and scavenger removal trials, specific to the site, as well as the impact of search plot size (BCI 2012a, Hundt 2012, Rodrigues 2015).

In accordance with best practice, post-construction activity surveys are recommended to be carried out in conjunction with fatality searches (BCI 2012a, Hundt 2012, Rodrigues 2015). A dusk and a dawn survey should be carried out on the night preceeding any bat fatality search. Activity surveys should comprise walked transects representative of all turbine locations and habitat features. The aim of post-construction activity surveys is to assess any changes in bat activity and habitat use on site and to provide context to fatality search results.

Results from post-construction monitoring, fatality searches and efficiency trials must be compiled each year and reported to the NPWS, and copied to the Department of Arts, Heritage and the Gaeltacht (as per consultation recommendations). If a significant negative impact on bats is observed, a plan of action must be determined with the NPWS without delay.

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Annex 1

Extract from INIS Environmental Consultants Bat Survey Report 2013

Bord na Mona Energy Ltd

Energy Hub Project

Baseline Bat Survey 2013

10th January 2013

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1. INTRODUCTION

Bord na Mona Plc and specifically Bord na Mona Energy Ltd have completed a high level feasibility study examining the potential for developing a large area of cutaway peat land and other adjacent areas as a single interconnected large scale wind farm. The energy generated by the development will be sent through one or two proposed interconnectors across the Irish Sea into the UK.

In order to inform the proposed development, a set of targeted baseline environmental surveys are required and have now been initiated. As part of these baseline environmental surveys, Bord na Mona (BnM) commissioned INIS Environmental Consultants Ltd to complete a baseline assessment of bat populations at two bog groups in the Midlands, namely Derrygreenagh and Ballydermot/Timahoe Bog Groups. These bog groups have never been surveyed for bats before and as such no background information exists on bat populations in these areas. The survey had to be designed taking many varied different site specifics into account most notably multiple survey sites over a very large geographical area, large areas of peat extraction and myriad different habitat types with access issues. There are 33 separate bogs located within these two Bog Groups and each of these was surveyed as part of this baseline assessment.

All surveys were carried out between the months of June and September 2013 with a total of 139 separate transects surveyed within the two bog groups; each of these transects were surveyed for bat activity three times. Remote monitoring using an Anabat SD1 device was carried out at all 33 bog locations. In addition to the Anabat, a GML1 Remote Download (GML) system was installed at one bog (Clonsast) to survey for bats over the entire survey period (69 days) on a constant basis, 7 days per week. The use of this GML technology is a first for Ireland and heralds the arrival of the most modern technology for surveying bats quantitatively in the world today.

Due to the prevalence of old buildings and other potential roost sites proximal to the bog groups a bat roost survey was completed at selected potential roost sites within and adjacent to the bog groups.

This report provides the results of the extensive baseline bat monitoring survey which was carried out and provides an insight into bat populations, foraging/commuting activity patterns and roost preferences. In conjunction with best practice methods used, the Chartered Institute of Ecology and

Environmental Management's (CIEEM) Code of Professional Conduct was adhered to throughout the consultation, surveying and report writing stages of this project.

2. METHODOLOGY

2.1. Guidelines and legislative context

This current survey constitutes a baseline assessment of the areas in question and has been prepared taking cognisance of the Environmental Protection Agency's (EPA) 'Guidelines on the Information to be contained in Environmental Impact Statements' (EPA, 2002) and 'Advice Notes on Current Practice (in the Preparation of Environmental Impact Statements)' (EPA, 2003) and the 'Guidelines for Ecological Impact Assessment' (Chartered Institute of Ecology and Environmental Management. 2006).

In addition the European Communities (Environmental Impact Assessment) Regulations, 1989 (S.I. No. 349 of 1989) and subsequent amendments have been reviewed and taken into account when preparing the surveys and resultant report.

The Habitats Directive 92/43/EEC was transposed into national law through the European Communities (Natural Habitats) Regulations 1997 (S.I. 94/97) and amended in 1998 and 2005. The EU Habitats Directive requires Member States to maintain or restore the favourable conservation status of the habitats and species listed in its annexes. The Directive specifies that the habitats of 25 species listed in Annex 2 must be designated as SACs. Thus designation of a site as an SAC has wide-ranging implications. Land use practices that may be affected include farming, aquaculture, grazing, sporting and turf-cutting rights. A further 33 species, requiring strict protection, are listed on Annex 4 (plant species listed on Annex 2 are also listed on Annex 4). Some species while not requiring a high level of protection need to be safeguarded against exploitation. These species are listed in Annex 5 of the Directive. The Habitat Regulations have been updated in 2011 as the European Communities (Birds and Natural Habitats) Regulations 2011 to bring the Irish transposition of these regulations into line with the requirements of the EU Habitats Directive (1992). Article 6 paragraphs 3 and 4 of the EU Habitats Directive (1992) state that:

- Article 6 Paragraph 3

  Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, whether individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the sites conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned, and if appropriate, after having obtained the opinion of the general public.

- Article 6 Paragraph 4

  If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary important for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interests.

The Third Schedule to the Wildlife Act 1976, was amended on the 6th December 1985, when the minister, in compliance with the European Communities Council Directive of 2 April, 1979 (No. 79/409/EEC), made regulations entitled the European Communities (Wildlife Act, 1976)(Amendment) Regulations, 1985 (No. 397 of 1985) removing the remaining twelve unprotected species from that schedule. As a consequence all wild birds are now protected throughout the state and careful assessment of their habitats must take place before any development is allowed. The Wildlife Act, 1976, is the principal national legislation providing for the protection of wildlife and the control of some activities, which may adversely affect wildlife. The Wildlife Act, 1976, came into operation on 1 June 1977. The aims of the Wildlife Act, 1976, are to provide for the protection and conservation of wild fauna and flora, to conserve a representative sample of important ecosystems, to provide for the development and protection of game resources

and to regulate their exploitation, and to provide the services necessary to accomplish such aims. As a consequence of the Wildlife Act all wild birds are now protected throughout the state and careful assessment of their habitats must take place before any development is allowed.

This act broadened the scope of the Wildlife Acts to include most species, including the majority of fish and aquatic invertebrate species, which were excluded from the 1976 Act. It also strengthened the provisions relating to the cutting of hedgerows during the critical bird-nesting period. It also strengthened the protective regime for Special Areas of Conservation (SACs) by removing any doubt that protection will in all cases apply from the time of notification of proposed sites. The act also gave specific statutory recognition to the Minister's responsibilities in regard to promoting the conservation of biological diversity, in light of Ireland's commitment to the UN Convention on Biological Diversity.

The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention, 1982) ensures that governments take into account the conservation needs of species during the formulation of planning and development policies. It also seeks the protection of endangered species and in relation to bats, it stipulates that all bat species and their habitats are conserved.

Department of Environment, Heritage and Local Government Planning Guidelines for Wind Development (2006) (DoEHLG) state that *"the designation of an area for protection of natural or built heritage or as an amenity area does not automatically preclude wind energy development. However, consideration of any wind energy development in or near these areas must be subject to Ireland's obligations under the Habitats Directive (92/43/EEC), the EU (Birds) Directive (97/409/EEC) and the Environmental Impact Assessment Directive. Planning authorities must ensure that a proposal which is likely to have a significant effect on an SAC or other designated area, is authorised only to the extent that the planning authority is satisfied will not adversely affect the integrity of the area. If necessary, they can seek changes to the development proposed or attach appropriate planning conditions."*

2.2. Desktop review

A desktop review was completed to identify features of ecological importance within the study area and surrounding region. This review included all designated areas and sensitive areas within the zone of potential around the study area. Important bat roost sites around the Bog Groups were

identified from information supplied by the National Parks and Wildlife Service (NPWS) of the Department of Arts, Heritage and the Gaeltacht. Prior to field surveys taking place, other potential sites of ecological importance and conservation interest were identified using orthophoto maps provided by Bord na Mona and also by examination of Ordnance Survey (OS) aerial photography and OS maps (1:50000, 1:10560 (6'') and 1:2500 scale).

Various literature sources, guidance documents and mapping tools were also consulted. These will be referenced in the text.

The list of literature used in all our bat surveys includes (list not exhaustive):

- **Hundt, L (2012) Bat Surveys: Good Practice Guidelines, 2nd Edition, Bat conservation Trust. Natural England Technical Information Note TIN051.** Bats and onshore wind turbines. 2nd Edition, February 2012.
- **Eurobats Publication No.3:** Guidelines for consideration of bats in wind farm projects.
- **Bat Survey Guidelines: Traditional Farm Buildings Scheme** (2008) Tina Aughney, Conor Kelleher & Donna Mullen. The Heritage Council, Áras na hOidhreachta, Church Lane, Kilkenny.
- **NRA Guidelines for treatment of Bats During Construction of National Road Schemes** (2005) NPWS, Natura, Tina Aughney.
- **A Conservation Plan for Irish Vesper Bats** (2006) Irish Wildlife Manuals, no. 20 McAney, K. NPWS, DoEHLG, Dublin.
- **Irish Bat Monitoring Programme** (2006) Tina Aughney, Steve Langton, Niamh Roche, Jon Russ and Phillip Briggs.
- **Identification of Bats in Flight** (1990) by Ingemar Ahlén. Swedish Society for Conservation of Nature, Stockholm, Sweden.
- **The World of Bats** (1996) by Michel Barataud. Sitelle, Alpha Copie, 38000 Grenoble, France.
- **Bat Detector Manual** (1994) by Colin Catto. The Bat Conservation Trust, 15 Cloisters House, 8 Battersea Park Road, London SW8 4BG, England.
- **Conservation status assessment for Species: S1303 - Rhinolophus hipposideros – Lesser horseshoe bat.** (2006) Second Report by the United Kingdom under Article 17 on the implementation of the Directive from January 2001 to December 2006.
- **Animal tracks and signs.** (2007) Preben Bang and Preben Dahlstrom. Oxford

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- **How to find and identify mammals** (1997) by Gillie Sargent and Pat Morris. ISBN 0-906-282-34-9. The Mammal Society, 15 Cloisters House, 8 Battersea Park Road, London SW8 4BG, England.
- **Mammals of Britain and Europe** (1993) by David Macdonald & Priscilla Barrett. Collins Field Guide ISBN 0-00-219779-0. HarperCollins Publishers, 77-85 Fulham Palace Road, Hammersmith, London W6 8JB, England.
- **Observing British and European mammals** (1989) by Christian Bouchardy and François Moutou. ISBN 0-565-01095-6. British Museum (Natural History), Cromwell Road, London SW7 5 BD.

2.3. Field Survey Work

2.3.1. Health and Safety considerations

The bog groups include large expansive areas with soft ground conditions and many deep water filled trenches which presented significant health and safety issues. In order to carry out the surveys efficiently and safely, surveyors became familiar with all sites in daylight i.e. all planned locations of transects and timed searches. Surveys were conducted using pairs of surveyors or alternatively a buddy system was initiated. This Health and Safety methodology was followed at all times. A full risk assessment was prepared and followed by all INIS ecologists prior to surveys initiating.

2.4. Methods

Bat activity on the Bog Groups was surveyed using three different methods:

- Hand held heterodyne bat detectors (Batbox Duet) used for walked and driven **bat activity transects**;
- **Remote surveys**:
    1. ANABAT SD1 was used as a remote recording device throughout the different bogs (used as a static device but also during driven transects);
    2. GML system (ANABAT SD2) was installed in Clonsast bog;
- Bat **roost surveys**, both within Bord na Mona land parcels and adjoining lands (where necessary, permission was requested from private landowners before surveys).

These methods are recognised as being the most up to date, Best Practice methods for surveying bats. INIS ecologists obtained accurate results and species identification throughout all survey periods.

2.4.1. Bat activity surveys (transects)

Regarding transect surveys for bats there are a number of guidelines (Mitchell-Jones and McLeish 2004, Kelleher and Marnell 2006, Rodrigues *et al.* 2008, Bat Conservation Ireland 2012, Natural England 2012, Hundt 2012) that give detailed accounts of the best practice methods for surveying bats in large areas while incorporating the highest health and safety standards. These were all assessed and used to formulate our survey strategy.

Hundt (2012) suggests that when carrying out activity surveys, broadband bat detectors (frequency division or full spectrum) should be used with the guidelines also suggesting that all detectors should have the capacity to record or to be connected to a recorder; this should be considered a standard for bat surveys by professional ecologists, for the purposes of planning applications and impact assessment. This methodology ensures that all bat calls are recorded and can subsequently be analysed for identification to species or species group level.

Manual activity transect surveys were conducted with hand held bat detectors (Batbox duet) in addition to all calls being recorded on an Anabat SD1 device. Manual activity surveys were carried out at all 33 bogs within the two Bog Groups using walked and driven transects methodologies. The emphasis of these surveys was detecting important flight paths across the different bog sites and those likely to intersect with the turbine areas, as well as in depth surveys in the autumn time (September in this case) to account for migrating/swarming species (Mitchell-Jones and McLeish 2004).

As mentioned surveys focused on potential turbine areas but also habitat features that are close to these locations. Habitat features that required in depth surveys were those that had a medium/high foraging/commuting/connectivity factor for bats within the wider landscape (e.g. linear corridors, hedgerows, tree lines, watercourses/bodies, woodland) Hundt (2012).

Since there are numerous access roads to each of the bogs, driven transects were conducted to improve efficiency of this baseline survey allowing for more ground to be covered, increasing our

information base. As per the guidelines, driven transects were conducted at a speed of no more than 15 km per hour (Bat Conservation Ireland 2012).

Table 1. Description of best practice methods for surveying bats outlined in relevant guidelines (Rodrigues *et al.* 2008, Bat Conservation Ireland 2012, Hundt 2012)

Survey Type	Description of best practice
Dusk activity survey	Manual detector surveys should be designed to ensure that all areas and main features of the site are sampled within the time period. This survey can be used to determine the spatial distribution or abundance of bats, which features they are using and perhaps the extent to which activity changes over time. Environmental conditions should be recorded at regular intervals to determine if there is a change in bat activity attributable to temperature/rainfall/wind speed *etc*. This survey can be done through point counts or through walked/driven/boat transects.
Dawn activity survey	Pre-dawn surveys can be carried out in a similar fashion with similar results. However, they are particularly useful for locating roosts on or within a 200 meter radius of the site., and can be used in combination with dusk transect surveys

When conducting all bat activity surveys INIS ecologists conducted them in optimal weather conditions allowing the results to accurately reflect bat activity at all locations. Bat activity surveys were only carried out when the temperature was above 10 degrees Celsius (Kelleher and Marnell, 2006), no heavy rain and no strong winds (> Beaufort Force 5) (Bat Conservation Ireland 2012). (For static surveys it is impossible to say that these conditions can be met all the time but this information can be used to examine how environmental variables affect bat activity on site). Weather conditions this year were absolutely perfect with optimal temperatures being recorded throughout all surveys.

In accordance with best practice it is also important to survey for bats at the appropriate time of year and time of night/day. The times of all surveys adhered to the timing reflected in Tables 2 and 3. Another important factor in ensuring accurate results was surveying transects at different times i.e. that the three surveys of each bog didn't take place within the same time window on each survey date. We designed different survey times to confirm the correct bat activity patterns at each location.

Table 2: Best practice times to conduct bat surveys (Hundt 2012, Bat Conservation Ireland 2012)

Survey Type	Time Start	Time Finish
Bat Activity (Dusk surveys, all species)	½ hour before sunset	2-3 hours after sunset
Bat Activity (Dawn surveys, all species)	2 hours before sunrise	1/2 hour after sunrise
Swarming activity (all species)	Sunset	4 hours after sunset

Table 3: Shows best practice time of year is the most appropriate to survey for bat activity

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Hibernation roost survey			*	Summer roost emergence and activity surveys					*	Hibernation roost survey	
Potential roost and internal surveys. Tree roost Surveys are best conducted in Winter											

* Limited activity

Results of the transect surveys are presented in tabulated format within Appendix 4 and include a 10 figure grid coordinate for every bat contact recorded throughout the survey season.

2.4.2. Remote surveys

The most modern remote survey technology available in the world today was used to assess bats at the Bord na Mona sites and immediate surrounding areas. Developed by Titley Scientific, Anabat technology is the most advanced system to remotely record bat activity and is now used on every continent in the world by bat ecologists to survey bats.

2.4.2.1. AnaBat SD1

The AnaBat SD1/2 compact flash (CF) was launched by an Australian company and heralds a system that is extremely sensitive and accurate for identifying any different species present. It is currently difficult to separate out the *Myotis* group of bats using any of the bat detector types (time expansion and heterodyne) currently available however using field notes and observer experience in conjunction with Anabat graphs specific *Myotis* species can be identified. This is crucial to any bat survey for accuracy of results and identifying correct mitigation.

The Anabat SD1/2 CF incorporates the AnaBat II detector used in conjunction with the CF Storage ZCAIM and makes a powerful remote recording system for bats. Timer facilities are incorporated into the ZCAIM so it can be programmed to switch on and off at selected times.

The ZCAIM controls the power to the detector. Because of this and the systems use of compact flash memory cards, the system can be left remotely in the field for a week or more without changing batteries or CF cards. The Analook software for programming the ZCAIM, reading the memory card and extracting AnaBat files will now work on computers using any version of Windows. The software is supplied with the system. A CF memory card and CF reader/writer are required.

An AnaBat SD1 was used to survey for extended periods in all 33 different bogs throughout both Derrygreenagh and Ballydermot bog groups. The AnaBat was used to survey for either a dusk or dawn survey in each location. The dusk surveying periods comprise of leaving the device out for half an hour before dusk until 3 hours after. The dawn survey period comprised of leaving the device out for three hours before dawn until a half an hour after. In addition to the device being left out in each of the 33 bogs for the standard survey, we also completed an extra 12 hours of Anabat surveys in open peat habitat (includes both bare peat areas and active open peat extraction areas) in order to gain more comprehensive and robust bat activity data regarding this habitat type.

Throughout the surveys the AnaBat was left out in a variety of different habitats including mineral banks, hedgerows, open peat and adjacent to water bodies. This data can be used to quantify the relative importance of features and locations, and how bat activity changes over time within each bog group.

Results of the AnaBat SD1 surveys are presented in tabulated format within Section 8.3.1.

2.4.2.2. GML system

INIS installed a GML system on a building in the Clonsast factory complex on the 10/07/2013 and disconnected it on the 16/09/2013. This is the first time this state of the art system has been used in Ireland and heralds the most modern surveying technique ever used for surveying bats in Ireland. This system was used for the first time in Europe (Scotland) in July 2013.

INIS sees this GML system as being the one of the most efficient and cost effective means of mitigation for bats on large scale wind farms in the future.

There were a number of different habitats covered by the GML system including a water body, hedgerows and open areas of scrub vegetation. The system was programmed to turn on at 19.30 pm and switch off at 07.30 am, every day.

There are two types of division ratios used on AnaBat devices, 8 and 16; these represent the amount of data that is stored on the CF memory card. If division ratio 8 is used, a greater range of sound frequency is stored on the memory card within the device; it is important to stress that there is no impact on the quality of data being recorded. Division 8 is suitable for short term studies i.e. single nights etc. However for long term studies (e.g. one month) division ratio 16 is better to use as it means data can be collected over the long term and this is why a division ratio of 16 was used for this study. The use of division ratio 16 had no impact on the quantity or quality of the data for the purpose of this study. As the AnaBat also detects other ultrasonic sounds, such as those sounds made by insects, rain, and other sources the sensitivity of the device was remotely altered during the first few days of surveys in order to obtain the best results. In the end a sensitivity setting of 40 was used for this study. The calls were then recorded onto a CF memory card with large storage capacity.

In order to make the GML system waterproof they were placed inside a special metal case. All bat activity was recorded by the GML system and later downloaded through the internet. This data was then analysed using AnalookW software.

Results of the GML survey is presented in tabulated format within Section 8.3.2.

2.4.3. Roost surveys

For roost surveys it is important that surveys be undertaken by appropriately trained and experienced bat specialists to prevent roost abandonment and accidental injury or death to bats. All ecologists involved with this survey have extensive experience with bat surveys and have an advanced knowledge of bat ecology and roost survey techniques. Bat roost surveys were completed at 20 potential bat roosts within and adjacent to the bog groups including bridges, trees, buildings (inhabited and uninhabited) and workshops (derelict and active).

During this survey, potential roost locations were identified using both OS maps and field observations during the bat activity surveys. All of these locations were visited during daylight for an

initial inspection for roost potential and possible bat presence. The bat roost surveys were undertaken before September 15th because bats are most active in the months May - August.

The reason for daylight inspections was twofold:

1. To ascertain if there were any obvious signs of bat activity at the structure/potential roosting areas associated with the structure and
2. To ascertain if there were any health and safety hazards associated with the structure.

The initial daytime search involved a methodical search where the structure was examined using best practice techniques to locate droppings beneath gable ends, on windowsills, under hanging tiles, fascia's, on windows or on walls. In addition, the structure was examined for urine and oily residue stains, scratch marks and the remains of insect prey (moth wings etc.).

Following the external search we moved into the buildings where we searched all first floor areas for bat signs in the form of bat droppings and urine and oily residue stains. Following this investigation we moved into the second floor spaces and then attic spaces of all buildings, if it was required. This necessitated us entering through the attic doors with head torches and inspecting all floor space within the attic for bat droppings. We used head torches and a large hand held torch for this search.

The aims of the bat roost surveys at trees/buildings/ bridge structures were to:

- Determine if bats are currently present or have been present in the past
- Determine the bat species
- Determine the number of bats
- Determine the roost category or categories e.g. the purpose and therefore the importance of the structure/tree
- Determine the bats' entry and exit points within the structure(s)
- Determine the bats' roosting locations within the structure
- Determine the commuting corridors used by bats to and from their roost(s) with a description of any vegetation or other linear features of importance to bats (this will be especially important for these Bord na Mona surveys to assess linear features being used by bats to enter the bog groups)

Using the evidence gathered during the initial daylight site inspections at each potential roost, dawn/dusk roost surveys were then conducted. The dawn/dusk surveys were carried out in optimal weather conditions e.g. mild temperatures, light winds and no rainfall to maximise the results of the roost surveys.

These roost surveys, along with the National Parks and Wildlife Service roost data have allowed an excellent indicative baseline assessment of bat roosts in the study area to be made.

Results of the bat roost surveys are presented in tabulated format within Section 8.4.

3. CONSULTATION

The preparation of this section included consultation either directly or through publically-available information with:

- National Parks and Wildlife Service (NPWS) of the Department of Arts, Heritage and the Gaeltacht
- Bord na Mona (BnM)
- Offaly County Council
- National Biodiversity Data Centre (NBDC)
- Bat Conservation Ireland (BCI)
- Environmental Protection Agency (EPA)

A formal consultation response was received from NPWS regarding the distribution of bat roosts in the study area and within the region of the study area. This information was reviewed and assimilated into our report.

4. STAFF PROFILES

4.1. Howard Williams (Principal ecologist)

Mr Howard Williams is a senior ecologist with 17 years professional ecological management experience. He was the principal ecologist on the current assessment, designed all surveys and was responsible for the production of the final report. Mr. Williams is principal ecologist with INIS

Environmental Consultants Ltd and currently project manager on all INIS projects in the Republic of Ireland and the UK.

Mr Williams has formal training and CPD on bat surveying that is relevant to the current assessment. He is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and is a Chartered Environmentalist (CEnv) with the Society for the Environment (Soc Env) and a Chartered Biologist (CBiol) with the Society of Biology. He completed his B.Sc. in Biological Sciences, National University of Ireland Cork, in June 1997. Following his degree he worked as a senior ecologist with ESB Fisheries Conservation until 1999 and has been working as a private consultant since 2000. Mr. Williams has extensive experience of ecological surveys and ecological survey techniques. He has acted as lead ecologist on 34 wind farm developments in Ireland and the UK since 2000; in addition to this he has acted as lead ecologist on two major road infrastructure projects, one Combined Cycle Gas Turbine (CCGT) project and numerous other renewable energy projects. Howard has extensive expertise in managing Environmental Impact Statements and Appropriate Assessment work on major renewables projects for both private and public clients. Last year he was responsible for the management and production of the entire EIS for a wind farm in West County Clare from design phase right through to planning submission.

Mr Williams is considered by his peers and clients alike to be one of Irelands leading ecological site assessors and has been requested to complete in excess of 400 separate full ecology surveys in Ireland and the UK in the past 15 years. While birds are his primary expertise he has vast experience with surveying bats and non-volant mammals over the past 15 years and has held licenses to disturb bats and lesser horseshoe bats (Annex II) in particular. In relation to bats he has attended formal training in England with Bat Conservation Trust UK and is proficient in the use of all Anabat technology including Analook software.

4.2. Domhnall Finch (Ecologist)

Mr. Domhnall Finch, M.Sc., B.Sc., GradCIEEM, is an ecologist with INIS Environmental Consultants Ltd. Mr. Finch was awarded a first class honours M.Sc. in Biodiversity and Conservation from the University of Leeds completing his thesis on bats and an honours B.Sc. in Environmental Science from University College Dublin.

Mr. Finch is a bat specialist and has vast experience surveying bats in both Ireland and the UK working for private consultancies and universities on both large scale bat surveys for wind farm projects and private developments. Mr. Finch is capable of operating the advanced bat identification device i.e. the Anabat bat identification module. He has a license to capture bats using mist nets for scientific study and has vast experience catching and processing bats in the UK and Poland for scientific research.

Along with bats, Mr. Finch has excellent experience in conducting large scale bird surveys for wind farm projects and scientific research, including both terrestrial and marine species. Since leaving university Mr. Finch has also gained invaluable experience in surveying non-volant mammals and cetaceans. Mr. Finch is has completed an ArcView GIS course and is fully proficient in using ArcView GIS to analyses, model and digitise large data sets to create both current and predictive maps.

4.3. Anne Mullen (Ecologist)

Ms. Mullen received her primary degree in Environmental Science in the National University of Ireland, Galway in 2004 and completed a Masters in Ecological Assessment from University College Cork in 2012. She has worked in the scientific sector for a number of years including laboratory work in a number of industries. She has substantial experience with habitats surveying and mapping, species rich grasslands surveying, water quality assessment, site auditing. Anne completed all the GIS mapping for the current survey. Anne is an ecologist with INIS Environmental Consultants Ltd.

4.4. Andrew Dobson (Titley Scientific – principal ecologist)

In addition to the involvement of INIS staff, outside assistance was provided by experts from Titley Scientific in England and the United States of America. Titley Scientific manufacture the Anabat technology that is recognised around the world as the most advanced system for monitoring bats. This is the technology that INIS ecologists decided to use on the Bord na Mona project.

With reference to the Bord na Mona sites, ecologists from Titley Scientific travelled to Ireland to discuss the best survey products to suit onsite habitats, project scale and bat species. Titley provided the GML system to remotely record bat species at Clonsast and they also recommended different monitoring strategies for the expansive areas of peat.

No private or commercial Bord na Mona information was shared with any third parties as part of this work partnership.

5. LIMITATIONS OF CURRENT ASSESSMENT

Due to the physical characteristics of the survey areas certain limitations were recorded over the duration of the survey. These were as follows:

- Health & Safety dictated that some planned transects were abandoned or had to be redesigned due to deep ditches traversing sites, watercourses, unstable ground and inaccessibility due to heavy undergrowth.
- INIS ecologists identified many potential bat roosts that could not be surveyed due to the timing constraints of the present assessment. Surveying these as part of any further investigation on bats in the bog groups will be crucial to completing an in-depth bat assessment and to enable meaningful mitigation to be designed in future.

These limitations did not affect the study or the results thereof. The results are a true reflection of bat activity onsite.

6. RECEIVING ENVIRONMENT

6.1. Designated Areas

All designated sites of ecological importance; within 10 kilometres of the survey area and with relevance to the survey were considered for this survey. These included candidate Special Areas of Conservation (cSAC) and Natural Heritage Areas (NHA's). Special Protection Areas (SPAs) for birds were not reviewed as they relate directly to birds and as such, are outside the scope of this assessment.

Altogether there are 22 designated sites within 10km of these two bog Groups (Table 4). These include Special Area of Conservation (SAC) and Natural Heritage Areas (NHA).

No designated sites for bats exist proximal to the two bog groups under investigation.

as two BnM bogs to the south and west of its location. It is approximately 6 kilometres North West from the village of Clonbullogue and 6 kilometres south of Rhode.

7.3.2.3. Ballykeane

The boundaries of Ballykeane bog are surrounded largely by agricultural fields. Ballykeane bog is located in the southern part of Derrygreenagh Bog Group. The bog is less than 1 km west of Walsh's Island village and 4 kilometres north of Clonygown village. The site is approximately 4 km^2, with open peat extraction covering approximately 95% of the land cover. Along the edges of Ballykeane bog there are well defined linear hedgerows and mature tree lines within the boundaries of the bog.

7.3.2.4. Cavemount

This bog is situated near the centre of the Derrygreenagh Bog Group. It is connected to three separate bogs through BnM railway lines; however the immediate surroundings of this bog consist of large agricultural fields. The Grand Canal borders the northern side of this bog. Cavemount bog is approximately 4.5 km^2, open peat extraction occupies most of the land use within this bog (ca. 60% of land cover). Approximately 40% of the land is covered in large water bodies and scrub vegetation, with well-developed hedgerow around the edge of it there is very little vegetation within this bog.

7.3.2.5. Clonad

Clonad bog is approximately 3.5 km^2 and within it there are several different types of habitats. The main habitat is predominantly open peat extraction (ca. 85% of the land cover). There are well developed hedgerows along the periphery of this bog. Within these hedgerows there are some sections of well-developed mature trees (ca. 5% of the land cover). This bog is situated near the western side of the Derrygreenagh Bog Group complex and it is bordered by two BnM bogs to the east and North West of its location. It is only 2 kilometres south of Daingean town and it is approximately 2.5 kilometres north from the village of Geashill.

7.3.2.6. Cloncreen

The boundaries of Cloncreen bog are surrounded largely by agricultural fields. The bog is located in the eastern part of the central bogs of the Derrygreenagh Bog Group. The bog is less than 1 km east of Clonbullogue village and approximately 3 kilometres south west of Edenderry. The site is approximately 10 km^2, with open peat extraction covering approximately 90% of all land cover. Along the edges of Cloncreen bog there are well defined linear hedgerows and mature tree lines

within the boundaries of the bog. Scrub vegetation also occurs in patches throughout the bog (ca. 5% of land cover).

7.3.2.7. Clonsast

This bog is situated in the southern end of the Derrygreenagh Bog Group and it is largely surrounded by agricultural fields. Within the centre of this bog there is a private farm. Clonsast bog is approximately 19 km^2 and has several minor tracks and BnM railway lines running through and around the bog. Coniferous forest occupies most of the land use within this bog, approximately 95% of land cover. There is a workshop comprised of seven structures at the southern end of this bog. The River Cushina runs through the boundaries of this bog as well as developed hedgerow around the periphery of this bog.

7.3.2.8. Clonsast North

Clonsast North bog located 5 km to the west of Clonbullogue and 4 km to the north east of Walsh's Island is in one of the most central bogs within the Derrygreenagh Bog Group. Approximately 1.5 km^2 in area the majority of this bog (ca. 85% of the land cover) consists of scrub vegetation. There are several large water bodies within the centre of this bog along with some areas where open peat extraction used to occur (ca. 10% of the land cover). Well-developed hedgerows and mature deciduous trees exist around the periphery of this bog (ca. 5% of the land cover).

7.3.2.9. Croghan

Croghan bog is one of the smallest bogs within the Derrygreenagh Bog Group and it is less than 1 km^2. The main habitat is predominantly well developed hedgerows (ca. 90% of the land cover). These occur along the periphery of this bog. Within these hedgerows there are some sections of well developed mature trees (ca. 5% of the land cover). There is no open peat extraction taking place within this bog. This bog is situated near the centre of the Derrygreenagh Bog Group complex and it is bordered by two BnM bogs to the south and North West of its location. It is only 4 kilometres east of Daingean town and it is approximately 1 kilometres west from the village of Mountlucus village.

7.3.2.10. Daingean Derries

The boundaries of Daingean Derries bog are surrounded largely by agricultural fields. The bog is the most western bog in the Derrygreenagh Bog Group and it is 6 km west of Daingean town and approximately 6 kilometres east of Tullamore town. The site is approximately 4 km^2, with open peat

the western side of this bog. No bats were recorded in open peat habitats. One common pipistrelle was noted to be commuting along the mineral bank within this bog.

8.1.2.6. Cloncreen

Five transects were designed at Cloncreen bog and these covered approximately 6 kilometres in distance. These were designed to survey open peat, scrub vegetation and well developed hedgerow habitat in the same bog. Eight bat contacts were recorded throughout the survey season with three species present: common pipistrelle *Pipistrellus pipistrellus* (n=5), myotis whiskered/Brandt's *Myotis mystacinus/brandtii* (n=7), leisler's *Nyctalus leisleri* (n=1). These results accounted for 1.3% of all bat records for this survey in both Bog Groups. All bat records were from the linear features of well developed hedgerows at the north western side of this bog. Only a single common pipistrelle was recorded commuting, all other records were noted as foraging.

8.1.2.7. Clonsast

Of the 6 transects that were conducted within this bog 95% were along BnM tracks/railway lines cut through the coniferous forest. The 6 transects within this bog have a combined length of over 10 km. Sixteen bat contacts were recorded throughout the survey season with five species present: soprano pipistrelle *Pipistrellus pygmaeus* (n=7), common pipistrelle *Pipistrellus pipistrellus* (n=4), leisler's *Nyctalus leisleri* (n=3), myotis whiskered/brandt's *Myotis mystacinus/brandtii* (n=1), daubenton's *Myotis duabentonii* (n=1). These results accounted for 2.5% of all bat records for this survey in both Bog Groups. Most bat records were from the workshop and the Cushina River located at the southern end of this bog.

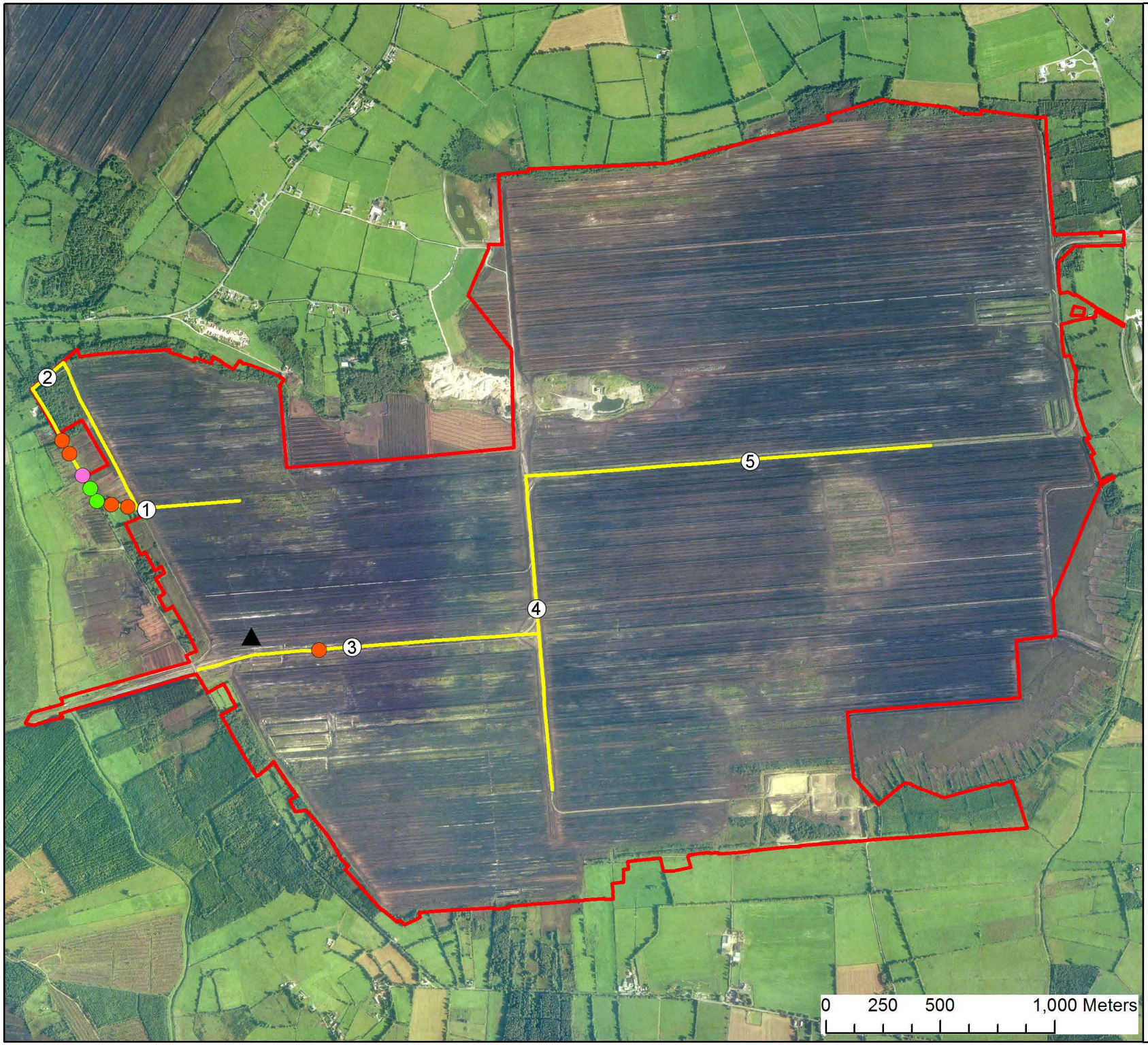
8.1.2.8. Clonsast North

Four transects were designed at Clonsast North bog and these covered approximately 2 kilometres in distance. Seven bat contacts were recorded throughout the survey season with five species present: soprano pipistrelle *Pipistrellus pygmaeus* (n=2), leisler's *Nyctalus leisleri* (n=2), common pipistrelle *Pipistrellus pipistrellus* (n=1), myotis whiskered/Brandt's *Myotis mystacinus/brandtii* (n=1), natterer's *Myotis natterreri* (n=1). These results accounted for 1.1% of all bat records in both Bog Groups. The majority of bat activity was recorded within either scrub vegetation or mature deciduous trees along the borders of this bog. Only one common pipistrelle and one soprano pipistrelle were recorded commuting within the scrub vegetation, all other records were of foraging bats.

Table 7. Tabulated results of the total number of bats recorded in each bog during all bat activity transect surveys

Name of Bog	Soprano pipistrelle	Common pipistrelle	Leisler's	Daubenton's	Myotis whiskered/Brandt's	Natterer's	Brown long-eared	Total number of species present	Total number of bat records	% of total bat activity
Ballydermot	10	13	1	2	1	-	-	5	30	4.8
Barnaran	8	11	-	-	-	-	-	2	19	3.0
Blackriver	27	33	12	3	7	1	2	7	85	13.5
Codd	10	6	4	-	2	-	-	4	22	3.5
Glashabaun North	-	-	-	-	-	-	-	0	0	0.0
Glashabaun South	14	19	2	2	1	-	-	5	38	6.0
Lodge	-	1	8	-	1	-	1	4	11	1.7
Lullymore	2	3	-	-	-	-	-	2	5	0.8
Ticknevin	10	23	-	-	3	-	-	3	36	5.7
Timahoe North	3	8	8	-	2	-	-	4	21	3.3
Timahoe South	6	14	11	5	3	-	-	5	39	6.2
Ballybeg	6	5	1	-	-	-	-	3	12	1.9
Ballycon	-	1	-	-	-	-	-	1	1	0.2
Ballykeane	-	2	1	-	-	-	-	2	3	0.5
Cavemount	4	2	1	1	-	-	-	4	8	1.3
Clonad	7	9	1	-	2	-	-	4	19	3.0

Cloncreen	-	5	1	-	2	-	-	3	8	1.3
Clonsast	7	4	3	1	1	-	-	5	16	2.5
Clonsast North	2	1	2	-	1	1	-	5	7	1.1
Croghan	7	4	-	-	-	-	-	2	11	1.7
Daingean Derries		2	-	-	-	-	-	1	2	0.3
Daingean Rathdrum	7	10	-	3	2	-	-	4	22	3.5
Derryarkin	9	12	-	6	3	-	1	5	31	4.9
Derrycricket	1	1	-	-	-	-	-	2	2	0.3
Derryhinch	3	2	1	-	-	-	-	3	6	1.0
Derrylea	4	10	1	-	1	1	-	5	17	2.7
Derryounce	23	16	6	9	5	-	-	5	54	8.6
Drumman	2	8	1	3	1	-	-	5	15	2.4
Esker	2	8	2	2	8	-	-	5	22	3.5
Garryhinch	7	16	10	4	-	-	-	4	37	5.9
Garrymore	3	1	-	-	-	-	-	2	4	0.6
Kinnegad	6	7	4	1	3	-	-	5	21	3.3
Torr	2	5	-	-	-	-	-	2	7	1.1



CLOONCREEN

BAT SURVEY MAP

N

Legend

- Common pipistrelle
- Leisler's
- Myotis spp.
- Transects
- Transect Number
- AnaBat Location
- Site Boundary

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ENVIRONMENTAL CONSULTANTS

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Annex 2

Malachy Walsh and Partners Cloncreen Bat Survey Report 2015

Malachy Walsh and Partners
Engineering and Environmental Consultants

Baseline Bat Surveys
Cloncreen Bog

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1 INTRODUCTION

Malachy Walsh and Partners were commissioned by Bord na Móna to carry out a second year of baseline bat surveys on Bord na Móna lands, namely the Ballydermot/Timahoe and Derrygreenagh Bog Groups. The Cloncreen Bog is located within the Derrygreenagh Bog Group. This report gives the details of the bat surveys carried out at the Cloncreen Bog study area, and the results of the same.

Bat surveys included roost surveys, activity bat surveys and passive bat surveys. Bat roost surveys were conducted within and adjacent to the site. Bat transects were carried out at the site on three separate occasions, to identify the bat activity at the site. Passive bat surveys included monitoring from height (top of Cloncreen Met Mast) and remote monitoring at three different locations throughout the survey period.

This report provides the results of the baseline bat monitoring surveys conducted at the Cloncreen study area, and provides an insight into bat populations, foraging/commuting activity patterns and roost surveys at the study area.

2 BATS

2.1 BACKGROUND

In Ireland there are 10 known bat species of two families (*Rhinolophidae* and *Vespertilionidae*). These species are:

- ***Rhinolophidae*:**
  - Lesser Horseshoe bat (*Rhinolophus hipposideros*)
- ***Vespertilionidae*:**
  - Daubenton's bat (*Myotis daubentoni*)
  - Whiskered bat (*Myotis mystacinus*)
  - Natterer's bat (*Myotis nattereri*)
  - Nathusius' Pipistrelle (*Pipistrellus nathusii*)
  - Common Pipistrelle (*Pipistrellus pipistrellus*)
  - Soprano Pipistrelle (*Pipistrellus pygmaeus*)
  - Leisler's bat (*Nyctalus leisleri*)
  - Brown long-eared bat (*Plecotus auritus*)
  - Brandt's bat (*Myotis brandtii*)

2.2 LEGISLATIVE CONTEXT

2.2.1 The Wildlife Acts 1976 and 2000

All bat species are protected under the Wildlife Act (1976) and Wildlife [Amendment] Act (2000) which make it an offence to wilfully interfere with or destroy the breeding or resting place of these species; however, the Acts permit limited exemptions for certain kinds of development.

All species of bats in Ireland are listed on Schedule 5 of the 1976 Act, and are therefore subject to the provisions of Section 23, which make it an offence to:

- Intentionally kill, injure or take a bat;
- Possess or control any live or dead specimen or anything derived from a bat;
- Wilfully interfere with any structure or place used for breeding or resting by a bat ;
- Wilfully interfere with a bat while it is occupying a structure or place which it uses for that purpose

2.2.2 The Habitats Regulations 1997-2005

The EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive 1992(92/43/EEC)) seeks to protect rare and vulnerable species, including all species of bats, and their habitats and requires that appropriate monitoring of populations be undertaken. All species of bat found in Ireland are listed on Annex IV of the Directive, while the lesser horseshoe bat is further protected under Annex II. The latter Annex relates to the designation of Special Areas of Conservation (SACs). Inclusion on Annex IV ('European protected species') means that member states are required to put in place a system of strict protection as outlined in Article 12. The Habitats Directive is transposed into Irish law by the European Communities (Natural Habitats) Regulations 1997. These Regulations substantially strengthen the protection provided by the Wildlife Acts, and in particular they remove all of the exemptions provided in Section 23(7) of the Wildlife Act insofar as they relate to Annex IV species, including all species of bats. All bats species are listed on the First Schedule and Section 23 of the Regulations makes it an offence to:

- Deliberately capture or kill a bat;
- Deliberately disturb a bat;
- Damage or destroy a breeding site or resting place of a bat.

2.2.3 International Conventions

Across Europe, bats are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries. The Irish government has ratified both conventions.

2.3 CONSERVATION STATUS

The overall conservation status for all bat species is 'Good' as is the evaluation of the individual attributes assessed, namely, Range, Population, Suitable Habitat and Future Prospects (NPWS, 2008).

2.4 ECOLOGY AND HABITAT IN IRELAND

2.4.1 Introduction

Bats are long-lived mammals with a complex social life that have evolved a number of unusual biological and behavioural features. They have developed a highly sophisticated echolocation system that allows them to avoid obstacles and catch tiny insects in complete darkness. Bats need different roosting conditions at different times of the year in order to suit their metabolic and social requirements, and will often move around on a regular basis to find the condition that meets their needs. As a consequence, bats roost in a range of areas including: buildings, trees, highway structures, underground sites such as caves, cellars, mines, underground bunkers, culverts and underpasses, dry stone walls and rock fissures with different bat species preferentially selecting

different types of roosting sites. As a consequence individual bat species have different association with the various roosting habitat types.

Bats select different types of roosts at different times of the year for different phases in the breeding and life cycle. These include hibernation and winter roosts, summer and nursery roosts, temporary roosts, night feeding roosts and mating roosts/swarming sites. Bats hibernate to conserve energy during the winter months, when their insect food is in short supply. Hibernation roosts (hibernacula) may be in caves, underground, and other structures, buildings or trees, where there is low temperature variation and a high relative humidity. Bats may hibernate singly, or many bats may use the same roost site.

Female bats tend to be colonial during the summer months, congregating at nursery roosts mostly in trees or buildings to give birth (some give birth in tunnels, mines and caves). Bats are very faithful to their natal nursery colony and return year after year. Female bats give birth in the summer usually to only one young, averaging one birth every second year. For this reason bat population numbers do not increase rapidly, unlike other small mammal species such as rodents.

2.4.2 Roost Requirements

Because their metabolic and social requirements vary throughout the year, most bats will use a variety of roosts of different types. Many species of bats are closely associated with the built environment, both for breeding and hibernation and some species have rarely been recorded anywhere else. The majority of species form maternity roosts in the roofs of buildings to take advantage of the heat provided by the sun, as during this phase of their life-cycle breeding females are seeking areas with high temperatures to minimise the energy cost of maintaining a high body temperature. Some species, such as the Common pipistrelle, show a clear preference for confined roost sites, such as soffit-boxes, eaves or under hanging tiles, whereas others, such as the lesser horseshoe and long-eared bats are more typically associated with open roof voids that they can fly into. There are many exceptions and many species have been recorded from a wide range of situations. In winter, bats of most species have been recorded hibernating in various parts of buildings, such as inside cavity walls, around window frames, under ridge-tiles and in cooler areas with stable temperatures.

The lesser horseshoe bat has a particular affinity with underground sites. In winter, it is rarely found in any other type of site and the species has even been recorded breeding underground, though the great majority of maternity sites are now in the roof voids of buildings. Other species which are considered typical hibernators in underground sites are Natterer's bat, Daubenton's bat, whiskered bat, Brandt's bat and brown-long-eared bat.

While some species are particularly associated with tree roosts, others primarily use buildings and underground places; however, the majority use a range of roosts including trees, buildings and underground sites.

Table 1 below lists the bat species present in Ireland and different roost types. The table indicates the strength of association between each species, and with their use of trees as roosting sites. It is noted that only brown long-eared bats have strong association with tree roosting sites.

Table 1: Species associations with different roost types

Species	Trees		Buildings		Underground	
	Maternity	Hibernation	Maternity	Hibernation	Maternity	Hibernation
Lesser horseshoe bat	L	L	H	M	L	H
Brandt's bat	L	L	H	H?	N	H
Daubenton's bat	M?	L?	M	L	M?	H
Whiskered bat	M?	M?	H	L	N	H
Natterer's bat	M?	M?	H	L	L	H
Nathusius' pipistrelle			H?			
Common pipistrelle	M	M	H	H	N	L
Soprano pipistrelle	M	M	H	H	N	L
Leisler's bat	M	M	H	L	N	N
Brown long-eared bat	H	H	H	H	N	M

Trees- includes all types of crevice and hollow as well as bat-boxes attached to trees.
Buildings – above-ground areas, with an emphasis on roof voids and other areas warmed by the sun.
Underground – anywhere that provides cool humid conditions buffered against rapid temperature change. Includes caves, mines, tunnels, souterrains, fortifications, cellars, ice-houses, lime-kilns etc.

N – not recorded in recent times
L- low dependence; unusual, but has been recorded
M – some usage recorded, though perhaps not the most important type of site
H – the most frequently recorded type of site for this species/activity

Weak association with tree selection as roost site

Medium strength association with tree selection as roost site

Strong association with tree selection as roost site

(Adapted from Kelleher and Marnell, 2006)

2.4.3 Criteria for Bat Roosts of National or International Importance

There are no clear guidelines as to the nature of a bat roost of international importance. All of the largest roosts of lesser horseshoe bats in Ireland would be of international importance and it is anticipated that all large Leisler's bat roosts (in excess of 100) would also have international significance. The following table (Table 2) shows the working guidelines developed by the Bat Expert Panel of the Heritage Council in 2003 to provide a basis for comparing the importance of different building roosts nationally and internationally[1].

Table 2: Level of importance of different buildings roosts for bat species

Species	Indicator	Significance
Lesser Horseshoe Bat	Special Areas of Conservation (SACs) have been created for this species, throughout its European range.	Very significant
	If present	Significant
Whiskered	>10	Very significant
	If present	Significant
Natterer's	>10	Very significant
	If present	Significant
Daubenton's	Maternity roost	Very significant

[1]http://www.tii.ie/technical services/environment/planning/Best_Practice_Guidelines_for_the_Conservation_of_Bats_in_the_Planning_of_National_Road_Schemes.pdf

Species	Indicator	Significance
Leisler's	Maternity roost	Very significant
Common Pipistrelle	Maternity roost	Significant
Soprano Pipistrelle	Maternity roost	Significant
Brown Long-eared	Maternity roost	Significant

Adapted from (NRA, 2005): Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes

3 METHODOLOGY

3.1 DESK STUDY

A desk study was carried out to collate available information on the species to be surveyed and on the site's natural environment. This comprised a review of the following publications and datasets:

- Hundt, L (2012) Bat Surveys: Good Practice Guidelines, 2nd Edition, Bat conservation Trust.
- Natural England Technical Information Note TIN051. Bats and onshore wind turbines. 2nd Edition, February 2012.
- Natural England Technical Information Note TIN051.Bats and onshore wind turbines. 2nd Edition, February 2012
- Bat Survey Guidelines: Traditional Farm Buildings Scheme (2008) Tina Aughney, Conor Kelleher & Donna Mullen. The Heritage Council, Áras na hOidhreachta, Church Lane, Kilkenny.
- Eurobats Publication No. 3: Guidelines for consideration of bats in wind farm projects
- *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes* (National Road Authority (NRA, 2006a).
- Bat Conservation Ireland. Wind Turbine/Wind Farm Development, Bat Survey Guidelines (Version No. 2.8, December 2012)
- Kelleher, C. & Marnell, F. (2006) Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No. 25. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.
- Northern Ireland Environment Agency November 2011, Bat Survey – Specific Requirements of Windfarm proposals.
- Bat Mitigation Guidelines for Ireland. *Irish Wildlife Manuals*, No. 25 (National Parks and Wildlife Service 2006).
- NRA Guidelines for treatment of Bats During Construction of National Road Schemes (2005) NPWS, Natura, Tina Aughney.
- Bat Survey Guidelines: Traditional Farm Buildings Scheme (2008) Tina Aughney, Conor Kelleher & Donna Mullen. The Heritage Council, Áras na hOidhreachta, Church Lane, Kilkenny.
- *The Status Of EU Protected Habitats And Species In Ireland* (National Parks and Wildlife Service 2013),
- Previous Report/Baseline Bat Surveys, completed by INIS Environmental Consultants Ltd, conducted in 2013.
- OSI Aerial photography and 1:50000 mapping,
- National Parks and Wildlife Service (NPWS),
- Geological Survey Ireland (GSI) area maps,

- Bat Conservation Ireland publications and website,
- National Biodiversity Centre (NBDC) (on-line map-viewer).

A desktop review was completed to identify features of ecological importance within the study area and surrounding region.

3.1.1 Consultation (Data Request submitted to Bat Conservation Ireland)

A data search request was submitted to Bat Conservation Ireland (BCI) for a search of their database for all known records of bat species (both roosting sites and ad-hoc observations) retained by BCI within a radius of 10km of the Cloncreen Bog site. Irish Transverse Mercator (ITM) X, Y co ordinates were provided as a reference point from which the search radius extended.

3.1.2 National Biodiversity Data Centre (NBDC)

The NBDC online mapper includes a bat habitat suitability layer index. The index ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats. The index presented is for all species combined, in addition to each individual species indices. The suitability indices for each bat species are included in Table 5, Section 4.1.3 below. The reference area to which the indices relate comprises the Cloncreen Bog site area, and the geographical area extending away from it.

3.1.3 Previous surveys

A preliminary bat survey was carried out on two Bord na Móna bog groups in 2012/13, namely the Ballydermot/Timahoe Bog group, and the Derrygreenagh Bog group. The Cloncreen Bog site is included within the Derrygreenagh Bog group. The goal of these surveys was to establish indicative levels of bat activity within the two bog groups. No formal bat survey had been carried out within these areas prior to the preliminary study (apart from some project specific studies in a limited number of locations). Therefore the levels of bat activity within these areas were relatively unknown. A summary of these findings for the Cloncreen Bog site is included in section 4.1.6 below.

3.1.4 Designated sites

This desk study included all designated areas and sensitive areas within a 15km radius of the study area.

3.2 FIELD SURVEYS

3.2.1 Introduction

Bats in Ireland feed exclusively on insects and in the summer they generally emerge from their roosts at dusk to feed. The distances covered while foraging varies considerably between species. They are known to use a number of different foraging sites in the same night and move between them to locate areas of high insect density. They are also known to exhibit a level of site loyalty and will frequently return to the same foraging sites night after night (JNCC, 2001).

Information on bat activity at the study area was collated from a comprehensive set of field surveys conducted during the months of March, May, June, July and August 2015, and November 2015. Three forms of survey design were implemented and included;

1. Roost surveys (daytime visual search and bat activity surveys within the study area).
2. Bat activity surveys (bat transects), and
3. Automated bat surveys.

All bat surveys were undertaken by appropriately trained and experienced ecologists. In order to carry out the surveys efficiently and safely, surveyors became familiar with the site during daylight hours. All surveys were conducted using pairs of surveyors. This Health and Safety methodology was followed at all times.

Bat survey methods are described in the following sections.

3.2.2 Roosting habitat availability

3.2.2.1 Structure/tree survey (Visual daytime searching)

Daytime bat roost surveys were conducted at the study area in the months of March, May, June, July, August and September 2015. A daytime bat roost survey was also carried out on the 16th of November and the 15th of December, 2015.

The daytime surveys did not involve any activities which would require a National Parks and Wildlife Service handling license. The site and adjacent lands were searched for potential bat roost sites. Structures were examined for potential bat roosts, which included bridges adjacent to the Cloncreen Bog site, Bord na Móna buildings, and two private unused dwellings in proximity of the Cloncreen Bog. Trees within and adjacent to the site were checked for holes, cracks, crevices and openings in both living and dead trees. Trees were inspected from ground level using binoculars, for external signs of damage or evidence of the presence of holes or cavities. Where required, an endoscope was used to investigate cracks and crevices present on trees.

The daytime survey included the following;

- Communication with client and local landowners.
- External inspection of potential bat roost sites included, looking/searching for bat droppings on the ground, streaking on walls, suitable entry and exit points around eaves, soffits, flashing, crevices etc., at the Bord na Móna Tea Centre and other buildings, including the nearby wildlife sanctuary to the northwest of the site.
- Where required/access available, internal inspection of buildings were carried out.
- This part of the survey mainly focussed on areas which would provide appropriate environmental conditions for bats. This included checking joints, cracks and crevices on plastered walls, stone walls, wood and wooden beams. The floors, walls and structural elements were examined for droppings, streaking and other bat signs such as oily marks on walls from fur, the feeding remains such as moth wings or other insect parts, along with checking areas for corpses and skeletons of bats. Plastered areas and ridge beams were searched for scratch marks. Ledge areas such as window boards were searched for evidence of bats (urine stains, droppings remains of prey etc.).
- Bridges in the proximity of the Cloncreen Bog site were investigated for any evidence of bats. These were inspected using a high-powered torch and endoscope. Any crevices, holes, cracks and joints present at bridge structures were inspected, searching for evidence of bats.
- An endoscope was used to check cracks and crevices in old stone walls and cracks and crevices that are present in the workshop and bridge structures, and the more mature trees that occur within the study area.
- Trees occurring at the site were initially assessed for the potential of a roost site, looking out for holes, cracks and splits (in trunks and limbs), cavities formed by cracked stems or limbs,

peeling bark, crevices and deadwood. Also while conducting the survey trees were searched for any evidence of bats such as scratch marks, oil stains and droppings.

While conducting the daytime surveys, other habitats within the study area, and the immediate surroundings were noted. This was done to assess bat foraging habitat availability, and to record the presence of significant landscape features, particularly linear features that provide wildlife corridors for commuting bats.

3.2.2.2 Bat emergence survey

Bat emergence surveys were carried out at potential roost sites, identified during the daytime visual surveys and bat roost sites identified during previous baseline surveys at the site. The following was carried out while conducting the bat emergence survey at the site;

- The surveys began approximately 40 minutes before dusk.
- The potential roost sites were watched for 1 hour after dusk.
- Equipment used included Frequency Division AnaBat Detector System (AnaBat SD2 Flash Card Bat Detector), a hand-held heterodyne bat detector (the Batbox Duet) flash lights and hand held GPS.

3.2.3 Bat activity surveys (Transects)

Bat transect surveys conducted at the site consisted of walked and driven transects. Surveys included previous transect routes, carried out at the site (for a continuation of baseline surveys), with additional transects also included. The transect routes were designed to comprehensively survey the proposed development area and intersected/followed the foraging and commuting habitats present within it, particularly those associated with linear features such as roadside margins, vegetated linear strips, scrub, woodland edges, and hedgerows.

The transects at the site were repeated three times, completed during the following nights visits;

- **Bat transect survey 1:** carried out on the 24th June 2015.
- **Bat transect survey 2:** carried out on the 19th of August 2015.
- **Bat transect survey 3**: carried out on the 10th of September 2015.

The repeated transects were undertaken in opposite directions on another occasions, where possible, from different points/times along the route. Transect times were spread throughout the survey nights, to provide a more complete overview of the bat activity/usage at the site, throughout the survey period.

The activity survey was conducted using the Frequency Division AnaBat Detector System (AnaBat SD2 Flash Card Bat Detector) in conjunction with the BatNav KML Generator which generates GPS co ordinates for each bat pass recorded. The AnaBat detector records bat ultrasonic calls on a continuous basis, and stores the information onto an internal CF card. Frequency Division is a technique used to convert the inaudible bat echolocation calls to audible sounds. The AnaBat unit also uses Zero-Crossing Analysis (ZCA) to make the real-time recorded calls visible for display purposes. It is these sonograms (2-d sound pictures) that are digitally stored on the CF card, and downloaded for analysis. Each time a bat is detected, an individual time-stamped (date and time to the second) file is recorded. The GPS location of each call is also recorded.

Walked transects were conducted within the study area, which were not suitable for vehicle access. Driven transects were carried out with the use of a four by four vehicle. The Anabat detector was connected to a specially adapted microphone, mounted to the roof of the vehicle.

Post survey, the species of each individual bat pass is identified, and the recording is labelled. If sufficient calls are recorded the GPS location is appended to each call and the distribution mapping of bat activity along the survey route can be generated on GIS platforms and on Google Earth. These formats provide easy and quick access to detailed distribution mapping of any activity recorded. Repeated surveys can be overlaid, or multiple surveyors' results can be plotted to visualise a large site.

A hand-held heterodyne bat detector (the Batbox Duet) was also utilised, to enable identification of individual species in the field in real time. The frequency detection dials were rotated so that there was frequent scanning of the frequencies between 20 kHz and 120 kHz.

The bat transect surveys conducted at the Cloncreen Bog site, were conducted by experienced bat ecologists. Surveys were carried out during periods where weather conditions meet the requirement set out in standard survey methodology guidance documents (Bat conservation Ireland 2012[2]; Hundt, 2012[3]; Mitchell-Jones and Mcleish 2004[4]). Recommended guidelines state that surveys are appropriate when nocturnal temperatures are greater than 7°C, avoiding prolonged or heavy precipitation. Prior to survey, each transect was walked during daylight hours, to make note, and to be avoid potential hazards during surveys. A hand held 'Sat Map' navigational device, which incorporated aerial photography of the study area transect routes, further aided in the navigation during darkness.

Transect routes can be viewed in Figure 1 below.

3.2.4 Passive bat survey

An unmanned automated bat survey was completed at three locations, in July (one location), and early September 2015 (two locations). The Song Meter SMZC Bat Recorder was deployed at locations that were selected for their proximity to habitats, or features potentially valuable to bats, at strategic locations at the site. This was carried out as to provide a good representative coverage of the survey area. The song meters were set at three different locations for a minimum five consecutive nights, once in July 2015, and two locations in early September 2015. The detectors were set from half an hour before sun set, to half an hour after sunrise.

Calls emitted by bats that passed in the proximity to the SMZC detectors were recorded and their calls stored for later analysis. The SMZC detector system records bat ultrasonic calls on a continuous basis and stores the information onto internal SD cards. The bat detector is effectively used as a bat activity data logger.

Passive bat survey locations can be viewed in Figure 1 below.

[2] Bat Conservation Ireland (2012) Wind turbine / windfarm development bat guidelines, Version 2.8, December 2012.

[3] Bat Surveys: Good Practice Guidelines, 2nd Edition, Bat conservation Trust.

[4] The Bat Workers' Manual, 3rd Edition. JNCC, Peterborough.

3.2.5 Automated bat surveys from height

Recent guidance on good practice for bat surveys at proposed on-shore windfarm sites (Bat Conservation Thrust 2011) recommends that where possible, static automated bat detectors be installed at turbine height (or as close as possible).

An automated bat survey from height was conducted at the Cloncreen Met Mast, for a period of 55 consecutive nights, to provide a sample of the bat activity at turbine height over the survey period.

A weather-resistant SMM-U1 ultrasonic microphone was attached to a bird deterrent unit, and fixed to the Cloncreen Met Mast, at a height of approximately 95m, above ground level. An electronic cable, connected to an SM3BAT Bat Song Meter, at ground level. The SM3BAT Song Meter unit was installed, and secured, on the 24th of June 2015, and was removed on the 18th of August 2015. Prior to deployment, the SM3 Bat detector was calibrated with an ultrasonic calibrator, to ensure that the microphone and the detector were performing properly. The SM3 Bat detector was equipped with secured digital (SD) memory cards to store call data. The detector was programmed to record both zero-crossing and full spectrum call files simultaneously. Following the survey period the data was downloaded using Kaleidascope and Analook software, to view/analyse any bat sonograms (see following section, Section 3.2.6). The unit was checked frequently during the survey period, replacing batteries at regular intervals and making sure the device was working appropriately.

3.2.6 Download analysis of data

The data was downloaded and analysed using Kaleidascope and Analook software. Each time-stamped bat file was analysed and the species of bat recorded noted as a bat pass. A single sound file can have bat passes from more than one species as well as calls from more than one bat of the same species. Where this occurs a bat pass was noted for each species. (e.g. two species identified in a time-stamped file).

The sound files collected were converted from .wac format to .wav and zero crossing for sound analysis within Kaleidoscope software. This software can automatically sort sound files that contain only non-bat 'noise' from sound files that contain bat passes. The software can also 'tag' each call with a potential identification, according to similarities in call shape to archetypal call clusters within the database. This approach allows identification of bats to genus level for Myotis species, and to species level for other bats found in Ireland. Separation of Myotis species is complicated by the high degree of overlap between call characteristics.

Following Kaleidascope download, the bat tags were then checked using Analook software, and confirmed or corrected manually, since automatic classification is not yet accurate enough to rely upon in isolation for most species (Waters & Barlow, 2013). The manual identification was carried out by comparison with call parameters as set out in Russ (2012) and Barataud (2015).

Species identification of recordings was determined independently, by a minimum of two observers, if calls were not characteristic, and easily identifiable.

From analysing the sonograms produced during surveys, in combination with communications with Tina Aughney (BCI), made it was possible to separate Natterer's bat, from other Myotis species.

3.2.7 Summary of bat surveys carried out at study area

The location of the automated survey from height at the Cloncreen Met Mast can be viewed in Figure 1 below.

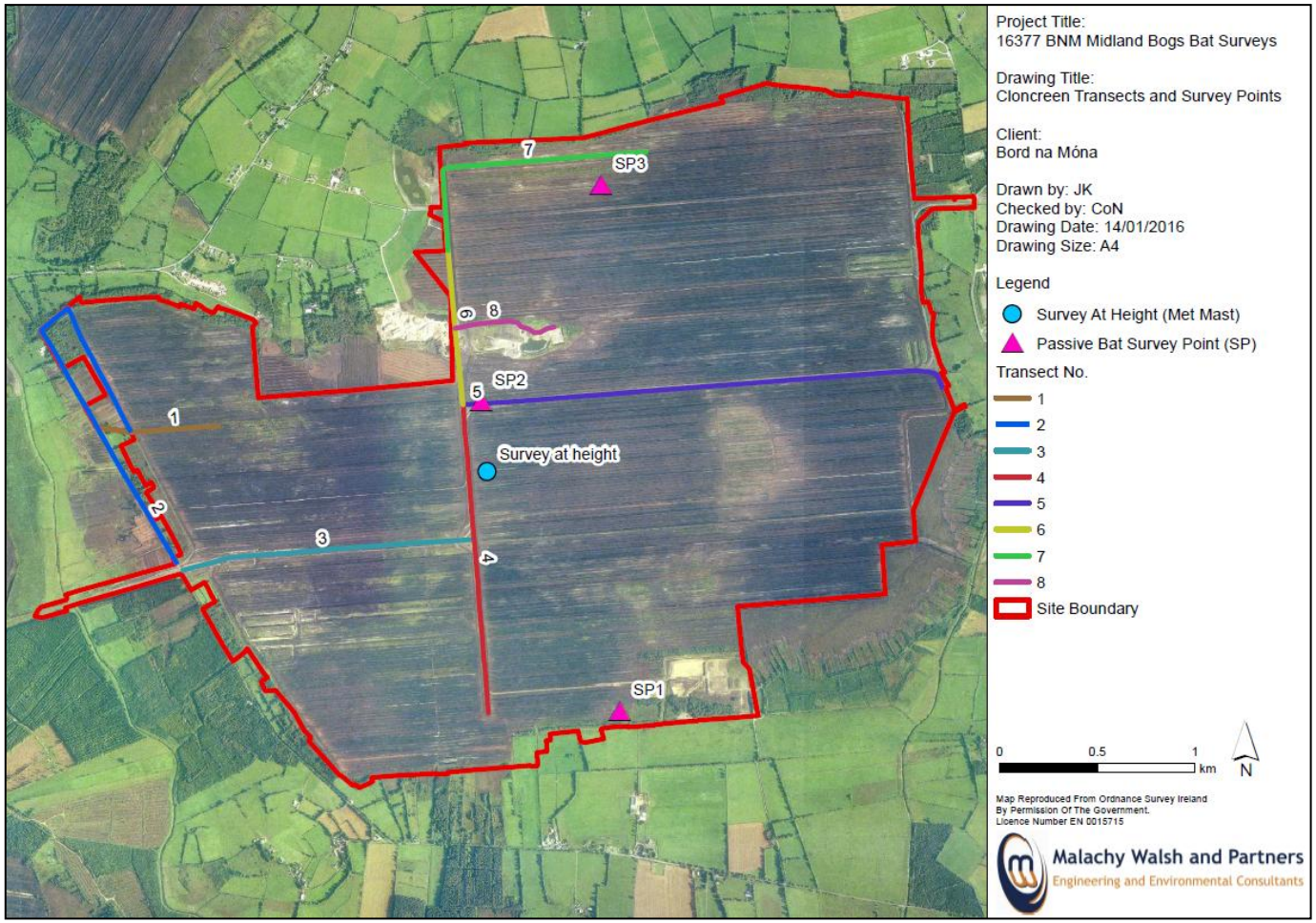


Figure 1: Location of bat surveys at the study area

4 RESULTS

4.1 DESK REVIEW/STUDY

4.1.1 Consultations (Records retained by Bat Conservation Ireland)

On the 13th of November 2015, BCI replied to a request for information regarding any known bat activity within a 10km radius of the Cloncreen Bog site.

The results of the BCI search indicated six records of bat roosts within the 10km search radius specified, with an additional bat roost, just outside the search area. Species included brown long-eared bat, whiskered bat, Leislers' bat, Common pipistrelle and Soprano pipistrelle. Following consultations with BCI, the closest known bat roost site, is in Edenderry, approximately 5.5km to the northeast of the Cloncreen Bog site (unidentified bat species). Adhoc observations, included Daubentons bat, recorded during transects, carried out at a number of bridges within a 10km radius of the Cloncreen Bog site, the closest of which is approximately 7km to the northeast. Consultations with BCI can be viewed in Appendix 1.

4.1.2 Summary of Habitats Associations of Irish Bats

Table 3: Summary of habitat associations of Irish bats

Species	Foraging habitat	Roost habitat
Brown long eared bat	Foraging habitat includes broad-leaved woodlands, tree lines, scrub, conifer plantations, gardens with mature trees, parkland, and orchards	Roosts in close association with foraging habitats, but avoids roosting in mixed agricultural areas, bog, marsh, heath and natural grassland. In Ireland, large open attics, tree holes, ruins, houses, churches and farm buildings.
Common pipistrelle/Soprano pipistrelle	Broad foraging niches (Russ 1999) which reflect their widespread occurrence in Ireland. Highly adaptive to changing landscape conditions and can occupy a range of different habitat types from urban areas to woodlands.	Houses, although they also roost in other locations such as tree holes, can be found in most habitat types except for very exposed areas. Confined areas in houses, behind hanging tiles, soffit boards or between roofing felt and roof tiles, rather than the main attic space.
Nathusius' Pipistrelle	Mainly forest dwelling bat species. Forests including deciduous woodlands to dry coniferous forests. Use parks, farmland and woodland edges, rarely seen in urban settlements than other bat species. Prefer lowland areas.	Often recorded roosting in crevices and have been found in cracks in walls, under soffit boards, fissures in rocks and tree hollows.
Lesser horseshoe bat	Sheltered valleys near wooded countryside. Distribution in the west is strongly linked with broadleaved and mixed woodland and it usually forages in woodland and scrub.	Mainly in roofs of old houses or in outhouses, stables or old cottages. In winter this species hibernates in caves, disused cellars, mines and underground structures.
Leisler's bat	Forages over a range of habitat types including over pasture, rivers, lakes, canals and forestry. It also hunts around streetlights and floodlights.	In Ireland, nursery roosts are chiefly located in attic spaces of buildings. There are also a few records of nursery roosts in trees.
Daubenton's bat	Surface of lakes, slow-moving rivers and canals.	Usual roost sites are under stone bridges, in ruins, canal tunnels, trees and damp caves.
Natterer's bat	Can be found in woodland, mature hedgerows and pasture habitats.	Usual roost sites are in tree holes, old stone buildings such as churches and barns, and under bridges.
Brandt's bat/Whiskered bat	Typically forages along forest tracks, or near water	Can be found roosting in attics of old buildings. Very few confirmed roosts in Ireland. It is also sometimes found roosting in crevices under stone bridges and in trees.

A study carried out by Lundy et al (2011), revealed some consistent patterns across bat species associations with habitat types. In general, bog, marsh and heath have negative associations, while broadleaf woodland, mixed forest and riparian habitats have positive associations with bat occurrence. Table 4 below, provides a summary of key land cover associations and the most relevant spatial scale of these associations for each bat species.

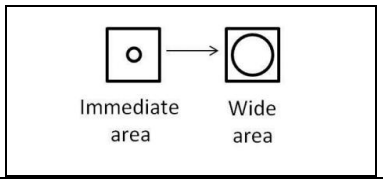
Table 4: Summary of the habitat associations of bats

A summary of habitats associations of Irish bats: Two elements of habitat association are identified; direction of association (positive or negative) and scale of association (fine scale or broad scale).

Direction of association:
The colour of the box identifies the direction of association. Three relationships are identified; a positive association, a negative association and an intermediate association. An intermediate association reflects that a species is positively associated with a small area ofthis habitat but as this area increases this association becomes negative. A non-filled box signifies that this habitat is not an important predictor of that species occurring.

Positive association
Intermediate association
Negative association

Scale of association:
The size of the circle identifies the scale of the habitat that is most important – a small circle identifies that this habitat is important in the immediate area whereas a large circle reflects an association with that habitat at a wider landscape scale.



	Arable	Bog	Broadleaf forest	Mixed forest	Pasture	Riparian habitats	Scrub	Urban	Freshwater	Altitude
Brown long eared bat										
Common pipistrelle										
Lesser horseshoe										
Leisler's										
Daubenton's										
Nathusius' Pipistrelle										
Natterer's bat										
Soprano Pipistrelle										
Whiskered										

Adapted from: (Lundy et al 2011) Landscape conservation for Irish bats and species specific roosting characteristics. Bat Conservation Ireland

4.1.3 Bat habitat suitability index at National Biodiversity Data Centre (NBDC)

The NBDC online mapper bat habitat suitability layer index was viewed on the 21st of November 2015. The results outlined in Table 5 below, indicate that the habitats within the majority of the site are of relatively low value to bats in general, with a rating of 21.56 for the category 'All bats'. The rating for the very southern end of the site is slightly higher, with a rating of 29.22 for the category 'All bats'. Within the majority of the site two species have a rating of lower than 10, namely lesser horseshoe bat (*Rhinolophus hipposideros*) (n=0) and Nathusius' Pipistrelle (*Pipistrellus nathusii*) (n=2). Common pipistrelle (*Pipistrellus pipistrellus*), has the highest habitat suitability index, with a rating of 38, followed by Soprano pipistrelle (*Pipistrellus pygmaeus*) and Leisler's bat (*Nyctalus leisleri*), both with a rating of 33. For the most part, the habitat suitability index rating increases by approximately 15% for the very southern part of the site.

Table 5: Bat habitat suitability index rating for the general location of the Cloncreen Bog site

Species	Bat Suitability Index	
	Majority of site	Very southern end of site
All bats	21.56	29.22
Common Pipistrelle	38	46
Soprano Pipistrelle	33	43
Leisler's bat	33	40
Brown long-eared bat	27	39
Natterer's bat	23	39
Daubenton's bat	22	30
Whiskered bat	16	25
Nathusius' Pipistrelle	2	2
Lesser Horseshoe bat	0	0

4.1.4 National Biodiversity Data Centre

The on-line mapping resource of the National Biodiversity Data Centre (NBDC)[5], allows users to search almost 2 million records available across 80 datasets. Data analysis tools enable users to refine data base searches by selecting 1km, 2km or 10km grid squares on the interactive map. All species records for the selected grid square, retained at the NBDC, are then available for download in 'Excel' spreadsheet format. The study area, is situated within two OSI 10km grid squares, namely N52 (western and central part of the site) and N62 (eastern end of the site). The results of a search of the area within 10km squares N52 and N62 are outlined in Table 6 below.

Table 6: Records retained at the National Biodiversity Data Centre

Species	Record Retained for Grid Square N52	Record Retained for Grid Square N62
Common pipistrelle	No	Yes
Soprano pipistrelle	No	Yes
Leisler's bat	No	No
Brown long-eared bat	No	Yes

[5] Available at : http://maps.biodiversityireland.ie/#/Map [accessed 21/08/2014]

Species	Record Retained for Grid Square N52	Record Retained for Grid Square N62
Natterer's bat	No	No
Daubenton's bat	No	No
Whiskered bat	No	No
Nathusius' pipistrelle	No	No
Lesser horseshoe bat	No	No
Brandt's bat	No	No

4.1.5 Current Distribution

4.1.5.1 National Parks and Wildlife Service Mapping

Current species distribution mapping is included in the Department of the Environment, Heritage and Local Government's most recently published report to the European Commission on the Conservation Status in Ireland of Habitats and Species listed in the European Council Directive on the Conservation of Habitats, Flora and Fauna 92/43/EEC (NPWS 2013). The following tables (Table 7 and Table 8), show the current known, or estimated distribution for bat species, within the 10km OSI grid squares that include the Cloncreen Bog site.

Table 7: Species distribution for OSI Grid Square N52, records from NPWS 2013.

Species	Current Distribution[6] includes Grid Square N52	Current Range[7] includes Grid Square 52[8]
Common pipistrelle	No	Yes
Soprano pipistrelle[9]	Yes	Yes
Leisler's bat	No	Yes
Brown long eared bat	No	Yes
Natterer's bat	No	Yes
Daubenton's bat	No	Yes
Whiskered bat	No	No
Nathusius' pipistrelle	No	No
Lesser horseshoe bat	No	No

Table 8: Species distribution for OSI Grid Square N62, records from NPWS 2013.

Species	Current Distribution[10] includes Grid Square N62	Current Range[11] includes Grid Square 62[12]
Common pipistrelle	Yes	Yes
Soprano pipistrelle[13]	Yes	Yes
Leisler's bat	No	Yes
Brown long eared bat	Yes	Yes
Natterer's bat	No	Yes

[6] Based on the known or best estimate of distribution (NPWS, 2013)

[7] A mapping convention whereby the smallest polygon size containing all grid squares where distribution is indicated is mapped (NPWS, 2013).

[8] The proposal site considered in this document is located within this 10km grid square.

[9] Based on the known or best estimate of distribution (NPWS, 2008)

[10] Based on the known or best estimate of distribution (NPWS, 2013)

[11] A mapping convention whereby the smallest polygon size containing all grid squares where distribution is indicated is mapped (NPWS, 2013).

[12] The proposal site considered in this document is located within this 10km grid squares.

[13] Based on the known or best estimate of distribution (NPWS, 2008)

Species	Current Distribution[10] includes Grid Square N62	Current Range[11] includes Grid Square 62[12]
Daubenton's bat	Yes	Yes
Whiskered bat	No	No
Nathusius' pipistrelle	No	No
Lesser horseshoe bat	No	No

4.1.5.2 Summary

Table 9 below summarises the data from Tables 6, 7, and 8 above, which relates to the 10km^2 area covered by OSI 10km grid squares N52, and N62, which includes the study area. The species are colour coded, on the basis of the extent to which overlap occurs between the records retained by the National Parks and Wildlife Service and the National Biodiversity Data Centre. The following assessment is an indicator only, of the potential for presence, or absence of species based solely on the information obtained during the desk study.

Table 9: Potential for presence within Grid squares S14

Species	Record Retained for Grid Square N52 & N62	Current Distribution[14] includes Grid Square N52 & N62	
Lesser horseshoe bat	No	No	Less likely
Brandt's bat	No	No	
Whiskered bat	No	No	
Nathusius' pipistrelle	No	No	
Nattere's bat	No	Yes	More likely
Leisler's bat	No	Yes	
Daubenton's bat	Yes	Yes	
Brown long-eared bat	Yes	Yes	
Soprano pipistrelle	Yes	Yes	
Common pipistrelle	Yes	Yes	
No positive indicator across the headings (Extremely unlikely to be present) One positive indicator across the headings(Potential to be present) Two positive indicators across the headings (Potentially/possibly present)			

Table 3 above highlights the different habitats associated with foraging and roosting bat. Table 4 above indicates that bat species show consistent patterns of associations with different habitat types. In general, bog, marsh and heath have negative associations, while woodland (broadleaf, and mixed species moreover), and riparian habitats, have positive associations with bat occurrence. In general, bats show an avoidance of anthropogenically modified areas, such as areas of agriculture and conifer forestry (Lundy *et al*, 2011). The habitat quality at a site, like the density of resources may significantly influence the density of bats using a particular area. The complex nature of the bat species habitat requirements, and the occurrence of bats are dependent on a combination of broad landscape patterns, local roosting conditions and the character of a roost. Studies have shown that bat activities correlate with a high insect abundance, but in addition, depend on the spatial

[14] Based on the known or best estimate of distribution (NPWS, 2008)

heterogeneity of the available habitat (Kusch *et al*, 2004). Open cutover bog, is by far the dominant habitat type at the Cloncreen Bog site, with vegetated fringes, and some linear vegetated strips, separating the bog fields. In general open cutover bog does not provide optimum habitat for foraging and roosting bats. However, areas outside this habitat at a particular site should not be discounted as unimportant. The occurrence of bat species in an area/greater area may be reliant on small fragments of favourable habitats, which are vulnerable to any environmental change. Therefore individual sites/locations within greater areas should be assessed for bats, on their own merit.

4.1.6 Previous surveys

A preliminary bat survey was carried out in the Ballydermot/Timahoe Bog group and the Derrygreenagh Bog group in 2013. The Cloncreen Bog site is included within the Derrygreenagh Bog group.

Bat activity surveys

During bat activity surveys (2013) at the study area (transect surveys), eight bat passes were recorded throughout the survey period, with three species present. These were, Common pipistrelle (n=5), whiskered/Brandt's (*Myotis mystacinus/brandtii*) (n=7), Leisler's bat (n=1). All bat records were from the linear features of well developed hedgerows at the north western side of the Cloncreen Bog, as defined in INIS Baseline Report, 2013. Only a single Common pipistrelle was recorded commuting, all other records were noted as foraging.

Passive surveys

The results of the remote surveys carried out in 2013, at the two bog groups (Ballydermot/Timahoe Bog group and Derrygreenagh Bog group), showed that bats recorded at the site preferred the 'Other habitats', including hedgerow and scrub, rather than the dominant open bog habitats throughout the overall study area.

Bat roost surveys

During preliminary bat surveys carried out in 2013, no significant bat roost sites were identified, within the Cloncreen Bog site.

4.1.7 Designated sites

4.1.7.1 Sites of International Importance

Special Areas of Conservation

Candidate Special Areas of Conservation are protected under the European Union (EU) 'Habitats Directive' (92/43/EEC), as implemented in Ireland by the European Communities (Natural Habitats) Regulations, 1997. There are three SACs within 15km of the Cloncreen Bog site. See Table 10 below.

Special Protection Areas

Special Protection Areas were initially designated under Directive 79/409/EEC, The Directive on the Conservation of Wild Birds ('The Birds Directive'), and are now protected as Natura 2000 Sites under the EU 'Habitats Directive'. There are no SPAs within 15km of the Cloncreen Bog site.

4.1.7.2 Sites of National Importance

Sites of National Importance in the Republic of Ireland are termed, Natural Heritage Areas (NHA) and proposed Natural Heritage Areas (pNHA). While the Wildlife (Amendment) Act 2000 has been passed into law, pNHAs will not have legal protection until the consultative process with landowners has

been completed; this process is currently ongoing. Three NHA sites and four pNHA sites are situated within 15 km of the Cloncreen Bog site boundary. Two of the four pNHA sites are co-located with a similarly named SAC site. See Table 10 below. The qualifying interests of these designated sites can be viewed in Appendix 1.

Table 10: Designated sites within 15km of Cloncreen Bog site

Site Name	Site Code	Proximity to the study at its closest point
Grand Canal pNHA	002104	Approximately 3.45km to the north
The Long Derries, Edenderry SAC and pNHA	000925	Approximately 4.9km to the northeast
Black Castle Bog NHA	000570	Approximately 6.3km to the north
Daingean Bog NHA	002033	Approximately 10km to the west
Carbury Bog NHA	001388	Approximately 10.90km to the northeast
Raheen Lough pNHA	000917[15]	Approximately 11.55km to the southwest
River Barrow and River Nore SAC	002162	Approximately 12.5km to the south
Raheenmore Bog SAC and pNHA	000582	Approximately 12.5km to the northwest

Summary of designated sites

The conservation objectives for the nearby designated sites include peatlands, bird species', including wildfowl and waders, aquatic and semi aquatic habitats and species. Bat species are not included in the conservation objectives of any of the designated site listed in Table 10 above.

4.2 RESULTS OF FIELD SURVEYS

4.2.1 Activity surveys (Transects)

Walked and driven bat transects were carried out at the study area. Bat transects conducted at the site can be viewed in Figure 1 above, Section 3.2. Bat transects were carried out in three phases. Phase one was conducted on the night of the 24th of June 2015. Phase 2 was carried out on the 19th of August 2015. And phase 3 was carried out on the 10th of September, 2015. Due to low temperatures during late night/early morning, no bat transect surveys, were carried out pre dawn. Summary results of the bat transects carried out at the study area are shown in table 11 below.

[15] A Review of Natural Heritage Area Protection in Ireland (An Taisce)

Table 11: Cloncreen bat activity survey results

Cloncreen Bat Transect Survey							
Date	Time	Temp	Rain	Cloud	wind	Bat activity (passes)	Other comments
Phase 1							
24/06/2015	1.48 - 2.40	12°C	No	5/8	No/calm	Commom pipistrelle: 11 Soprano pipistrelle: 2 Leisler's bat: 7 Natteres bat: 1	Some moth activity. Bright night.
Phase 2							
19/08/2015	12.41 - 2.29	13°C - 15°C	No	2/8	No/Calm	Soprano pipistrelle: 12 Common pipistrelle: 5	Good moth activity. Dark night
Phase 3							
10/09/2015	21.45 - 23.45	14°C	No	4/8	Slight E/SE breeze (<F1)	Soprano pipistrelle: 13 Commom pipistrelle: 4	Good moth activity noted

In total 8 transects were carried out, with a combined length of approximately 11.40km. Transects followed Bord na Móna access tracks, railway tracks, open cutover bog, and public road. The surveys were designed to include the spread of habitats throughout the site, with open cutover bog being by far, the dominant habitat type at the Cloncreen Bog site. Habitats surveyed included cutover bog, drainage ditches, and vegetated linear strips between open cutover bog, scrub, conifer plantation, treeline/hedgerow, and woodland edges. Each survey phase had similar results. Phase 1, had a total of 21 bat passes. Phases 2 had 3 both had a total of 17 bat passes. Species recorded throughout the overall survey period included, Soprano pipistrelle (total bat passes: n=27) (49%), Common pipistrelle (total bat passes: n=20) (36%), Leisler' bat (total bat passes: n=7) (13%), and Natterers bat (n=1) (2%).

During phase 1 transects, there were single passes of commuting bats, for the most part along the broken linear vegetated strips adjacent to the railway tracks towards the centre of the site (see Appendix 4 Figure 4-1).

During transects carried out in August, 2015 (Phase 2), bat activity was confined to foraging and commuting pipistrelle species. For the most part, the bat activity was recorded along the well developed hedgerow adjacent to the local public road, outside of the site, to the northwest of the Cloncreen Bog (see Appendix 4 Figure 4-2).

During phase 3 transects, bat activity was again mostly confined to the north western part of the study area, with bat species, mainly commuting and foraging, along the well developed roadside hedgerows. A single bat pass of Soprano pipistrelle was made towards the northern part of the Cloncreen Bog, commuting over willow scrub, in-front of woodland, with open cutover bog extending to the south (see Appendix 4, Figure 4-3).

Figure 2, below shows the breakdown of the percentage of bat activity recorded during bat transects at the Cloncreen study area.

Figure 3, below shows the percentage breakdown of bat activity over the main habitats at the Cloncreen study area during bat activity surveys.

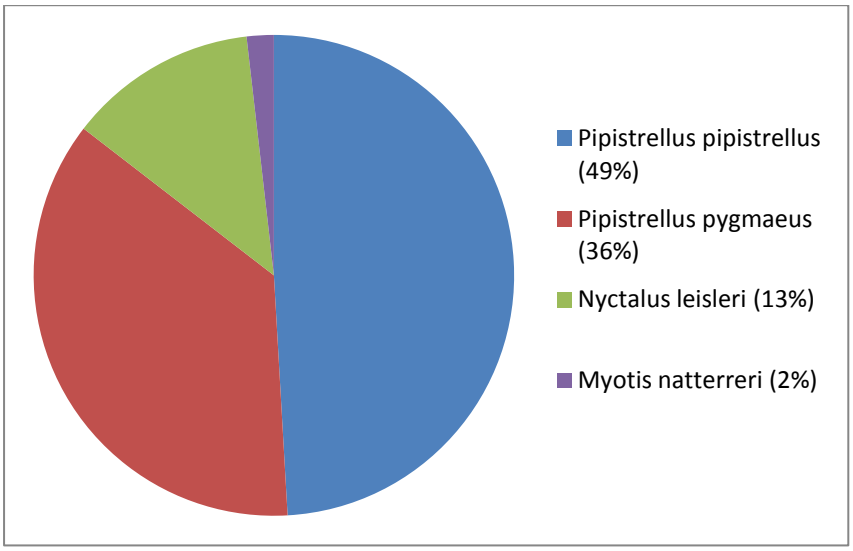


Figure 2: Percentage of bat activity (by species), recorded during activity surveys at study area

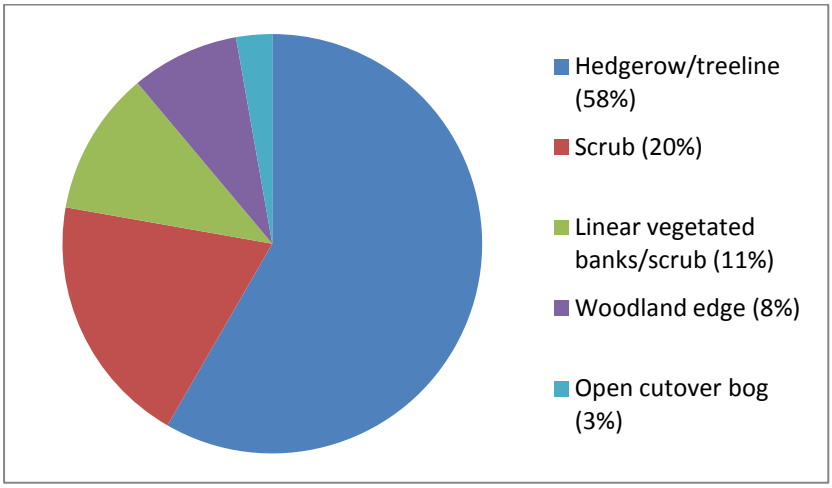


Figure 3: Habitat usage of bat activity, recorded during bat activity surveys at study area

4.2.2 Passive bat survey (Unmanned automated bat survey)

An unmanned automated bat survey was completed at three locations. Site 1 was completed in July, 2015, with sites 2 and 3 completed in early September, 2015. The following tables (Table 12, Table 13 and Table14), summarises the results of these surveys, they include the locations where the SMZC bat detectors were placed, and the durations of the deployment at each location. Figure 1, Section 3.2.7 above, shows the locations of surveys. Bat activity data during passive bat surveys can be viewed in Appendix 3, Table 3-1.

Table 12: Passive bat survey at Site No.1

Cloncreen Bog Passive Bat Survey (Site 1)				
SMZC Grid Ref.	**Dates surveyed**	**Habitats**	**Summary of results (Bat passes)**	
N59055, 24997	21st of July 2015 - 26th of July 2015	Cutover bog, willow dominated scrub. Woodland to the east towards the location of the ash repository. Grassland extending to the south.	Soprano pipistrelle	16
			Common pipistrelle	37
			Pipistrelle species	2
			Leisler's bat	16
			Natteres bat	5
			MYsp	9
Total bat passes				**87**

Bat acoustic survey session dates and weather				
21/07/2015	22/07/2015	23/07/2015	24/07/2015	25/07/2015
12°C	11°C	12°C	8°C	10°C

The approximate time of sunset over the survey nights was 21.40 and sunrise was approximately 05.30 hrs. The weather during the survey period was broadly typical for the location[16] and did not pose a significant constraint to the survey. Warm, calm weather is good for flying invertebrates, and therefore good for bats foraging. No significant rainfall/wind speed was recorded. Temperatures dropped to 8°C on the night of the 24th of July, however this temperature is still within optimal survey conditions for bats.

Table 13: Passive bat survey Site No.2

Cloncreen Bog Passive Bat Survey (Site 2)				
SMZC Grid Ref.	**Dates surveyed**	**Habitats**	**Summary of results (Bat passes)**	
N58345, 26585	2nd of Sept 2015 - 7th of Sept 2015	Linear strip of scrub on peat bank between cutover bog fields.	Soprano pipistrelle	44
			Common pipistrelle	33
			Leisler's bat	5
			Myotis sp.	2
			No ID	2
Total bat passes				**87**

Bat acoustic passive survey session conditions				
02/09/2015	03/09/2015	04/09/2015	05/09/2015	06/09/2015
7°C	9°C	10°C	9°C	8°C

The approximate time of sunset over the survey nights was 20.10hrs and sunrise for the location was approximately 06.45hrs. The historic low temperature for the general location of Daingean for the survey period is 9°C. On the night of the 4th/5th, some rainfall and wind speeds of approximately, Beaufort scale 5 were recorded in the greater area. For the remainder of the survey nights, no significant rainfall or wind speeds were recorded. Therefore, for the most part, the weather during the survey period was broadly typical for the location[17] and did not pose a significant constraint to survey.

[16] http://www.accuweather.com/en/ie/daingean/210701/july-weather/210701?monyr=7/1/2015&view=table
[17] http://www.accuweather.com/en/ie/daingean/210701/july-weather/210701?monyr=7/1/2015&view=table

Table 14: Passive bat survey Site No.3

Cloncreen Bog Passive Bat Survey (Site 3)				
SMZC Grid Ref.	**Dates surveyed**	**Habitats**	**Summary of results (Bat passes)**	
N58960, 27694	2nd of Sept 2015 - 7th of Sept 2015	Edge of willow dominated scrub, and cutover bog. Semi natural woodland further to north of scrub.	Soprano pipistrelle	12
			Common pipistrelle	242
			Leisler's bat	19
			Natteres bat	17
			MYsp	10
Total bat passes				**300**
Bat acoustic survey session dates and weather				
02/09/2015	03/09/2015	04/09/2015	05/09/2015	06/09/2015
7°C	9°C	10°C	9°C	8°C
The approximate time of sunset over the survey nights was 20.12 hrs and sunrise for the location was approximately 06.43 hrs. The historic low temperature for the general location of Daingean for the survey period is 9°C. On the night of the 4th/5th of some rainfall, and wind speeds of approximately Beaufort scale 5, were recorded in the greater area. For the remainder of the survey nights, no significant rainfall, or wind speeds were recorded. Therefore, for the most part the weather during the survey period was broadly typical for the location[18], and did not pose a significant constraint to survey.				

The SMZC bat detectors at the Cloncreen Bog site recorded the following species: Soprano pipistrelle, Common pipistrelle, and Leisler's bat, Natterer's bats, and Myotis species. Over the nights of passive monitoring survey, 3 grid reference locations were monitored. In relation to data collection at each of the sites, bat activity was recorded at all stations, and ranged from 83 and 86 bat passes at site 1 and site 2 respectively, to 300 bat passes at Site 3. Five nights of passive survey were carried out at each location, which resulted in a total of 469 bat passes. Common pipistrelle was the most common recorded species, with 312 passes (67%), followed by Soprano pipistrelle, with 71 bat passes (15%). Lesisler's bat had 39 bat passes (8.3%) and Natterer's bat had 22 passes (4.6%), while 21 passes were identified to Myotis species (4.3%).

The following figures (Figure 4 and Figure 5) include a summary graph, to further illustrate the results of the passive bat surveys and bat activity behaviour. The results are discussed without any visual observations during the night's surveys. These are extrapolated opinions, referring to likely behaviour, in relation to commuting/foraging bats.

[18] http://www.accuweather.com/en/ie/daingean/210701/july-weather/210701?monyr=7/1/2015&view=table

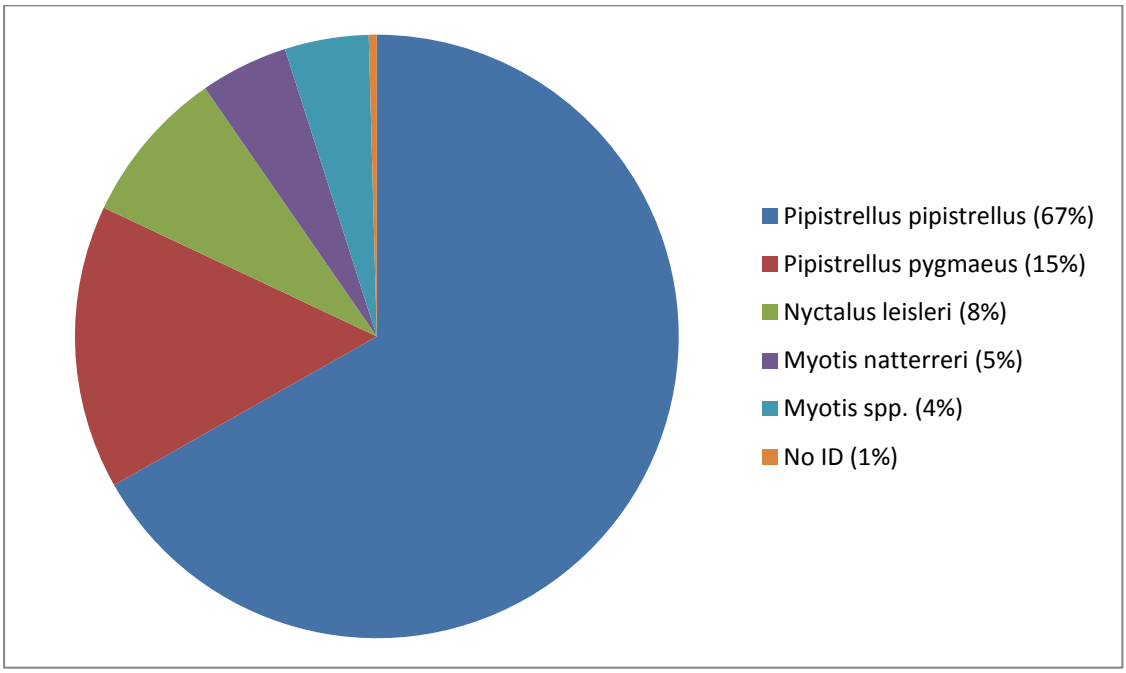


Figure 4: Species percentage of bat activity recorded at all monitoring sites during passive surveys at Cloncreen Bog site

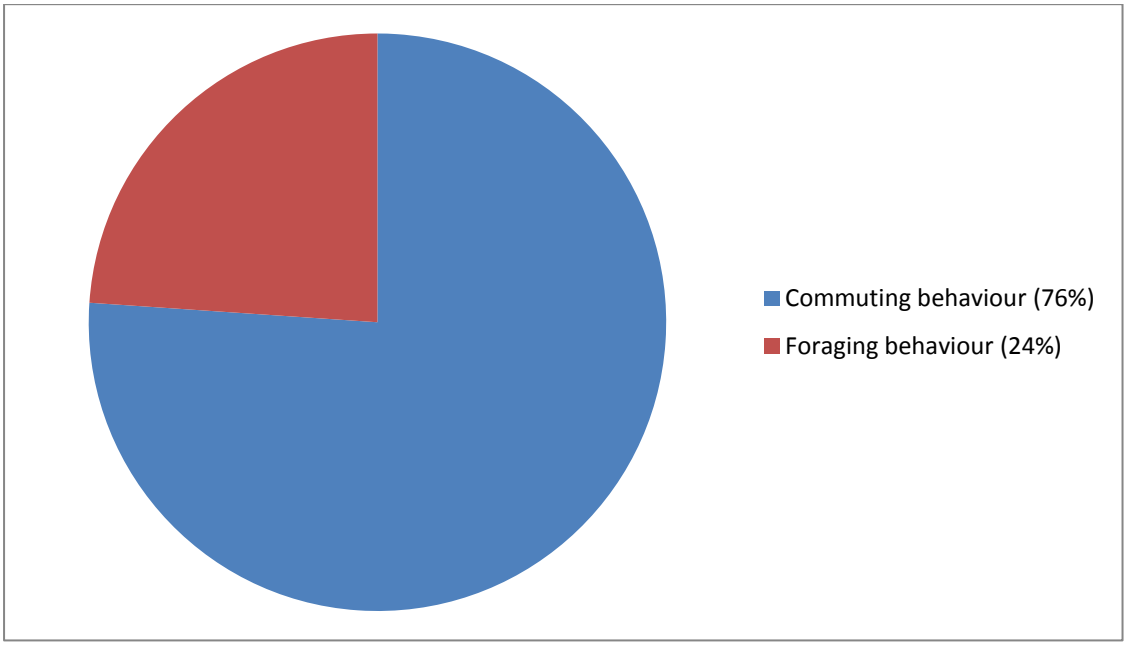


Figure 5: Percentage of bat behaviour recorded during passive bat surveys at the Cloncreen Bog site

Site 1

Site 1 is situated towards the southern end of the Cloncreen Bog site, approximately 1.4km to the southeast of the Cloncreen mat mast. The bat detector unit was deployed, just to the west of willow (*Salix* spp.) dominated scrub, with open cutover bog extending to the north. To the east, bare ground and sections of recolonising bare ground occurs in the Ash Repository, with sections of birch (*Betula* sp.), and conifer woodland. Hedgerow and broken stretches of treeline bound the access track allowing access to the ash repository/south eastern end of the bog site.

SMZC bat detector at Site 1, looking towards the location of deployment

During the survey period at site 1, sunset was approximately 21.40 hrs, while sunrise was approximately 05:30 hrs.

Bat activity was recorded during all of the five nights of survey. Overall bat activity was relatively low during the five nights of survey at Site 1, with a total of 87 bat passes recorded. For the most part bat activity began a little over one hour after sunset (commuting bats), with some scattered clusters of calls (foraging and commuting bats), throughout the middle of the survey nights. The latest bat pass recorded at this site was at 04.55 hrs on the 23rd of July, 2015. This was a single pass of a commuting Leisler's bat. For the remaining survey nights, bat activity ceased approximately one hour prior to sunrise (see Appendix 3, Table 3-1 for bat activity data during passive bat surveys at the site). Species recorded included Common pipistrelle (n=37), Soprano pipistrelle (n=16), Leislers' bat (n=5), Natterers bat (n=4) and Myotis species (n=10).

Site 2

Site 2 is situated towards the centre of the Cloncreen Bog, approximately 50m to the north of the Cloncreen Met Mast, just to the south of the Bord na Móna railway line. The bat detector unit was deployed, just to the east, of an end point of a linear vegetated strip, best described as recolonising bare ground, going on to scrub. This location would be sometimes used by machinery to commute, from east to west through the centre of the site. The vegetated strip separates open cutover bog fields. Dominant species included grey willow (*Salix cinerea*), birch saplings (*Betula* sp.), bramble (*Rubus fruticosus*), purple Moor-grass (*Molinia caerulea*), willow herb (*Epilobium* spp.), and horsetail (*Equisetum* sp.).

SMZC bat detector at Site 2, looking northeast.	SMZC bat detector at Site 2, looking west

During the survey period sunset was approximately 20:10 hrs, while sunrise was approximately 06:45 hrs.

Overall bat activity was relatively low during the five nights of survey at Site 2, with a total of 83 bat passes recorded. Bat activity was recorded during all of the five nights of survey. Only one bat pass was recorded on the night of the 4th/5th of September, 2015. This is likely due to poor weather conditions on this particular night, and Site 2 is situated in an open area, prone to the elements. For the most part, bat activity began approximately one hour after sunset, with little, to no bat activity between 00.00 hrs and 05.00 hours for nights 1, 2, and 4. For night 5 bat activity began at 20.48 hrs and continued through the night, with the last bat pass recorded at 06.20hrs (see Appendix 3, Table 3-1, for bat activity data during passive bat surveys at the site). Species recorded included Common pipistrelle (n=33), Soprano pipistrelle (n=44), Leislers' bat (n=5), a species of Myotis (n=2), and 2 bat passes which were not identified.

Site 3

Site 3 is situated towards the north centre part of the Cloncreen Bog site, approximately 1km to the northeast of the Bord na Mona Tea House. The bat detector unit was deployed, just in-front (to the south of) a linear strip of willow dominated scrub, with cut over bog extending to the south. The scrub is beginning to form semi natural woodland further to the north. Dominant species included grey willow, juvenile birch, Soft rush (*Juncus effuses*) and purple Moor-grass.

SMZC bat detector at Site 3, looking northwest.	SMZC bat detector at Site 3, looking west

The passive monitoring at Site 3 was carried out during the same time as Site 2. During the survey period sunset was approximately 20:12 hrs, while sunrise was approximately 06:43 hrs.

Bat activity was recorded during all of the five nights of survey, with a total of 300 bat passes recorded. During any of the survey nights, there was no bat activity until approximately 30 minutes after sunset. Where bat activity occurred late night night/early morning, it ceased approximately half an hour before sunrise. Night 2, and night 5 had the most bat activity, with 88 passes and 182 passes respectively. Again, night 3 had the least bat activity recorded, likely due to poor weather conditions (see Appendix 3, Table 3-1, for bat activity data during passive bat surveys at the site). Species recorded included Common pipistrelle (n=241), Soprano pipistrelle (n=13), Leislers' bat (n=19), Natterer's bat (n=17) and Myotis species (n=10).

Summary

The level of bat activity recorded is relatively low, particularly given that the survey effort was conducted nightly, from half an hour before sunset, to half an hour after sunrise, over five consecutive nights, during which time weather conditions were favourable far bat activity.

Overall, Common pipistrelle bats were the most active bat species during the passive bat surveys, becoming active, for the most part approximately one hour after sunset. They became more active as the nights progressed, with activity ceasing, approximately 1 hour before sunrise. Similar to Common pipistrelle, Soprano pipistrelle bats became active approximately one hour after sunset, but were less active through the night, with calls ceasing over one hour and fifteen minutes before sunrise. For the most part, where Leisler's bat activity occurred, it began early in the survey nights, with little, to no activity throughout the night, and became active again towards the end of the survey nights. Natterer's bats became active later during survey nights, showing more foraging behaviour, where they were recorded, with activity of this species ceasing a couple of hours before sunrise.

4.2.3 Automated Bat Surveys from Height

In total 55 nights of automated bat survey was carried out from the top of the Cloncreen Met Mast. Surveys were carried out between the 24th of June and the 18th of August, 2015.

Over the survey period, one bat pass was recorded. On the 2nd of July 2015, at 04.05.58 hrs, a single pass of a Leisler's bat was recorded.

The level of activity recorded was extremely low, particularly given that the survey effort was conducted nightly, over a sustained seven week plus period, during which weather conditions were suitable for commuting/foraging bats.

Microphone and cable attached to bird deterrent	Workers ascend the Cloncreen Met Mast with bat equipment
Microphone fixed to top of met mast	SM3 Bat Detector set up and secured

4.2.4 Roost surveys

As part of the 2015 bat surveys conducted at the Cloncreen Bog site, ecologists surveyed the land area within, and adjacent to the Cloncreen bog site.

Bat roost surveys were carried out at the Cloncreen Bog site, and adjacent lands on the following dates;

16th, 21st and 24th, of June 2015,
7th and 19th of August 2015,
2nd, 4th, 7th, 10th 17th of September 2015, a
16th of November 2015, and the
15th of December 2015

Buildings surveyed included, the Bord na Móna Tea House within the Cloncreen Bog site, the buildings associated with the Wildlife Sanctuary, located adjacent to the northeastern part of the site, the Bord na Móna Workshop/Factory at Ballycon, a dilapidated building in agricultural land, situated to the south of the Cloncreen Bog site, and a disused building, approximately 5.3km to northwest of the Cloncreen Bog site. The Bridges adjacent/in close proximity to the site, were also investigated throughout the survey period.

During site walkovers the wooded areas, and the individual trees at the site were investigated, checking for evidence of bats. The plantations/wooded areas include small sections of semi natural woodland, located towards the northern part of the site and planted areas towards the western and northwester end of the site. The following table (Table 15) summarises the bat roost surveys carried out at the study area.

Bat labelling of bat roosts/potential roosts, identified during previous baseline surveys at the site remain the same, with new bat sites labelled/named with the following asterisk; (A).

Table 15: Summary of surveys carried at potential bat roost sites (NPWS-BnM sensitive information)

Cloncreen Bog Potential Bat Roost Surveys									
BR Site	**Description**	**Distance from Cloncreen Bog site**	**GPS coordinates**	**Dates**	**Roost (Yes/No)**	**Species**	**Species recorded in general area**	**Active during previous surveys**	**Need for further investigation**
1	BnM Workshop/Factory	Approximately 2.8km to the west	N5 2	26/03/2015 07/08/2015 04/09/2015 15/12/2015	Yes	9 bats (Leisler's & Common pipistrelle)	Common pipistrelle Soprano pipistrelle *Myotis* sp.	Yes	**Yes** If any future development would result in potential impacts on this location. Then further assessment would have to be carried out at this site.
2(A)	BnM Tea Centre	Within site	N58224, 26887	16/06/2015 16/11/2015	No	N/A	Leislers bat Common pipistrelle Soprano pipistrelle	N/A	No
3	Single arch masonry bridge	Approximately 5.5km to the northwest	N5 ,3	22/06/2015 10/09/2015 15/12/2015	Yes	1unidentified bat (Likely Daubenton's bat)	Common pipistrelle Soprano pipistrelle Daubenton's bat	Yes	No
4(A)	Buildings associated with nature conservation area	Adjacent to north western end of the site	N58065, 27592	16/06/2015	No	N/A	Leislers bat Common pipistrelle Soprano pipistrelle	N/A	No
5(A)	Dilapidated	Approximately 1km to	N59877, 24273	16/06/2015	No	N/A	Common pipistrelle	N/A	No

Cloncreen Bog Potential Bat Roost Surveys									
BR Site	**Description**	**Distance from Cloncreen Bog site**	**GPS coordinates**	**Dates**	**Roost (Yes/No)**	**Species**	**Species recorded in general area**	**Active during previous surveys**	**Need for further investigation**
	house	the south		16/11/2015					
6(A)	Cloncreen Bridge. Triple arch masonry bridge	Approximately 1.3km to the southeast	N60511, 23992	21/06/2015 16/11/2015	No	N/A	Pipistrelle spp.	N/A	No
7(A)	Kilcumber Bridge Double arch stone bridge	Approximately 1.7km to the southeast	N61061, 26817	21/06/2015 16/11/2015	No	N/A	Pipistrelle spp.	N/A	No
10	Rhode Bridge. Single arch masonry bridge	Approximately 5.3km to the northwest	N53477, 31637	16/06/2015 17/09/2015 15/12/2015	No	N/A	Pipistrelle spp.	No	No
11(B)	Two mature trees	Approximately 280m to the east	N60829, 27723	15/12/2015	No	N/A	Pipistrelle spp. Lesiler's bat *Myotis* spp.	N/A	No
13	Building	Approximately 5.3km to northwest	N5[redacted], 3[redacted]	21/06/2015 17/09/2015 15/12/2015	Yes	8 Common pipistrelle	Common pipistrelle	No	Yes (If any future development would result in potential impacts on this location. Then further assessment would have to be carried out at this site.
15	Double concrete culvert	Approximately 1.2km to the east	N61776, 27899	15/12/2015	No	N/A	N/A	No	No

4.2.4.1 Structures

The Ballycon Workshop/Factory (BR1) is situated approximately 2.8km to the west of the Cloncreen Bog site. On the 4th of September 2015, prior to emergence surveys, bat droppings were observed at the top of the western wall of this factory (see Table 5-1, and Table 5-2 Appendix 5). During bat emergence surveys carried out at this location, nine bats were observed emerging from a void space underneath the sloped corrugated roof, and the top of the northern wall. During this survey, no bats were observed emerging from the other buildings within the site.

Within the Cloncreen Bog site, potential roost habitat available for bat species includes the Bord na Móna Tea House (BR2 (A)) towards the north central part of the site, approximately 500m to the north of the existing met mast. This site was investigated during the summer and winter survey periods (on the 16th of June 2015 and 16th of November 2016) (daytime visual surveys). No evidence of bats was observed during either of these surveys. During bat activity surveys at this location, no bat activity was observed at this location, nor was there bats observed emerging from this structure See Table 5-3, Appendix 5 for summary of survey and photographs of this site.

An old disused stone wall building (BR13) is situated approximately 5.3km to the northwest of the Cloncreen bog site. This is a two storey building and is somewhat dilapidated. The A roof is finished with slate, but some slates are missing from areas, and many voids/slates lifting in the existing roof. Some of the windows and doors have fallen away, with some having been boarded up for security. A great deal of the pointing in the stone work has deteriorated, and voids/crevices occur in the stonework. For health and safety reasons, and access issues to the site, the interior of the building was not investigated. During a bat emergence survey at this location, on the 21st of June 2015, eight Common pipistrelle bats were observed emerging from this structure. When this site was revisited on the 17th of September 2015, five Common pipistrelle bats were observed emerging from this building. On both occasions the bats were observed emerging from an upstairs window located on the eastern gable. During surveys at this location, bats were observed foraging and commuting along the good quality hedgerows that bound the adjacent grassland fields to the south, and the bounding R400 public road to the east of the building. Some mature treeline bounds the adjacent road, and the Grand Canal, situated approximately 40m to the north of the building. No bats were observed emerging from the adjacent Rhode Bridge (BR Site No.10), nor was there evidence of bats during daytime visual searches at this bridge. See Table 5-12, Appendix 5 for summary of survey, and photographs of this site.

A single masonry arch bridge (BR3) (spanning the Grand Canal) occurs approximately 1km downstream of Rhode Bridge (BR 10.). This site is approximately 5.5km to the northwest of the Cloncreen Bog. On the 10th of September, 2015, during the visual search of this structure, prior to the emergence survey, a single bat was observed in a crevice in the stone work, underneath the arch, on the southern side of the Grand Canal. The bat could be observed without the use of an endoscope. The endoscope was not used, as this potentially could have disturbed the bat. The bat could be seen moving within the void space (see Table 5-4, for summary of survey, and photographs of this site). During the emergence survey the bat did not exit the void space, and no other bats were observed emerging from the remaining voids/crevices at this bridge. Bat activity noted in the

general area during the emergence survey at this location included a single pass of a Daubenton's bat, Common pipistrelle, and Soprano pipistrelle. On the 16th of September, 2015, this site was revisited, with the bat still present. During winter roost surveys carried out in November, and December 2015, the bat was not present, or there was no evidence that bats were using the other crevices/void spaces at this structure.

During winter and summer (2014/15) bat roost surveys, there was no evidence that bats were using the remaining bridges adjacent/in close proximity to the site (see Table 15 above).

4.2.4.2 Potential Bat Roosts in Trees

Mature trees offer bat roost sites/resting places for different bat species. This varies between different bat species. Mature trees can provide roosting sites for Leisler's bats all year round. Other species that use trees, mostly during the summer months, include brown long-eared bat, Daubenton's bat, Natterer's bat, and pipistrelle species[19].

Within the Cloncreen bog site, mature trees are not present in large numbers, and where they do occur, they do not provide optimal habitat for roosting bats. One such location is just to the west of the Tea Centre, adjacent to the access area into the bog site (GPS: N58219, 26895). Six lodgepole pine trees (*Pinus contorta*) occur at this location. During surveys it was noted that there was no/little ivy (*Hedera hibernica*) growth present. Some holes occur, where limbs have broken away, however these holes are very open, making them unsuitable as roost sites. Also during surveys, it was noted that the location where these trees occur, is very open, which would make them susceptible to poor weather conditions.

During roost surveys adjacent to the site, it was noted that the number of mature trees potentially available to roosting bats was very limited. The woodland occurring within/adjacent to the site is not mature enough to provide optimum habitat for roosting bats (young trees, with no holes/crevices/peeling away bark). Some mature oak, ash, sycamore trees line the Local Road (L1003 running northwest/southeast), to the west of the site. Trees were investigated along this stretch of road. While some trees had some level of cover of ivy, no evidence of bats was observed. A treeline (GPS: N56585, 26105) running opposite to the local road (L1003), to the west of the site, into the Cloncreen Bog site was surveyed on the 16th of November 2015. Again no evidence of bats was observed. Broken stretches of treeline and some individual trees, line the local road (L5006) to the north east of the Cloncreen Bog site. During surveys at along this stretch of local road, on the 5th of December 2015, a light cover of ivy was noted on some of the trees; however the trees present were not very mature, and had no evidence of bats. A hazel (*Corylus avellana*)-alder (A*lnus glutinos*a)-birch treeline, line a sitka spruce (*Picea sitchensis*) plantation located adjacent to the northeastern boundary of the Cloncreen Bog site. Towards the eastern end of this treeline (GPS point: N60829, 27723), two of the more mature trees could potentially harbour bats (BR11A), with holes and cracks present on the trunk and limbs. A daytime visual survey was carried out on these trees on the 15th of December 2015. This survey, which included investigating the void spaces with an endoscope, did not find any evidence of bats using these trees. See Table 5-11 for summary of survey, and photographs of this site.

[19] http://www.batconservationireland.org/wp-content/uploads/2013/09/BCI_Guidelines_waterways.pdf

Bat roost survey locations, associated with the Cloncreen Bog study area can be viewed in Figure 6 below. Description of bat roost surveys carried out at each site can be viewed in Appendix 5.

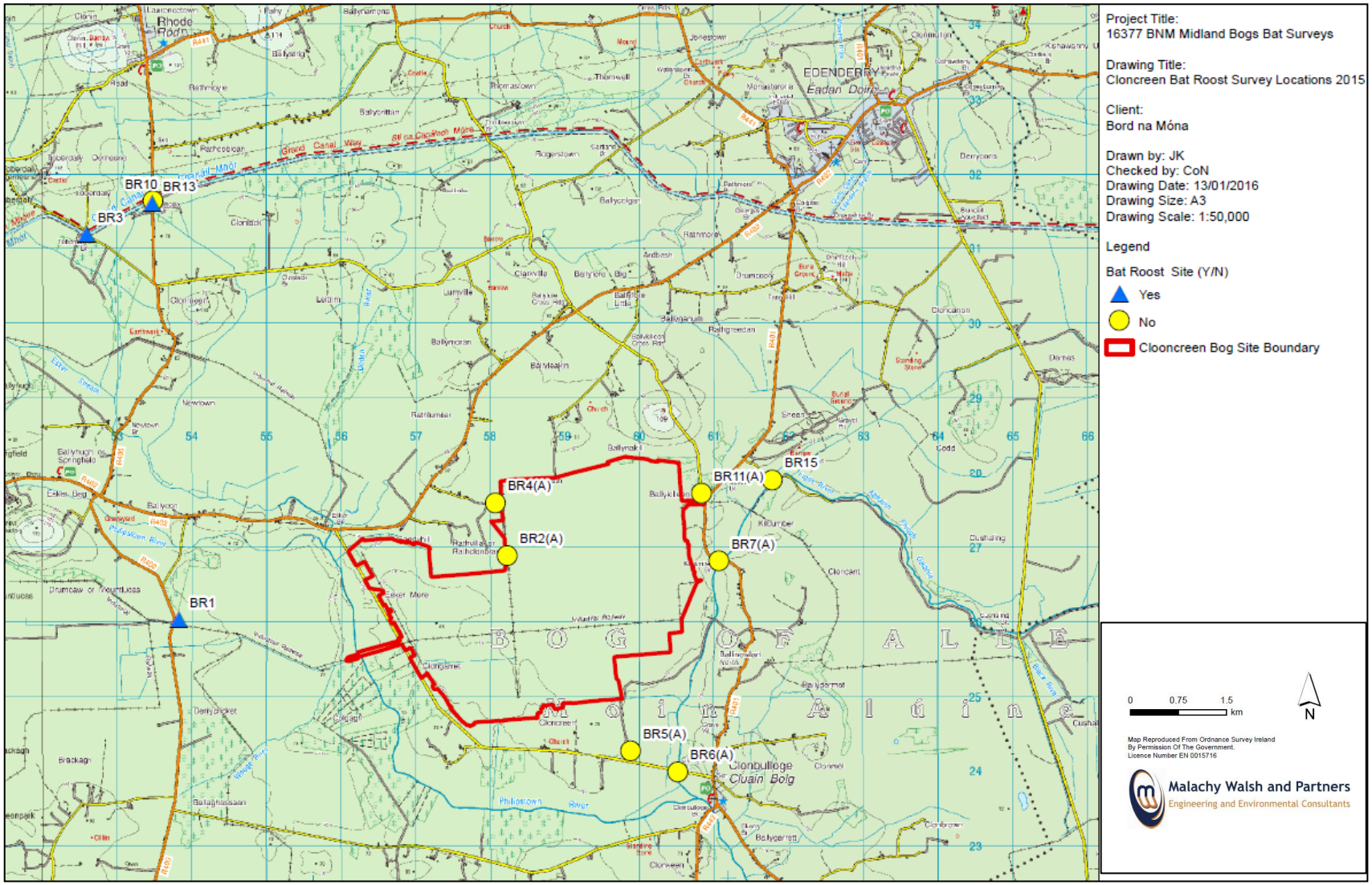


Figure 6: Bat roosts survey locations

4.2.5 Other Species

While carrying out bat surveys at the study area other species of note were recorded. The following table (Table 16) lists, and describes other species observations encountered during bat surveys at the study area;

Table 16: Other species observed during bat surveys at the study area

Other species				
Common name	**Scientific name**	**Date**	**Location**	**Comments**
Bird				
Whooper swan	*Cygnus cygnus*	16/11/2015	N57670, 24807	Adult and juvenile birds foraging and loafing in standing water towards the western end of the bog.
Cormorant	*Phalacrocorax carbo*	2/09/2015	N58111, 27774	Adult bird commuting west to east over northeastern part of site. Landed in pond in Nature Area adjacent to the site. (<10m 40S) (10m-20m 20S)
Mammal				
Pine martin	*Martes martes*	21/07/2015	N58559, 26833	Droppings on bare ground between pond at gravel borrow pit and willow scrub.
		15/12/2015	N52590, 31196	Dropping underneath single arch bridge (BR Site No.3).
Red squirell	*(Sciurus vulgaris)*	19/08/2015	N58192, 22741	An adult observed on road verge and entered woodland. Approximately 2km to the south of the Cloncreen site.
Fish				
Roach	*Rutilus rutilus*	10/09/2015	N52588, 31184	Observed rising in Grand Canal during bat roost survey at Bat Roost Site No.3
Perch	*Perca fluvialtilis*	10/09/2015	N52588, 31184	Observed rising in Grand Canal during bat roost survey at Bat Roost Site No.3
Moth				
Large Emerald	*Geometra papilionaria*	21/07/2015	N56288, 26968	Observed during bat transects towards north western end of bog site (Transect T2)

4.2.6 Discussion

Baseline bat surveys were carried out at the study area to identify the level of bat activity using the Cloncreen Bog site, and how the bat species encountered are using the habitat types present at the study area. The dominant habitat by far, is open cutover bog. Linear strips of vegetation and drainage ditches often separate the bog fields. The vegetated, scrubby fringes of the site are sometimes forming semi-natural wooded areas. Some planted wooded areas, also occur at the perimeter of the site, with hedgerow and treeline bounding the grassland fields, and the public roads outside the site.

Bat transects described in Section 4.2.1 above, were carried out at the site to give a snapshot of the level of bat activity along chosen routes at a particular time, with the survey phases (3 phases)

spread throughout the optimal survey period, and survey nights. The automated monitoring (outlined in Section 4.2.2 and Section 4.2.3 above), allowed for surveys to be carried out over extended periods of time, and results gave a more complete level of bat usage at three locations at ground level, as well as the level of bat activity over the site, at the Cloncreen Met Mast. The combination of these survey methods provides a more detailed picture of the level of bat usage at the site.

The species recorded during bat surveys in 2015 at the Cloncreen Bog site included Common pipistrelle, Soprano pipistrelle, Leisler's bat, Natterers bats and Myotis species. Previous surveys at the Cloncreen Bog site identified Common pipistrelle, Myotis species (whiskered/Brandt's bat) and Leisler's bat (Inis, 2013). During bat emergence surveys, a single pass of a Daubenton's bat was recorded.

The results of the passive monitoring system yielded the highest amount of bat passes, due to the greater survey effort using this system. The passive survey at Site No.3, by far had the most bat activity, with a total of 300 bat passes, over the five nights of survey. The birch and willow scrub to the north of this location provides good commuting and foraging habitat for bat species. It must be noted that while 300 bat passes were recorded, many of the passes occurred within a very short time frame, which would suggest that a good number of the bat passes were from an individual bat, or a small number of bats. The passive monitoring survey at Site No. 1, and Site No. 2 had similar results, with 87 bat passes at both locations throughout the survey periods. Again these units were deployed in vegetated areas, with Site No. 2 more centrally located within the bog site, with open cutover bog extending to the north and to the south of the linear vegetated bank. Prior to the survey at Site No. 1, located towards the southern end of the site, one would expect a higher level of bat activity, with good foraging and commuting habitat at this location. The weather during time of survey was also within the optimal conditions for bats. However, the results show that the bat usage at this location was relatively low during time of survey. The pattern of the bat passes throughout each of the passive monitoring survey nights gives a better understanding of the bat movements through the site, at each of the passive monitoring locations. Single bat passes were more frequently recorded towards the beginning and end of each of the night's surveys, indicating commuting bats. For the most part, bat activity began approximately one hour after sunset, and ceased approximately one hour before sunrise. On a number of occasions there were periods of high levels of bat activity, recorded within a short time frame. This activity and sonogram analysis would indicate foraging bat activity at these locations. During the passive monitoring bat survey, this activity predominantly occurred at site No.3, mainly on night two and night five, with the level of this activity decreasing towards the central (Site No.2), and southern parts of the site (Site No.1). Results of the passive bat survey show, that during time of survey, all three locations were used by foraging and commuting bats, with a higher level of foraging bat activity at Site No.3, towards the northern end of the Cloncreen Bog site.

Leisler's bat is classified as a high risk species in relation to wind turbines, as it is a high flying bat (Carlin and Mitchell-Jones 2009). Leisler's bat travels considerable distances between roosts and foraging areas. Distances of up to 13.4km have been recorded in Ireland (Shiel et al. 1999). This species is also known for fast flying speeds (Dietz et al. 2007). Therefore, the species is less manoeuvrable as a result. Throughout the 55 nights of automated surveys from height, from the top of the met mast, one bat pass of a Leisler's bat was recorded. This would indicate that during the

survey period, there was a minimal level of bat activity, over the Cloncreen site, at the met mast. Passive bat surveys from ground level, which were carried out at the same time as the survey from height (Site No. 1, approximately 1.2km to the southeast of the mast), indicated that there was low level of bat activity at ground level at this location, during that survey period. Overall, Leisler's bat was the third most common species recorded during activity and passive bat surveys at the site. Single bat passes of this species were recorded during passive bat surveys, indicating commuting bats. During activity surveys, this species was observed foraging, in a scrub area, lining a railway track towards the centre of the site. Even though both baseline bat surveys at the site indicated low levels of Leisler's bat activity, including some foraging and commuting behaviour, any proposed development would have to consider any potential impacts on high flying bats.

During bat activity surveys the majority of the bat activity was towards the vegetated fringes of the site, with very little bat activity/to no bat activity, within the open cutover bogland. The majority of the activity encountered during transects at the study area, was outside the site boundary, to the northwest of the site. The well developed hedgerows and some broken treeline adjacent to the local country road (Transect No. 2), provides good foraging and commuting habitat for bat species. No bat activity was encountered along transect No.1, which leads out into open bogland to the west of Transect No.2. While some bat activity was recorded along the vegetated banks, which follow rail lines within the site and separate open cutover bog fields, these were limited to the infrequent single bat passes. Surprisingly, no bat activity was encountered at the pond towards the centre of the site, which has formed as a result of gravel extraction. The perimeter of the pond is surrounded by willow and birch scrub, and provides excellent foraging habitat for bats. Although not directly connected to any linear vegetated feature, peat mounds and vegetated linear banks in close proximity to this area would provide access routes for bats.

Overall bat activity was relatively low within the Cloncreen Bog site, during passive and activity surveys carried out in 2015. These results confirm previous baseline bat survey results at the site. The scrub, hedgerows and woodland edges towards the fringes of the bog site, moreover the hedgerows/treeline bounding the L1003 Local road, just to the northwest of the Cloncreen Bog site (outside the Cloncreen Bog site), exhibited a higher level of activity at times during the survey period, showing their significance for bat species. These habitats provide some good foraging and commuting habitats for bats, and are important for the populations of bats in the greater area. Some low level bat activity was recorded within the vegetated linear strips/banks that occur within the bog site. These vegetated liner strips that traverse through the site, sometimes with adjacent drainage ditches, often begin towards the more vegetated margins/fringes of the site, allowing bats to take advantage, and commute and forage through the site, albeit in low numbers. It must be noted that these linear vegetated banks that traverse through the site, separating open cutover bogland, would be subjected more to the elements, in turn, reducing the quality of the habitat for bats.

Consultations with BCI identified seven bat roost sites within 10km of the Cloncreen Bog site. The closest of these to the Cloncreen Bog site is located at Edenderry, approximately 5.5km to the northwest. Previous bat roost surveys at the site identified one significant roost for Soprano pipistrelle, near Clonsast bog. This roost is located within a private dwelling, less than 500 metres outside Bord na Móna lands at Clonsast Bog, which is situated approximately 2.5km to the southwest of the southern end of the Cloncreen Bog.

There is very little potential for bats to roost within the Cloncreen bog site. The Bord na Mona Tea Centre, within the site would provide optimal temperatures to harbour bats, however the building is well sealed, and no evidence of bats was observed during visual daytime searches at this location. Communications with Bord na Móna personnel, that work at the Cloncreen Bog site, did not highlight any bat activity at this location. During activity surveys at this location, no bats were observed entering, or exiting the structure. During roost surveys at the bridges that are situated immediately adjacent of the Cloncreen Bog site, there was no evidence that bat species were using these structures during the survey period, with one bat observed using a bridge further to the northeast of the site.

Table 2 Section 2.4.3 above, shows the level of significance that may be given to bat roosts that may occur at any particular site. Previous baseline surveys, and the results of surveys included in this report, highlight the potential for buildings in the general area of Cloncreen Bog site, including commercial and private dwellings/farmhouses, to provide roost sites for bats. The bat roost at the Ballycon Factory (BR1) (9 bats during emergence survey), and the disused building (BR13) (8 bats during emergence survey), over 5km to the northwest of the Cloncreen Bog, were active during the summer months, and are potentially maternity roost sites. Bat roost Site No.3, is likely a temporary/commuting roost that is used periodically by a Daubentons bat. The conclusions of both baseline bat surveys and consultations carried out with BCI/NPWS highlight that any proposed development would have to consider any potential impact to buildings, and bridges in the proximity of the study area.

4.3 CONCLUSION

- The following species were identified during secondary baseline bat surveys carried out at the Cloncreen Bog Site; Common pipistrelle, Soprano pipistrelle, Leisler's bat, Natterers bats, Daubenton's bat and Myotis species.
- Baseline bat surveys did not identify any large populations of bats using the Cloncreen Bog site.
- Overall the level of bat activity at the Cloncreen Bog site was low, with the majority of the bat activity occurring towards the vegetated fringes of the site.
- Automated bat surveys from height did not identify a high level of bat activity over the site at the Cloncreen Met Mast.
- The vegetated linear banks that cut through the bog site are used by foraging and commuting bats, albeit in low numbers.
- Bat activity decreased in the open cutover bogland habitat at the site. This altered habitat is by far the dominant habitat type at the study area.
- Within the Cloncreen bog site, there is little potential for roosting bats.
- The trees within the wooded areas that bound the Cloncreen Bog do not provide optimal conditions, to harbour bats.
- Previous bat roost surveys, and roost surveys carried out as part of this report, identified three bat roost sites in buildings, and one bat roost located in a bridge within 5km of the Cloncreen Bog site.
- No bat roosts were identified within the Cloncreen Bog site.

5 REFERENCES

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Appendix 1

Consultations with BCI

Consultation letter (Data Request)

Bat Conservation Ireland Ltd., Ulex House, Drumheel,
Lisduff, Virginia, County Cavan

www.batconservationireland.org info@batconservationireland.org

Bat Conservation Ireland Data Sharing Agreement

Name and address of 3rd party Company/Organisation:

Malachy Walsh and Partners, Reen Point, Blennerville, Tralee, County Kerry.

What they intend to use the data for:

To inform on a proposed windfarm (Cloncreen Windfarm in County Offaly.

Data requested (please list Irish Grid References or Counties/Landscape area):

Location of project; The site is located approximately 7.5 km to the south/southwest of Edenderry and approximately 12km to the east of Daingean in County Offaly. [ITM co-ordinates; X, 659006E, Y, 726534N] [ING co-ordinates; N59068, 26506, (ING full co-ordinates; 259068, 226506)].

A 10km radius search of the co-ordinates above.

The site is situated within OSI 10km grid squares N52 and N62.

Contact name and telephone details:

Caoimhin O'Neill (Tel No. 066-71-23404) (Mobile No. 087-0523312).

This person will take responsibility for

- The appropriate use of data for the stated duration of the project.
- The **return of the bat data collated** on completion of the project for BCIreland database.
- A declaration that such data covered by the agreement is removed from all databases directly or indirectly relating to the project.

The data covered by the Bat Conservation Ireland Data Sharing Agreement will be removed from all databases directly or indirectly related to the project on completion of the project.

Print: Caoimhin O'Neill

Sign:

Date: 21/10/2015

Correspondences with BCI (Data Request)

Morning,
I will get this processed for you asap.
THanks
Tina .

Bat Conservation Ireland Ltd.
Company Registration No. 494343

Ulex House, Drumheel,
Lisduff, Virginia, Co. Cavan

www.batconservationireland.org
info@batconservationireland.org
00353 (0) 86 4049468

Subject: Data request

Hi Tina,

We are doing the second year of baseline bat surveys for Bord na Mona's Ballydermot - Derrygreenagh Bogs. I am contacting you in order to request any records/bat roosts Bat Conservation Ireland may have for the area surrounding (10km radius) one particular site (Cloncreen bog).

Attached, please find the signed data request form.

Billing:
Can you invoice for the fees as follows:
under project number 16377

Our Office Administrator will raise Purchase Orders at this end so that payment can be made.

Our billing address :
Malachy Walsh and Partners, of Reen Point, Blennerville, Tralee, County Kerry.

Best regards,
Caoimhin O'Neill
Ecologist

Appendix 2

Qualifying Interests of nearby designated sites

Site Name (Site Code)	Qualifying Interests	Proximity to the study at its closest point
Grand Canal pNHA (002104)	• Bog/ calcareous grassland/ reed/ • scrub/woodland/diversity of spps • Hedgerow/ calcareous grassland/ • reed fringe/ open water/ • scrub/woodland	Approximately 3.45km to the north
The Long Derries, Edenderry SAC and pNHA (000925)	• Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210]	Approximately 4.9km to the northeast
Black Castle Bog NHA (000570)	• Peatlands [4]	Approximately 6.3km to the north
Daingean Bog NHA (002033)	• Peatlands [4]	Approximately 10km to the west
Carbury Bog NHA (001388)	• Peatlands [4]	Approximately 10.90km to the northeast
Raheen Lough pNHA (000917)[20]	• Lake/ wildfowl/ • waders/typical marshland • veg/scrub/ woodland/ • Warblers/ birds	Approximately 11.55km to the southwest
River Barrow and River Nore SAC (002162)	• Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • *Salicornia* and other annuals colonising mud and sand [1310] • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] • Mediterranean salt meadows (*Juncetalia maritimi*) [1410] • Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] • European dry heaths [4030] • Hydrophilous tall herb fringe communities of plains and of	Approximately 12.5km to the south

[20] A Review of Natural Heritage Area Protection in Ireland (An Taisce)

Site Name (Site Code)	Qualifying Interests	Proximity to the study at its closest point
	the montane to alpine levels [6430] • Petrifying springs with tufa formation (*Cratoneurion*) [7220] • Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] • Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (A*lno-Padion, Alnion incanae, Salicion albae*) [91E0] • *Vertigo moulinsiana* (Desmoulin's Whorl Snail) [1016] • *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] • *Austropotamobius pallipes* (White-clawed Crayfish) [1092] • *Petromyzon marinus* (Sea Lamprey) [1095] • *Lampetra planeri* (Brook Lamprey) [1096] • *Lampetra fluviatilis* (River Lamprey) [1099] • *Alosa fallax fallax* (Twaite Shad) [1103] • *Salmo salar* (Salmon) [1106] • *Lutra lutra (*Otter) [1355] • *Trichomanes speciosum* (Killarney Fern) [1421] • *Margaritifera durrovensis* (Nore Pearl Mussel) [1990]	
Raheenmore Bog SAC and pNHA (000582)	• Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the *Rhynchosporion* [7150]	Approximately 12.5km to the northwest

Appendix 3

Bat activity data during passive bat surveys

Table 3-1: Bat activity during passive bat survey

Site 1		
Date	Time	Bat activity
Night 1		
21/07/2015	22.47.38	NYLE
21/07/2015	22.53.34	PIPI
21/07/2015	22.53.45	PIPI
21/07/2015	23.21.46	PIPI
21/07/2015	23.26.55	MYsp
21/07/2015	23.27.03	MYsp
21/07/2015	23.27.24	PIPI
21/07/2015	23.43.10	PIPY
21/07/2015	23.49.34	MYNA
22/07/2015	00.13.37	PIPI
22/07/2015	03.41.57	PIPY
Night 2		
22/07/2015	22.44.27	NYLE
22/07/2015	22.54.27	PIPI
22/07/2015	23.16.56	PIPI
23/07/2015	02.20.53	MYNA
23/07/2015	03.16.16	NYLE
23/07/2015	04.22.34	PIPY
23/07/2015	04.22.49	PIPY
23/07/2015	04.55.41	NYLE
Night 3		
23/07/2015	22.39.36	PIPI
23/07/2015	22.44.06	NYLE
23/07/2015	22.44.21	NYLE
23/07/2015	22.45.24	PIPI
23/07/2015	22.46.42	NYLE
23/07/2015	22.57.57	PIPI
23/07/2015	22.59.30	NYLE
23/07/2015	23.02.45	PIPI
23/07/2015	23.03.02	NYLE
23/07/2015	23.03.51	PIPI
23/07/2015	23.04.37	PIPI
23/07/2015	23.07.17	PIPI
23/07/2015	23.10.54	PIPY
23/07/2015	23.12.48	PIPI
23/07/2015	23.18.09	PIPY
23/07/2015	23.27.12	PIPI
23/07/2015	23.27.34	PIPI

Site 1		
23/07/2015	23.33.04	PIPI
23/07/2015	23.36.43	PIPY
23/07/2015	23.45.29	PIPY
23/07/2015	23.49.53	MYsp
23/07/2015	23.54.06	MYsp
23/07/2015	23.54.22	MYsp
23/07/2015	23.59.51	PIPY
24/07/2015	01.03.22	NYLE
24/07/2015	01.36.53	MYsp
24/07/2015	02.23.39	MYsp
24/07/2015	02.37.47	PIPI
24/07/2015	03.08.57	PIPI
24/07/2015	03.10.47	PIPI
24/07/2015	03.10.58	PIPI
24/07/2015	03.32.23	NYLE
24/07/2015	03.35.33	PIPI
24/07/2015	03.43.03	PIPI
24/07/2015	03.51.15	PIPI
24/07/2015	03.51.23	PIPI
24/07/2015	03.55.27	PIPY
24/07/2015	03.55.41	PIPY
24/07/2015	03.57.53	PIPY
24/07/2015	03.58.56	PIPY
24/07/2015	04.30.17	PIPI
24/07/2015	04.30.39	PIPI
24/07/2015	04.33.41	PIPI
24/07/2015	04.33.49	PIPI
24/07/2015	04.34.10	PIPI
Night 4		
24/07/2015	22.33.55	PIsp
24/07/2015	22.35.36	PIsp
24/07/2015	22.40.02	PIPI
24/07/2015	22.51.51	PIPI
24/07/2015	23.56.30	MYsp
25/07/2015	00.19.19	PIPY
25/07/2015	00.26.23	MYsp (MYNA)
25/07/2015	00.59.36	PIPI
25/07/2015	00.59.49	PIPI
25/07/2015	01.25.45	NYLE
25/07/2015	01.39.13	PIPY
Night 5		
25/07/2015	22.26.00	PIPI

Site 1		
25/07/2015	22.44.33	NYLE
25/07/2015	22.47.13	NYLE
26/07/2015	00.14.19	PIPY
26/07/2015	00.51.45	PIPI
26/07/2015	01.02.59	NYLE
26/07/2015	01.19.51	Mysp.
26/07/2015	03.01.10	MYNA
26/07/2015	03.01.25	MYNA

Site 2		
Date	Time	Bat activity
Night 1		
02/09/2015	20.56.03	PIPI
02/09/2015	20.56.18	PIPI
02/09/2015	21.58.11	PIPI
02/09/2015	22.21.00	PIPI
03/09/2015	05.11.03	PIPI
Night 2		
03/09/2015	21.37.14	PIPI
03/09/2015	22.15.28	MYsp
03/09/2015	23.25.13	PIPI
04/09/2015	00.08.45	MYsp
00.10.51	00.10.51	MYsp
04/09/2015	04.52.53	PIPY
04/09/2015	04.53.24	PIPY
04/09/2015	04.53.34	PIPY
04/09/2015	04.53.50	PIPY
04/09/2015	04.57.43	PIPY
04/09/2015	04.57.58	PIPY
04/09/2015	04.59.45	PIPI
04/09/2015	04.59.58	PIPI
04/09/2015	05.11.39	PIPI
04/09/2015	05.19.19	PIPY
Night 3		
04/09/2015	21.47.12	PIPI
Night 4		
05/09/2015	21.00.06	PIPI
05/09/2015	21.01.47	PIPI
05/09/2015	21.55.08	NYLE
05/09/2015	21.58.32	PIPI
05/09/2015	22.04.03	PIPI

Site 2		
05/09/2015	23.44.35	NYLE
05/09/2015	23.44.42	NYLE
06/09/2015	00.03.34	PIPI
06/09/2015	05.25.17	NoID
Night 5		
06/09/2015	20.48.28	PIPY
06/09/2015	20.52.22	PIPI
06/09/2015	21.11.28	NYLE
06/09/2015	21.11.34	NYLE
06/09/2015	21.36.17	PIPI
06/09/2015	21.41.51	PIPY
06/09/2015	21.45.15	PIPY
06/09/2015	22.03.14	PIPY
06/09/2015	22.07.09	PIPI
06/09/2015	22.18.53	PIPY
06/09/2015	22.20.17	PIPY
06/09/2015	23.10.08	PIPY
07/09/2015	00.53.49	PIPY
07/09/2015	00.54.31	PIPY
07/09/2015	00.54.45	PIPY
07/09/2015	00.55.08	PIPY
07/09/2015	00.56.14	PIPY
07/09/2015	00.59.55	PIPY
07/09/2015	01.00.08	PIPY
07/09/2015	01.00.18	PIPY
07/09/2015	01.01.31	PIPY
07/09/2015	01.03.16	PIPY
07/09/2015	01.04.31	PIPY
07/09/2015	01.06.18	PIPY
07/09/2015	01.11.12	PIPY
07/09/2015	03.05.52	PIPY
07/09/2015	03.29.45	PIPI
07/09/2015	03.40.55	PIPI
07/09/2015	03.43.38	PIPI
07/09/2015	03.45.47	PIPI
07/09/2015	03.58.48	PIPI
07/09/2015	04.09.12	PIPI
07/09/2015	04.47.12	PIPY
07/09/2015	04.48.06	PIPY
07/09/2015	04.48.40	PIPY
07/09/2015	04.48.52	PIPY
07/09/2015	04.49.37	PIPY

Site 2		
07/09/2015	04.49.48	PIPY
07/09/2015	05.12.57	PIPY
07/09/2015	05.13.07	PIPY
07/09/2015	05.18.03	PIPI
07/09/2015	05.21.23	PIPY
07/09/2015	05.25.11	PIPY
07/09/2015	05.29.02	PIPY
07/09/2015	05.29.11	PIPY
07/09/2015	05.34.42	PIPI
07/09/2015	05.46.02	PIPI
07/09/2015	05.46.36	PIPY
07/09/2015	05.50.16	PIPI
07/09/2015	05.50.33	PIPI
07/09/2015	05.50.54	PIPI
07/09/2015	05.51.18	PIPI
07/09/2015	05.51.43	PIPI
07/09/2015	05.52.20	PIPI
07/09/2015	05.52.45	PIPY
07/09/2015	05.54.18	PIPY
07/09/2015	06.02.13	PIPY

Site 3		
Date	**Time**	**Bat activity**
Night 1		
02/09/2015	20.29.49	NYLE
02/09/2015	20.30.04	NYLE
02/09/2015	20.30.20	NYLE
02/09/2015	21.23.49	NYLE
02/09/2015	21.36.10	PIPY
02/09/2015	21.47.31	PIPY
02/09/2015	21.56.29	PIPI
02/09/2015	22.00.35	PIPI
02/09/2015	22.11.50	MYsp
02/09/2015	22.11.58	MYsp
02/09/2015	22.16.12	MYNA
02/09/2015	22.18.02	MYNA
02/09/2015	22.33.52	NYLE
03/09/2015	02.26.30	MYNA
03/09/2015	02.26.34	MYNA
03/09/2015	02.26.54	MYNA
03/09/2015	02.27.19	MYNA
03/09/2015	02.51.37	PIPI

Site 3		
03/09/2015	03.26.17	MYNA
03/09/2015	04.02.55	MYNA
03/09/2015	04.24.37	MYsp
03/09/2015	05.24.51	PIPY
03/09/2015	06.12.57	NYLE
03/09/2015	06.14.37	NYLE
Night 2		
03/09/2015	21.10.55	NYLE
03/09/2015	21.30.14	PIPI
03/09/2015	21.49.51	NYLE
03/09/2015	23.54.03	MYNA
03/09/2015	23.54.25	MYNA
04/09/2015	00.14.09	MYsp
04/09/2015	00.14.26	MY sp
04/09/2015	01.46.50	MY sp
04/09/2015	02.52.24	MY sp
04/09/2015	03.06.04	PIPI
04/09/2015	03.06.44	PIPI
04/09/2015	03.07.08	PIPI
04/09/2015	03.07.38	PIPI
04/09/2015	03.08.01	PIPI
04/09/2015	03.09.26	PIPI
04/09/2015	03.09.46	PIPI
04/09/2015	03.10.10	PIPI
04/09/2015	03.11.02	PIPI
04/09/2015	03.46.01	PIPI
04/09/2015	04.02.27	PIPI
04/09/2015	04.02.46	PIPI
04/09/2015	04.03.15	PIPI
04/09/2015	04.03.43	PIPI
04/09/2015	04.04.02	PIPI
04/09/2015	04.04.22	PIPI
04/09/2015	04.08.05	PIPI
04/09/2015	04.08.37	PIPI
04/09/2015	04.10.10	PIPI
04/09/2015	04.10.59	PIPI
04/09/2015	04.11.36	PIPI
04/09/2015	04.11.57	PIPI
04/09/2015	04.12.10	PIPI
04/09/2015	04.12.30	PIPI
04/09/2015	04.18.51	PIPI
04/09/2015	04.19.14	PIPI

Site 3		
04/09/2015	04.19.38	PIPI
04/09/2015	04.20.10	PIPI
04/09/2015	04.20.30	PIPI
04/09/2015	04.20.49	PIPI
04/09/2015	04.21.19	PIPI
04/09/2015	04.21.40	PIPI
04/09/2015	04.21.52	PIPI
04/09/2015	04.22.13	PIPI
04/09/2015	04.24.48	PIPI
04/09/2015	04.24.57	PIPI
04/09/2015	04.25.15	PIPI
04/09/2015	04.25.49	PIPI
04/09/2015	04.26.09	PIPI
04/09/2015	04.26.39	PIPI
04/09/2015	04.28.07	PIPI
04/09/2015	04.28.30	PIPI
04/09/2015	04.29.09	PIPI
04/09/2015	04.29.27	PIPI
04/09/2015	04.29.44	PIPI
04/09/2015	04.43.32	PIPI
04/09/2015	04.44.34	PIPI
04/09/2015	04.45.39	PIPI
04/09/2015	04.46.03	PIPI
04/09/2015	04.47.32	PIPI
04/09/2015	04.47.44	PIPI
04/09/2015	04.48.34	PIPI
04/09/2015	04.49.38	PIPI
04/09/2015	04.51.42	PIPI
04/09/2015	04.52.02	PIPI
04/09/2015	04.53.02	PIPI
04/09/2015	04.53.21	PIPI
04/09/2015	04.54.08	PIPI
04/09/2015	04.54.18	PIPI
04/09/2015	04.54.33	PIPI
04/09/2015	04.55.01	PIPI
04/09/2015	04.56.38	PIPI
04/09/2015	04.57.17	PIPI
04/09/2015	04.57.57	PIPI
04/09/2015	04.58.34	PIPI
04/09/2015	04.58.51	PIPI
04/09/2015	04.59.03	PIPI
04/09/2015	04.59.58	PIPI

Site 3		
04/09/2015	05.00.52	PIPI
04/09/2015	05.02.44	PIPI
04/09/2015	05.03.17	PIPI
04/09/2015	05.08.02	PIPI
04/09/2015	05.08.12	PIPI
04/09/2015	05.08.30	PIPI
04/09/2015	05.08.40	PIPI
04/09/2015	06.12.48	NYLE
04/09/2015	06.18.14	NYLE
04/09/2015	06.19.01	NYLE
04/09/2015	06.19.30	NYLE
Night 3		
04/09/2015	20.50.26	NYLE
04/09/2015	21.02.22	PIPI
04/09/2015	21.12.07	PIPY
04/09/2015	21.38.53	PIPY
Night 4		
05/09/2015	21.01.03	PIPI
05/09/2015	21.01.58	PIPI
05/09/2015	21.02.08	PIPI
05/09/2015	21.02.22	PIPI
05/09/2015	21.12.07	PIPY
05/09/2015	21.16.29	PIPI
05/09/2015	21.25.46	PIPY
05/09/2015	21.32.57	PIPI
05/09/2015	21.37.00	NYLE
05/09/2015	21.41.27	PIPY
05/09/2015	21.51.55	MYNA
05/09/2015	22.59.56	MYNA
05/09/2015	23.00.11	MYNA
06/09/2015	03.36.21	MYsp
Night 5		
06/09/2015	20.34.12	NYLE
06/09/2015	20.42.01	NYLE
06/09/2015	20.42.29	PIPI
06/09/2015	20.53.32	NYLE
06/09/2015	21.01.55	PIPI
06/09/2015	21.06.08	PIPY
06/09/2015	21.38.44	PIPI
06/09/2015	21.47.43	NYLE
06/09/2015	22.02.01	PIPI
06/09/2015	22.02.25	PIPI

Site 3		
06/09/2015	22.03.11	PIPI
06/09/2015	22.03.36	PIPI
06/09/2015	22.04.32	PIPI
06/09/2015	22.05.51	PIPI
06/09/2015	22.06.45	PIPI
06/09/2015	22.07.08	PIPI
06/09/2015	22.08.02	PIPI
06/09/2015	22.08.27	PIPI
06/09/2015	22.09.01	PIPI
06/09/2015	22.11.35	PIPI
06/09/2015	22.11.52	PIPI
06/09/2015	22.12.40	PIPI
06/09/2015	22.13.07	PIPI
06/09/2015	22.14.35	PIPI
06/09/2015	22.16.23	PIPI
06/09/2015	22.16.58	PIPI
06/09/2015	22.17.21	PIPI
06/09/2015	22.39.31	PIPI
06/09/2015	22.41.04	PIPI
06/09/2015	23.47.09	PIPI
06/09/2015	23.47.30	PIPI
06/09/2015	23.47.41	PIPI
06/09/2015	23.47.58	PIPI
06/09/2015	23.48.12	PIPI
06/09/2015	23.50.45	PIPI
06/09/2015	23.50.52	PIPI
06/09/2015	23.51.10	PIPI
06/09/2015	23.51.38	PIPI
06/09/2015	23.51.58	PIPI
06/09/2015	23.52.25	PIPI
06/09/2015	23.52.53	PIPI
06/09/2015	23.53.18	PIPI
06/09/2015	23.53.45	PIPI
06/09/2015	23.54.12	PIPI
06/09/2015	23.54.41	PIPI
06/09/2015	23.55.10	PIPI
06/09/2015	23.55.55	PIPI
06/09/2015	23.56.23	PIPI
06/09/2015	23.57.30	PIPI
07/09/2015	00.03.32	MYsp
07/09/2015	00.03.59	PIPI
07/09/2015	00.09.21	PIPI

Site 3		
07/09/2015	00.20.04	PIPI
07/09/2015	00.20.33	PIPI
07/09/2015	00.21.02	PIPI
07/09/2015	00.22.01	PIPI
07/09/2015	00.22.32	PIPI
07/09/2015	00.22.54	PIPI
07/09/2015	00.23.08	PIPI
07/09/2015	00.23.47	PIPI
07/09/2015	00.24.35	PIPI
07/09/2015	00.25.02	PIPI
07/09/2015	00.25.05	PIPI
07/09/2015	00.25.25	PIPI
07/09/2015	00.26.19	PIPI
07/09/2015	00.27.17	PIPI
07/09/2015	00.27.51	PIPI
07/09/2015	00.28.18	PIPI
07/09/2015	00.29.16	PIPI
07/09/2015	00.30.09	PIPI
07/09/2015	00.30.25	PIPI
07/09/2015	00.30.33	PIPI
07/09/2015	00.31.04	PIPI
07/09/2015	01.00.28	MYsp
07/09/2015	01.45.31	PIPI
07/09/2015	01.45.46	PIPI
07/09/2015	01.46.09	PIPI
07/09/2015	01.46.42	PIPI
07/09/2015	01.47.33	PIPI
07/09/2015	01.48.25	PIPI
07/09/2015	01.48.59	PIPI
07/09/2015	01.50.01	PIPI
07/09/2015	02.24.31	PIPI
07/09/2015	02.25.35	PIPI
07/09/2015	02.26.01	PIPI
07/09/2015	02.26.43	PIPI
07/09/2015	02.27.20	PIPI
07/09/2015	02.27.47	PIPI
07/09/2015	02.28.13	PIPI
07/09/2015	02.28.35	PIPI
07/09/2015	03.53.17	PIPI
07/09/2015	03.54.50	PIPI
07/09/2015	03.55.16	PIPI
07/09/2015	03.55.47	PIPI

Site 3		
07/09/2015	03.56.33	PIPI
07/09/2015	03.56.10	PIPI
07/09/2015	03.57.32	PIPI
07/09/2015	03.57.54	PIPI
07/09/2015	03.58.23	PIPI
07/09/2015	03.58.46	PIPI
07/09/2015	03.59.06	PIPI
07/09/2015	04.00.18	PIPI
07/09/2015	04.00.34	PIPI
07/09/2015	04.00.55	PIPI
07/09/2015	04.01.17	PIPI
07/09/2015	04.02.06	PIPI
07/09/2015	04.02.25	PIPI
07/09/2015	04.02.46	PIPI
07/09/2015	04.03.05	PIPI
07/09/2015	04.03.43	PIPI
07/09/2015	04.04.30	PIPI
07/09/2015	04.04.49	PIPI
07/09/2015	04.05.04	PIPI
07/09/2015	04.05.25	PIPI
07/09/2015	04.07.39	PIPI
07/09/2015	04.07.58	PIPI
07/09/2015	04.08.37	PIPI
07/09/2015	04.09.11	PIPI
07/09/2015	04.09.31	PIPI
07/09/2015	04.09.51	PIPI
07/09/2015	04.10.12	PIPI
07/09/2015	04.10.31	PIPI
07/09/2015	04.11.05	PIPI
07/09/2015	04.11.30	PIPI
07/09/2015	04.12.06	PIPI
07/09/2015	04.12.31	PIPI
07/09/2015	04.12.53	PIPI
07/09/2015	04.13.17	PIPI
07/09/2015	04.14.04	PIPI
07/09/2015	04.14.44	PIPI
07/09/2015	04.15.05	PIPI
07/09/2015	04.15.28	PIPI
07/09/2015	04.15.50	PIPI
07/09/2015	04.16.13	PIPI
07/09/2015	04.16.34	PIPI
07/09/2015	04.17.10	PIPI

Site 3		
07/09/2015	04.20.33	PIPY
07/09/2015	04.24.29	MYNA
07/09/2015	04.24.48	PIPI
07/09/2015	04.25.42	PIPI
07/09/2015	04.26.16	PIPI
07/09/2015	04.26.39	PIPI
07/09/2015	04.26.57	PIPI
07/09/2015	04.27.16	PIPI
07/09/2015	04.27.44	PIPI
07/09/2015	04.28.25	PIPI
07/09/2015	04.28.51	PIPI
07/09/2015	04.29.11	PIPI
07/09/2015	04.29.32	PIPI
07/09/2015	04.29.51	PIPI
07/09/2015	04.30.25	PIPI
07/09/2015	04.30.51	PIPI
07/09/2015	04.32.32	PIPI
07/09/2015	04.32.54	MYsp
07/09/2015	04.33.40	PIPI
07/09/2015	04.45.03	PIPI
07/09/2015	04.45.36	PIPI
07/09/2015	04.46.09	PIPI
07/09/2015	04.46.28	PIPI
07/09/2015	04.47.10	PIPI
07/09/2015	04.47.14	MYsp
07/09/2015	04.47.29	MYsp
07/09/2015	04.47.46	PIPI
07/09/2015	04.48.44	PIPI
07/09/2015	04.48.56	PIPI
07/09/2015	04.49.18	PIPI
07/09/2015	05.00.18	PIPI
07/09/2015	05.11.37	PIPI
07/09/2015	05.20.00	MYsp
07/09/2015	05.33.45	PIPI
07/09/2015	05.46.12	PIPI
07/09/2015	05.46.43	PIPI
07/09/2015	05.47.06	PIPI
07/09/2015	05.47.53	PIPI
07/09/2015	05.48.20	PIPI
07/09/2015	05.49.56	PIPI
07/09/2015	05.50.25	PIPI
07/09/2015	05.51.03	PIPI

Site 3		
07/09/2015	05.57.06	PIPY
07/09/2015	05.57.19	PIPY
07/09/2015	05.57.28	PIPY

Appendix 4

Bat activity surveys (Figures)

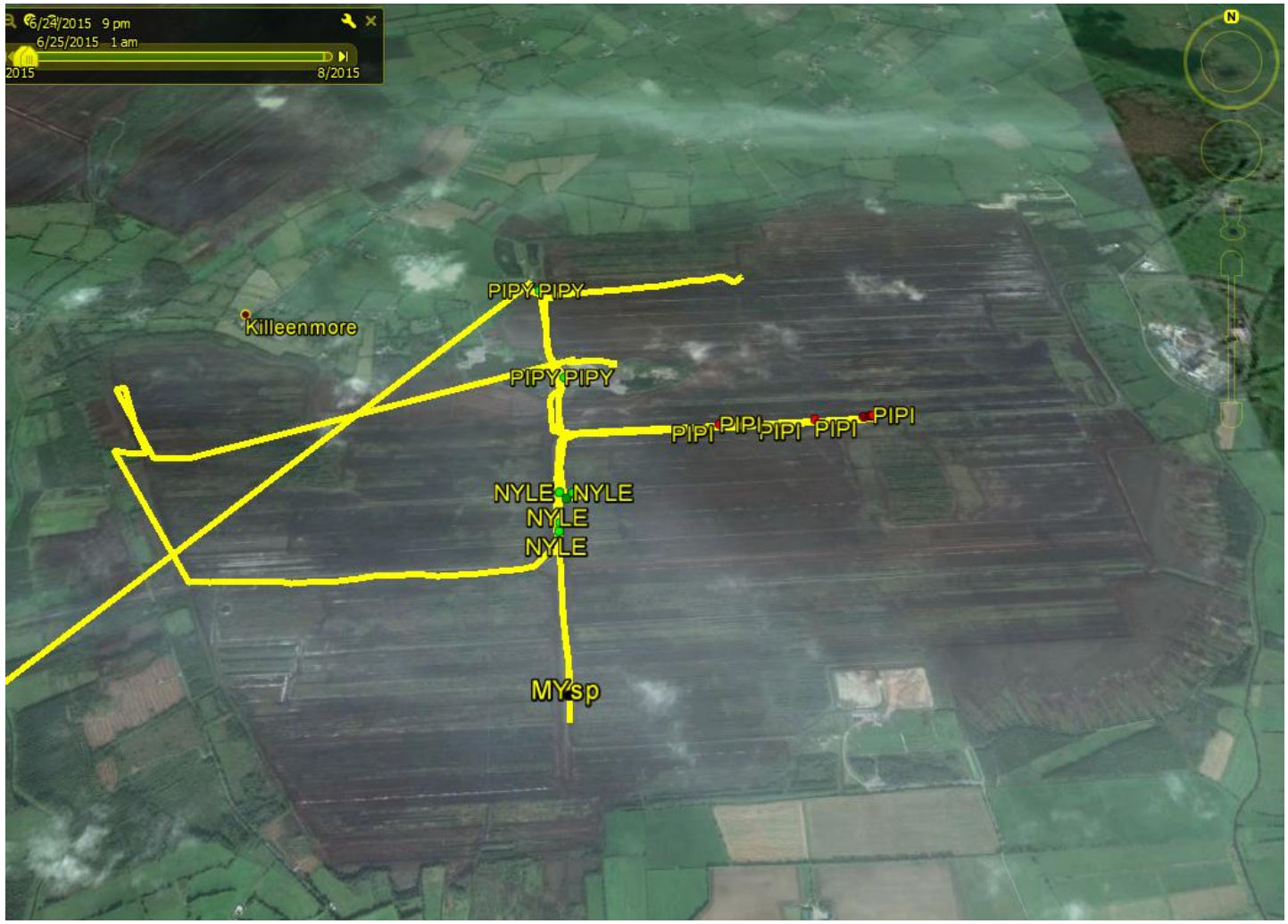


Figure 4-1: Bat activity Surveys Phase 1

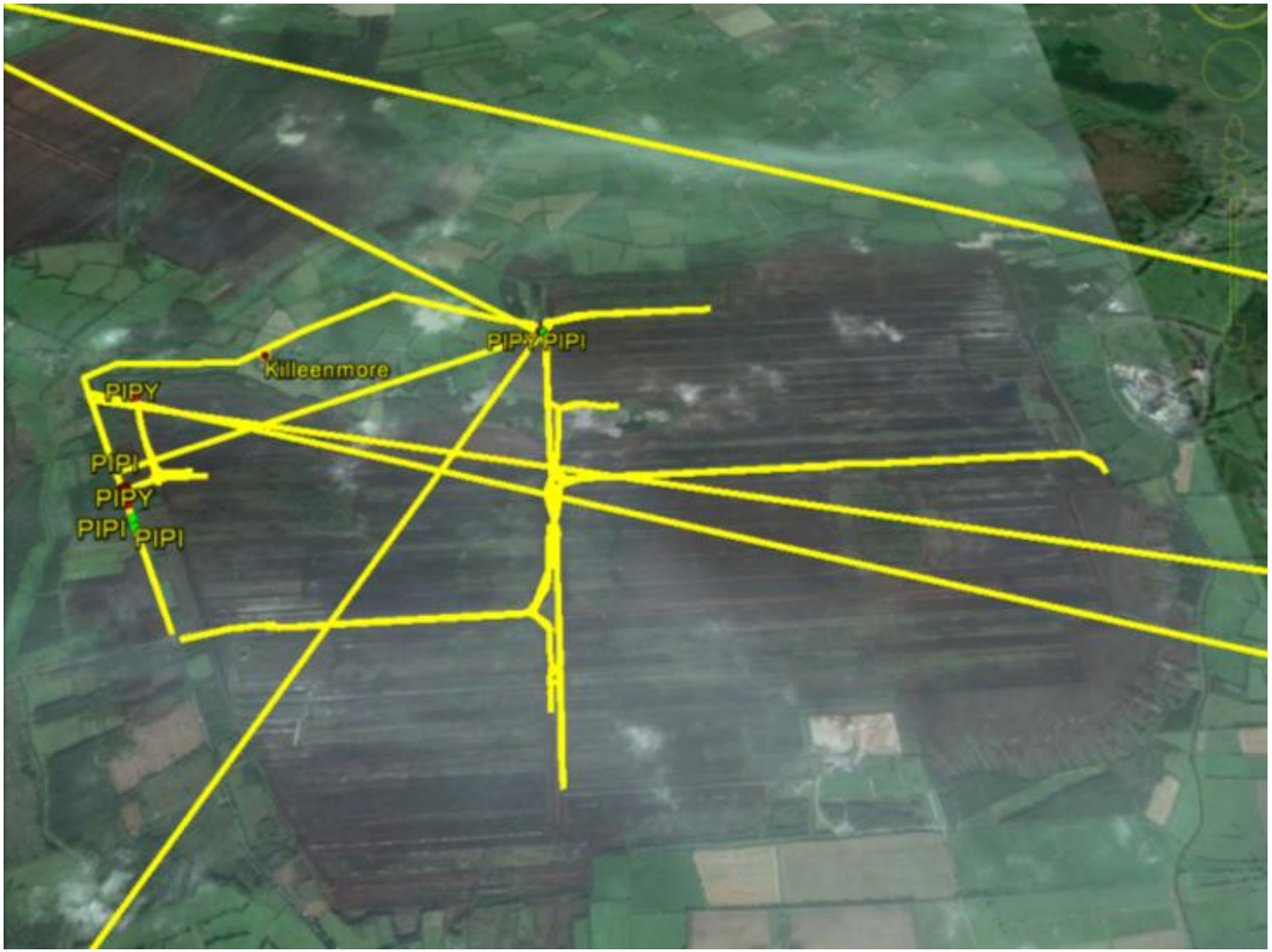


Figure 4-2: Bat activity Surveys Phase 2

Figure 4-3: Bat activity Surveys Phase 3

Appendix 5

Descriptions of potential bat roost sites

Table 5-1 (BR1)

<table>
<tr><th colspan="4">(BR1) Roost survey: Ballycon BnM Workshop/Factory</th></tr>
<tr><td>GPS:</td><td>Date</td><td>Weather During emergence survey</td><td>Site Description</td></tr>
<tr><td rowspan="4">N53823 26027</td><td>26/03/2015</td><td rowspan="4">12°C, dry, F-1 W/NW, 8/8 cloud cover</td><td rowspan="4">Ballycon BnM Factory used by for maintenance of machinery and equipment, adjacent to the R400 road. Two additional open buildings used for repair and storage of railway line etc.</td></tr>
<tr><td>07/08/2015</td></tr>
<tr><td>04/09/2015</td></tr>
<tr><td>15/12/2015</td></tr>
<tr><td colspan="4">Habitats present</td></tr>
<tr><td colspan="4">Open compound area with three buildings. The more easterly buildings are open to elements, with the main building closed, with large doors allowing access from the east. The northern end of the main building consists of one storey sloped roof structure. Good quality hedgerows line the adjacent regional road and the agricultural grassland to the east and south. Sections of mature conifer treeline and plantation bound the northern site of the large compound.</td></tr>
<tr><td colspan="4">Roost survey results</td></tr>
<tr><td colspan="4">All the buildings were investigated for evidence of bats during daytime surveys. The more easterly located open buildings are not optimal for roosting bats. During daytime visual searches bat droppings were observed on the northern wall just below the sloped corrugated roof. The interior of the building also had evidence of bats. During a bat emergence survey nine bats were observed exiting from the void spaces between the top of the northern wall and the corrugated roof.</td></tr>
<tr><td colspan="2"> </td><td colspan="2"> </td></tr>
<tr><td colspan="4">Conclusion: Leisler’s bat and Common pipistrelle present (9 bats). Potential maternity and hibernation roost.</td></tr>
</table>

Table 5-2 (BR1)

Bat droppings towards top of northern wall	Investigating void space on top of northern wall

Table 5-3 (BR2 (A))

<table>
<tr><th colspan="4">BR2(A) Roost survey: Bord na Móna Tea Center at Cloncreen Bog</th></tr>
<tr><td>GPS:</td><td>Date</td><td>Weather</td><td>Site Description</td></tr>
<tr><td rowspan="2">N58224, 26887</td><td>16/06/2015</td><td>14°C, dry, calm, 3/8 cloud cover</td><td rowspan="2">Building used by BnM workers; canteen area, toilets, change of gear, some small equipment</td></tr>
<tr><td>16/11/2015</td><td>11°C, dry, slight southerly breeze, 6/8 cloud cover</td></tr>
<tr><td colspan="4">Habitats present</td></tr>
<tr><td colspan="4">The building is situated on cutaway bog which would have been cutaway to the gravel, or gravel has been installed at the general location of the building. The building itself is a plastered single storey A roof structure, with single chimney on the eastern roof. The building is accessed via a wooden frame and door at the southern gable. The building has a number of wooden framed windows. The A roof consists of wooden beams, felt and corrugated iron sheets. The adjacent yard is used for equipment and machinery storage. To the west, the land area is used as borrow pit, which has resulted in small lake, which had water present throughout the survey period. Willow and bramble dominant scrub also occurs. To the west outside the site boundary, the land area is also used as quarry site, with small lake as result of excavations bounding the bog site. Grassland occurrs to the northeast, with the majority of the cloncreen bog best described as cutover bog.</td></tr>
<tr><td colspan="4">Roost survey results</td></tr>
<tr><td colspan="4">The windows/doors of the structure are well sealed and do not provide access for bats. The voids between the timber facia and the corrugated roof were examined, with no evidence of bats. Spider webs were present, indicating no usage by bats. The interior of the building aws investigated, also with no evidence of bats, droppings, streaking/staining etc.</td></tr>
<tr><td colspan="4"> </td></tr>
<tr><td colspan="4">Conclusion: No ecidence of bats during survey period. Considered not used as bat roost site. Bat contacts during transects/fixed point surveys at this location, included Soprano pipistrelle.</td></tr>
</table>

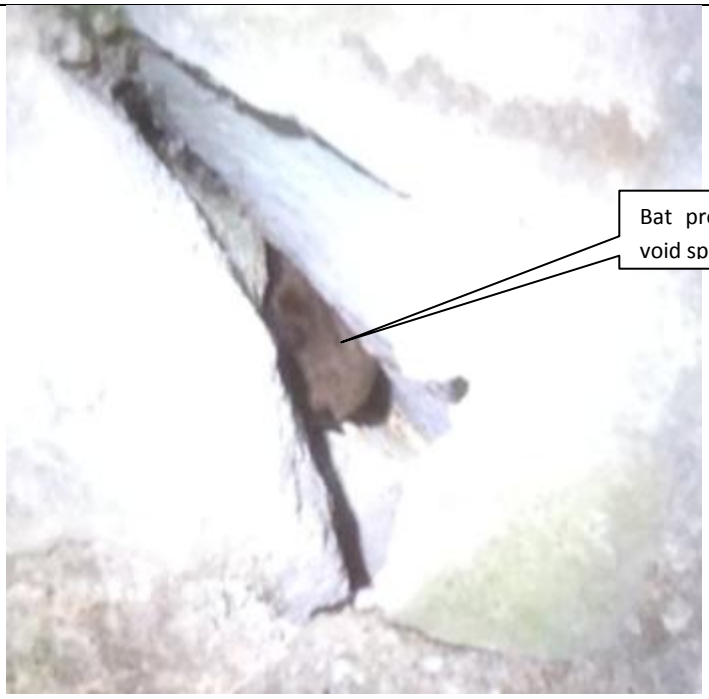
Table 5-4 (BR3)

BR3 Roost survey: Single span masonry bridge			
GPS:	**Date**	**Weather**	**Site Description**
N52588, 31184	22/06/2015 10/09/2015 15/12/2015	14°C, dry, F1 NW, 4/8 cloud cover	Single span masonry bridge spanning the Grand Canal. Located approximately 5.5km to the northwest.
Habitats present			
Masonry Bridge, spanning Grand Canal. Pointing works have been carried out on the stonework at the bridge, however some voids present throughout the bridge. Good quality hedgerows bounding agricultural grassland in all directions of bridge. Some treeline in front of conifer plantation to the south and lining the grand canal further to the east. A number of houses to the east, with one unused house to the southeast which could potentially harbour bats.			
Roost survey results			
Some cracks and voids present in the stonework of the bridge. Some pointing works has fallen away/deteriorated. A number of crevices/voids throughout the walls of the bridge. Three large crevices underneath the arch. During daytime visual survey a bat was observed in void on the southern bank of the watercourse. With the use of an endoscope the other voids present at the bridge were investigated for evidence of bats. During bat emergence survey, the bat did not exit, or no other bats were observed emerging from the bridge. It is likely that the bat was a Daubneton's bat, and used this location as temporary roost. During following visits to this site, the bat was observed in the void on one more occasion. The void is open to the elements and is not optimal as maternity roost. Bat activity at the general location of this site included pipistrelle species and Daubenton's bat. Roach and perch were observed rising in the canal and pine martin droppings were observed underneath the arch, on the southern bank of the canal.			
Conclusion: One bat observed using the bridge. Likely a temporary roost.			

Table 5-5 (BR3)

Void spaces underneath arch

Void spaces underneath arch



Bat present in somewhat open void space

Table 5-6 (BR4 (A))

BR4(A) Roost survey: Dilapidated/ruin house			
GPS:	**Date**	**Weather**	**Site Description**
N58065, 27592	16/06/2015	14°C, dry, calm, 3/8 cloud cover	A number of single storey, timber clad buildings associated with nature sanctuary adjacent to Cloncreen site
Habitats present			
A number of single storey, timber clad building situated on amenity grassland. Man made ponds installed at the property and area probably used to observe bird life. The A roof metal sheeting had some voids present, but otherwise, buildings well sealed. Hedgerow, some broken treeline/individual trees bounding agricultural grassland to the west and north. Cutover bog to southeast and east.			
Roost survey results			
Even though some voids present between the top of the walls and the metal clad roof, spider webs often occurred in the void spaces. Otherwise the builds are well sealed. The careful search of these buildings did not find bat droppings, staining or other evidence of bats at this structure. No bats observed during emergence survey at this site. During time of survey It is considered that this structure is not likely to be used as a bat roosting site..			
Conclusion: No ecidence of bats during survey period. Considered not used as bat roost site.			

Table 5-7 (BR5 (A))

BR5(A) Roost survey: Dilapidated/ruin house			
GPS:	**Date**	**Weather**	**Site Description**
N59830, 24303	16/06/2015	14°C, dry, calm, 3/8 cloud cover	Dilapidated/ruin single storey house in agricultural grassland approximately 1km to the south of the southern end of the site.
	17/11/2015	12°C, dry, slight southerly breeze, 6/8 cloud cover	
Habitats present			
The structure itself is considerable dilapidated. A number of slates have fallen away, moreover towards the eastern end of the house. The windows and doors have fallen away and frames of same are rotting away. The interior of the structure has plastered walls/pointing on some stone walls. The walls are solid stone and some concrete formed walls, with no cavity. Inside the structure the plaster on the walls remained and was getting mouldy. The ceilings were falling away with the attic space exposed. Some ivy growth present towards the eastern and southern end of the house. The structure is located on agricultural/arable land, which would have been harvestes sometime in September, 2015. Some hedgerow and treeline occurs, with the house in close proximity to the network of hedgerows, bounding the agricultural grassland.			
Roost survey results			
The careful search of this building did not find bat droppings or other evidence of bats at this structure. Due to the fact that no evidence of bats was observed at this location, along with the fact that this structure is considerably dilapidated (damp and draughty) it is considered that this structure is not likely to be used as a bat roosting site. The covering of ivy on section of the exterior walls may potentially act as temporary bat roost site, however no evidence of bats was observed during time of survey.			
Conclusion: No ecidence of bats during survey period. Considered not used as bat roost site.			

Table 5-8 (BR6 (A))

<table>
<tr><th colspan="4">BR6(A) Roost survey: Cloncreen Bridge</th></tr>
<tr><th>GPS:</th><th>Date</th><th>Weather</th><th>Site Description</th></tr>
<tr><td rowspan="2">N60511, 23992</td><td>21/06/2015</td><td>18°C, dry, calm, 2/8 cloud cover</td><td rowspan="2">Three arch stone bridge, spanning the River Figile. Located approximately 1.3km to the southeast of the southern boundary of the Cloncreen Bog.</td></tr>
<tr><td>16/11/2015</td><td>12°C, dry, slight southerly breeze, 6/8 cloud cover</td></tr>
<tr><td colspan="4">Habitats present</td></tr>
<tr><td colspan="4">This triple arch bridge has random stone/rubble construction. Semicircular profile arches with dressed stone voussoirs. Upstream V-cutwaters. For the most part the stonework has been pointed, with some pointing work done somewhat recently. From observations during surveys, it is likely that this is a spate river. Surrounding habitats include, hedgerow, small sections of treeline, agricultural grassland and conifer plantation.</td></tr>
<tr><td colspan="4">Roost survey results</td></tr>
<tr><td colspan="4">The majority of the stone work has been pointed. Some crevices present on the main walls of the bridge/handrail etc.The crevices present had no substantial void spaces. During surveys, no evidence of bat using these locations as roost sites was observed. There was no evidence that bats were entering or exiting from these crevices. No staining was present on the stone surfaces at crevices. The interior of the crevices had decaying leaves, fine soil and spider webs. When required, an endoscope was also used. The inside of the crevices were undisturbed, with no droppings/stains/remains of feeding observed. Some ivy growth on the downstream side of the eastern side of the bridge. This location was thoroughly inspected, with no evidence of bats.</td></tr>
<tr><td colspan="4"> </td></tr>
<tr><td colspan="4">Conclusion: Some crevices present, but no evidence of bats, during summer and autumn/winter surveys.</td></tr>
</table>

Table 5-9 (BR7 (A))

BR7(A) Roost survey: Kilcumber Bridge			
GPS:	**Date**	**Weather**	**Site Description**
N61061, 26817	21/06/2015	18°C, dry, calm, 2/8 cloud cover	Double arch bridge spanning the River Figile, approximately 1.7km to the southeast of the southern boundary of Cloncreen Bog.
	17/11/2015	12°C, dry, slight southerly breeze, 6/8 cloud cover	
Habitats present			
Double arch stone bridge, which would have been subject to large amount of repair works. For the most part the stonework would have pointing carried out. Some crevices/cracks do occur. Some ivy growth occurs on the western end of the downstream side of the bridge. Scrub occurs at the bridge, with some broken hedgerow leading up to the bridge, lining the R442 Regional road. Extending away from the bridge, grassland is the dominant habitat type, with some section of conifer plantation. The Bord na Móna, Edenderry Power Plant occurs to the north.			
Roost survey results			
The majority of the stone work has been pointed. Some crevives present on the main walls of the bridge/handrail etc. The crevices were checked with an endoscope and had no substantial void spaces. Also it was noted during surveys that there was very little clearance between the surface of the road and the top of the arch, which would make this location unsuitable for bats. During surveys, no evidence of bat using these locations as roost sites was observed. There was no evidence that bats were entering or exiting from these crevices. No staining was present on the stone surfaces at crevices. No droppings or remains of feeding observed. For the most part the inside of the crevices were undisturbed, with spider webs present, indicating no bat usage. Theivy growth on the downstream side of the eastern side of the bridge was investigated, with no evidence of bat usage.			
Conclusion: Some crevices present, but no evidence of bats, during summer and autumn/winter (2015) surveys.			

Table 5-10 (BR10)

BR10 Roost survey: Rhode Bridge			
GPS:	**Date**	**Weather**	**Site Description**
N53477, 31637	16/06/2015 17/09/2015 15/12/2015	14°C, dry, calm, 3/8 cloud cover, slight SW breeze, a lot of midge activity.	Single arch bridge spanning Grand Canal, approximately 5.3km to the northwest of Cloncreen Bog.
Habitats present			
Single arch stone bridge, which would have been subject to pointing repair works. Some voids/crevices present in stonework. Some ivy growth occurs on the parapet and Abutment walls. Treeline and hedgerow line the Gran Canal, adjacent public road and surrounding agricultural grassland. Two stone walls structures occur to the 30m northwest. These are used by the landowner for sorting livestock. An unused, somewhat dilapidated two storey house occurs approximately 20m to the south (BR Site No.13)..			
Roost survey results			
The majority of the bridge stonework has been pointed. Some crevices present on the parapet and abutment walls. Crevices were checked with an endoscope and had no substantial void spaces. Also it was noted during surveys that there was very little clearance between the surface of the road and the top of the arch, which would make this location less suitable for bats. The visual daytime and bat emergence surveys included the stone structures to the northwest. During surveys, no evidence of bat using these locations as roost sites was observed. There was no evidence that bats were entering, or exiting from these crevices. No staining was present on the stone surfaces at crevices. No bat droppings or remains of feeding observed. For the most part the inside of the crevices were undisturbed, with spider webs present, indicating no bat usage. The growth on the downstream side of the eastern side of the bridge was investigated, with no evidence of bat usage.			
Conclusion: Some crevices present, but no evidence of bats, during summer and autumn/winter (2015) bat roost surveys.			

Table 5-11 (BR11 (A))

BR11(A) Roost survey: Mature trees to east of Cloncreen Bog			
GPS:	**Date**	**Weather**	**Site Description**
N60829, 27723	15/12/2015	11°C, dry, calm, 8/8 cloud cover, slight NW breeze.	Two mature trees in treeline in front of conifer plantation adjacent to the northeast of the Cloncreen Windfarm.
Habitats present			
A hazel-alder-birch treeline, line a sitka spruce plantation located adjacent to the north eastern boundary of the Cloncreen Bog site. Towards the eastern end of this treeline (two of the more mature trees could potentially harbour bats, with holes and cracks present on the trunk and limbs. Hedgerow and broken treeline, and the agricultural grasslands further to the north and east. Cutover bog extends to the west.			
Roost survey results			
This survey, which included investigating the void spaces with an endoscope, did not find any evidence of bats using these trees.			
Conclusion: Some crevices present, but no evidence of bats, during summer and autumn/winter (2015) bat roost surveys.			

Table 5-12 (BR13)

BR13 Roost survey: Unused Two story house adjacent to Rhode Bridge			
GPS:	**Date**	**Weather**	**Site Description**
N53463, 31604	21/06/2015 17/09/2015 15/12/2015	14°C, dry, calm, 3/8 cloud cover, slight SW breeze, a lot of midge activity.	Single arch bridge spanning Grand Canal, approximately 5.3km to the northwest of Cloncreen Bog.
Habitats present			
An old unused stone wall building, somewhat dilapidated. Some mature treeline, bounds the adjacent road, and the Grand Canal, situated approximately 40m to the north of the building. Good quality hedgerow bounds the R400 road and nearby grasslands. Small section of conifer plantation to the northeast.			
Roost survey results			
A slate roof is finished with slate, but some slates are missing from areas, and many voids/slates lifting in the existing roof. Some of the windows and doors have fallen away, with some having been boarded up for security. A great deal of the pointing in the stone work has deteriorated, and voids/crevices occur in the stonework. For health and safety reasons, and access to the site, the interior of the building was not investigated. During a bat emergence survey at this location, on the 21st of June 2015, eight Common pipistrelle bats were observed emerging form this structure. When this site was revisited on the 17th of September 2015, five Common pipistrelle bats were observed emerging from this building. On both occasions the bats were observed emerging form an upstairs window located on the eastern gable. During surveys at this location, bats were observed foraging and commuting along the good quality hedgerows that bound the adjacent grassland fields to the south, and the R400 public road to the east of the building.			
Conclusion: Common pipistrelle observed emerging (8 bats). Potentially maternity and hibernation roost.			

Table 5-13 (BR15)

BR15 Roost survey: Double concrete culvert			
GPS:	**Date**	**Weather**	**Site Description**
N61776, 27899	15/12/2015	11°C, dry, calm, 8/8 cloud cover, slight NW breeze.	Double mass concrete culvert spanning the Figile River.
Habitats present			
Mass concrete double culvert. Conifer plantation to the southeast. Dominant habitat type includes agricultural grassland, with cutover bog to the west and south. mSome mature treeline, bounds the adjacent road, and the Grand Canal, situated approximately 40m to the north of the building. Good quality hedgerow bounds the R400 road and nearby grasslands. Small section of conifer plantation to the northeast.			
Roost survey results			
No cracks/crevices present on the culvert. Subjected to flooding. No optimal bat roost habitat present.			
Conclusion: No ecidence of bats during survey period. Considered not used as bat roost site.			

Appendix 6

Bat Criteria for Bat Roosts of National or International Importance

Lesser Horseshoe bats

In Ireland, the following bat population figures have been used as criteria for the designation of Special Areas of Conservation for the protection of lesser horseshoe bats.

(a) Maternity roost (summer): 100 individuals (approximately 1% of the Irish population)
(b) Hibernacula (winter): 50 individuals (approx. 0.5 % of the Irish population)

Internationally important roosts

There are no clear guidelines as to the nature of a bat roost of international importance. All of the largest roosts of lesser horseshoe bats in Ireland would be of international importance and it is anticipated that all large Leisler's bat roosts (in excess of 100) would also have international significance.

The following are working guidelines developed by the Bat Expert Panel of the Heritage Council in 2003 to provide a basis for comparing the importance of different building roosts nationally and internationally.

Species	Indicator	Significance
Lesser Horseshoe Bat	SAC	Very significant
	If present	Significant
Whiskered	>10	Very significant
	If present	Significant
Natterer's	>10	Very significant
	If present	Significant
Daubenton's	Maternity roost	Very significant
Leisler's	Maternity roost	Very significant
Common Pipistrelle	Maternity roost	Significant
Soprano Pipistrelle	Maternity roost	Significant
Brown Long-eared	Maternity roost	Significant

Annex 3

Assessment Criteria

Factors to consider when determining survey effort & site risk (taken from Hundt, 2012)

Quality of habitat & number of habitat features likely to affect bat mortality rates if altered by development*	Species likely to use the site*	Importance of roosts, of species likely to use site, which may be affected*	Potential risk level of development
No potential habitat for roosting, foraging or commuting bats	None	Local	Lowest
Small number of potential roost features, of low quality Low quality foraging habitat that could be used by small numbers of foraging bats Isolated site, not connected to the wider landscape by prominent linear features	Low number, single low risk species High number, several low risk species	Parish	Low
Buildings, trees or other structures with moderate-high potential as roost sites on or near the site Habitat could be used extensively by foraging bats Site is connected to the wider landscape by linear features such as scrub tree lines and streams	Low number, medium risk species High number, medium risk species	District County	Medium
Numerous suitable buildings, trees (particularly mature ancient woodland) or other structures with moderate/high potential on or near the site and/or confirmed roosts present close to or on the site Extensive and diverse habitat mosaic of high quality for foraging bats Site is connected to the wider landscape by a network of strong linear features such as rivers, blocks of woodland and mature hedgerows	High number, single high risk species High number, several high risk species High number, all high risk species	National International	High

Annex 4

Minimum Survey Standards

Minimum standards for bat surveys at proposed onshore wind turbine developments (taken from Hundt, 2012)

Survey criteria	Site risk level		
	Low	Medium	High
	Roost surveys		
Selection of roosts requiring further survey	If evidence of roosting by medium or high-risk species and or roosts of district importance and above is found, further survey should follow SNCO guidance & guidelines available in Chapter 8 (Hundt, 2012)		
	Activity surveys		
Survey period	Surveys should provide data for one survey as a minimum		
Survey area [1]	Up to 200 m + rotor radius from turbine locations or potential turbine locations		
Ground level transects	One visit per transect each season (spring, summer & autumn)	One visit per transect each month (April -October)	Up to two visits per transect each month (April – October)
Automated surveys at ground level	5 consecutive nights for each single[2] or pair of locations within the survey area, per season	5 consecutive nights for each single or pair of locations within the survey area, per month	Up to 2 sets of 5 consecutive nights for each single or pair of locations within the survey area, per month
Automated surveys at height	Situations where at-height survey may be appropriate are outlined in Chapter 10 (Hundt, 2012) For surveys undertaken from masts, survey effort is as outlined above for surveys at ground level.		

[1] Should include potential turbine locations plus the nearest habitat features likely to be used by bats.

[2] Single locations will be at potential turbine locations. It may not be necessary to survey potential turbine locations without suitable habitat for bats located within 100 m plus the rotor radius. See Chapter 10 in Hundt (2012) for further details.

Annex 5

Habitat Suitability Assessment

Guidelines for assessing the potential suitability of a site for bats, based on the presence of habitat features (taken from Collins, 2016)

Suitability	Roosting Habitats	Commuting and Foraging Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[1] and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats, i.e. unlikely to be suitable for maternity or hibernation[2]. A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential[3].	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only - the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

[1] For example, in terms of temperature, humidity, height above ground, light levels or levels of disturbance.

[2] Larger numbers of Common pipistrelle may be present during autumn and winter in large buildings in highly urbanised areas, based on evidence from the Netherlands (Korsten et al. 2015).

[3] Categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

Annex 6

Manual Transect Survey Results

Date	Time	Easting	Northing	Species	No.	Notes
28/04/2016	21:54	259314	225409	Unidentified bat	1	Not echolocating
26/05/2016	00:01	257954	225858	Common pipistrelle	1	
26/05/2016	00:03	258026	225864	Common pipistrelle	1	Foraging
26/05/2016	00:04	258941	226621	Common pipistrelle	1	Faint call
26/05/2016	22:20	260881	225759	Common pipistrelle	1	Commuting
26/05/2016	22:21	258632	224888	Common pipistrelle	1	Commuting
26/05/2016	22:28	260881	225759	Pipistrelle sp.	1	Commuting
26/05/2016	22:36	260678	225842	Common pipistrelle	1	Feeding
26/05/2016	22:38	257951	224706	Common pipistrelle	1	Commuting & feeding
26/05/2016	22:43	227842	224699	Common pipistrelle	2	Foraging along peat bank
26/05/2016	22:46	227842	224699	Common pipistrelle	1	Foraging along peat bank
26/05/2016	22:48	257739	224691	Common pipistrelle	1	
26/05/2016	22:48	260531	226416	Common pipistrelle	1	
26/05/2016	22:53	257510	224847	Brown Long-eared Bat	1	Foraging among Birch trees
26/05/2016	22:54	257510	224847	Common pipistrelle	1	Commuting
26/05/2016	22:59	260615	226513	Common pipistrelle	1	
26/05/2016	23:02	257413	225002	Common pipistrelle	1	Commuting
26/05/2016	23:06	260674	226787	Common pipistrelle	1	Faint call
26/05/2016	23:11	257115	225409	Leisler's bat	1	Commuting
26/05/2016	23:12	257078	225488	Common pipistrelle	1	
26/05/2016	23:13	260607	226749	Common pipistrelle	1	
26/05/2016	23:15	260607	226749	Common pipistrelle	1	
26/05/2016	23:22	260244	226717	Common pipistrelle	1	Faint call
26/05/2016	23:27	260013	226698	Common pipistrelle	1	Feeding
26/05/2016	23:32	226245	225556	Leisler's bat	1	Commuting
26/05/2016	23:40	256824	225722	Common pipistrelle	1	
26/05/2016	23:41	259809	2266880	Pipistrelle sp.	1	Commuting
26/05/2016	23:45	257228	225802	Common pipistrelle	3	Commuting & foraging
26/05/2016	23:45	259680	226680	Common pipistrelle	1	Commuting
26/05/2016	23:51	259459	226662	Common pipistrelle	2	Commuting & feeding
26/05/2016	23:53	257544	225827	Common pipistrelle	2	Commuting
26/05/2016	23:55	257676	225836	Common pipistrelle	1	Foraging
26/05/2016	23:58	257844	225850	Common pipistrelle	2	
26/05/2016	23:58	259325	226650	Leisler's bat	1	
26/05/2016	23:58	259325	226650	Pipistrelle sp.	1	
27/05/2016	04:05	258226	226738	Common pipistrelle	1	
27/05/2016	04:13	257814	226878	Common pipistrelle	1	
27/05/2016	04:16	257771	226906	Common pipistrelle	3	
27/05/2016	04:19	258603	226930	Common pipistrelle	1	
27/05/2016	04:21	258603	226930	Leisler's bat	1	
27/05/2016	04:38	259047	226986	Leisler's bat	1	
30/06/2016	22:31	260591	227259	Soprano pipistrelle	1	Commuting
30/06/2016	22:45	260520	227996	Soprano pipistrelle	1	Commuting
30/06/2016	22:56	259878	228067	Common pipistrelle	1	Foraging
30/06/2016	23:03	259468	228037	Common pipistrelle	1	Commuting
30/06/2016	23:08	259198	227990	Common pipistrelle	1	
30/06/2016	23:10	259207	227889	Common pipistrelle	1	Foraging
30/06/2016	23:14	259068	227746	Common pipistrelle	1	
01/07/2016						
28/07/2016	22:16	257884	224721	Soprano pipistrelle	2	Feeding
28/07/2016	22:24	260473	228121	Soprano pipistrelle	3	Feeding
28/07/2016	22:31	260522	227943	Soprano pipistrelle	1	Feeding
28/07/2016	22:35	260525	227890	Soprano pipistrelle	1	
28/07/2016	22:38	260532	227756	Soprano pipistrelle	2	
28/07/2016	22:39	260537	227725	Soprano pipistrelle	2	
28/07/2016	22:45	260643	27605	Soprano pipistrelle	1	

Date	Time	Easting	Northing	Species	No.	Notes
28/07/2016	22:53	260584	227302	Soprano pipistrelle	1	Commuting
28/07/2016	23:37	258237	226798	Common pipistrelle	1	
29/07/2016	04:10	258237	226798	Soprano pipistrelle	1	Commuting
23/08/2016	21:15	258392	225104	Soprano pipistrelle	1	Commuting
23/08/2016	21:29	258136	224767	Common pipistrelle	1	
23/08/2016	21:33	258137	224727	Unidentified bat	1	
23/08/2016	21:39	258021	224714	Common pipistrelle	1	Feeding by earth bank
23/08/2016	21:45	257637	224690	Common pipistrelle	1	
23/08/2016	22:06	257003	225632	Pipistrelle sp.	1	
23/08/2016	22:24	257548	225809	Leisler's bat	1	
23/08/2016	22:34	257885	225834	Common pipistrelle	1	Commuting
23/08/2016	22:36	257934	225840	Common pipistrelle	1	
23/08/2016	22:49	258255	226460	Common pipistrelle	1	
23/08/2016	22:51	258267	226565	Soprano pipistrelle	1	
23/08/2016				Soprano pipistrelle	1	
24/08/2016	05:10	258230	226893	Soprano pipistrelle	1	

Annex 7

Fixed Point Survey Results

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	30/04/2016	21:29:38	Pipistrelle sp.	FP-1	30/04/2016	22:26:27	Common pipistrell	FP-1	30/04/2016	23:06:57	Soprano pipistrelle	FP-1	30/04/2016	23:20:10	Common pipistrelle
FP-1	30/04/2016	21:34:07	Soprano pipistrelle	FP-1	30/04/2016	22:26:35	Common pipistrell	FP-1	30/04/2016	23:07:14	Pipistrelle sp.	FP-1	30/04/2016	23:20:28	Pipistrelle sp.
FP-1	30/04/2016	21:36:17	Leisler's bat	FP-1	30/04/2016	22:26:46	Pipistrelle sp.	FP-1	30/04/2016	23:07:32	Soprano pipistrelle	FP-1	30/04/2016	23:20:46	Soprano pipistrelle
FP-1	30/04/2016	21:36:17	Pipistrelle sp.	FP-1	30/04/2016	22:26:58	Pipistrelle sp.	FP-1	30/04/2016	23:07:41	Soprano pipistrelle	FP-1	30/04/2016	23:20:57	Pipistrelle sp.
FP-1	30/04/2016	21:36:39	Pipistrelle sp.	FP-1	30/04/2016	22:27:20	Soprano pipistrelle	FP-1	30/04/2016	23:07:50	Soprano pipistrelle	FP-1	30/04/2016	23:21:04	Pipistrelle sp.
FP-1	30/04/2016	21:37:29	Pipistrelle sp.	FP-1	30/04/2016	22:27:32	Soprano pipistrelle	FP-1	30/04/2016	23:08:13	Pipistrelle sp.	FP-1	30/04/2016	23:21:11	Common pipistrelle
FP-1	30/04/2016	21:38:09	Soprano pipistrelle	FP-1	30/04/2016	22:29:46	Pipistrelle sp.	FP-1	30/04/2016	23:08:34	Pipistrelle sp.	FP-1	30/04/2016	23:21:21	Common pipistrelle
FP-1	30/04/2016	21:38:21	Common pipistrell	FP-1	30/04/2016	22:33:54	Common pipistrell	FP-1	30/04/2016	23:08:52	Soprano pipistrelle	FP-1	30/04/2016	23:21:49	Common pipistrelle
FP-1	30/04/2016	21:38:21	Soprano pipistrelle	FP-1	30/04/2016	22:34:08	Common pipistrell	FP-1	30/04/2016	23:09:05	Common pipistrell	FP-1	30/04/2016	23:22:10	Common pipistrelle
FP-1	30/04/2016	21:39:25	Pipistrelle sp.	FP-1	30/04/2016	22:35:37	Soprano pipistrelle	FP-1	30/04/2016	23:10:05	Soprano pipistrelle	FP-1	30/04/2016	23:22:38	Common pipistrelle
FP-1	30/04/2016	21:44:05	Common pipistrell	FP-1	30/04/2016	22:37:40	Soprano pipistrelle	FP-1	30/04/2016	23:10:12	Soprano pipistrelle	FP-1	30/04/2016	23:23:07	Common pipistrelle
FP-1	30/04/2016	21:46:43	Common pipistrell	FP-1	30/04/2016	22:39:36	Common pipistrell	FP-1	30/04/2016	23:10:24	Pipistrelle sp.	FP-1	30/04/2016	23:23:30	Common pipistrelle
FP-1	30/04/2016	21:49:09	Soprano pipistrelle	FP-1	30/04/2016	22:40:01	Common pipistrell	FP-1	30/04/2016	23:10:33	Soprano pipistrelle	FP-1	30/04/2016	23:24:54	Common pipistrelle
FP-1	30/04/2016	21:49:20	Common pipistrell	FP-1	30/04/2016	22:44:01	Soprano pipistrelle	FP-1	30/04/2016	23:10:47	Soprano pipistrelle	FP-1	30/04/2016	23:24:54	Soprano pipistrelle
FP-1	30/04/2016	21:50:00	Common pipistrell	FP-1	30/04/2016	22:44:32	Soprano pipistrelle	FP-1	30/04/2016	23:11:07	Pipistrelle sp.	FP-1	30/04/2016	23:25:20	Common pipistrelle
FP-1	30/04/2016	21:51:07	Common pipistrell	FP-1	30/04/2016	22:44:50	Soprano pipistrelle	FP-1	30/04/2016	23:11:16	Pipistrelle sp.	FP-1	30/04/2016	23:25:38	Pipistrelle sp.
FP-1	30/04/2016	21:57:44	Soprano pipistrelle	FP-1	30/04/2016	22:45:17	Soprano pipistrelle	FP-1	30/04/2016	23:11:28	Soprano pipistrelle	FP-1	30/04/2016	23:25:59	Soprano pipistrelle
FP-1	30/04/2016	21:58:30	Soprano pipistrelle	FP-1	30/04/2016	22:45:55	Soprano pipistrelle	FP-1	30/04/2016	23:11:45	Soprano pipistrelle	FP-1	30/04/2016	23:26:25	Pipistrelle sp.
FP-1	30/04/2016	21:59:01	Soprano pipistrelle	FP-1	30/04/2016	22:46:19	Soprano pipistrelle	FP-1	30/04/2016	23:12:04	Soprano pipistrelle	FP-1	30/04/2016	23:27:22	Pipistrelle sp.
FP-1	30/04/2016	21:59:23	Common pipistrell	FP-1	30/04/2016	22:46:28	Common pipistrell	FP-1	30/04/2016	23:12:18	Pipistrelle sp.	FP-1	30/04/2016	23:27:30	Soprano pipistrelle
FP-1	30/04/2016	21:59:30	Common pipistrell	FP-1	30/04/2016	22:46:41	Common pipistrell	FP-1	30/04/2016	23:12:30	Soprano pipistrelle	FP-1	30/04/2016	23:27:41	Common pipistrelle
FP-1	30/04/2016	22:00:13	Common pipistrell	FP-1	30/04/2016	22:46:41	Soprano pipistrelle	FP-1	30/04/2016	23:12:43	Soprano pipistrelle	FP-1	30/04/2016	23:27:57	Common pipistrelle
FP-1	30/04/2016	22:01:35	Common pipistrell	FP-1	30/04/2016	22:47:20	Soprano pipistrelle	FP-1	30/04/2016	23:12:53	Soprano pipistrelle	FP-1	30/04/2016	23:28:15	Pipistrelle sp.
FP-1	30/04/2016	22:01:56	Common pipistrell	FP-1	30/04/2016	22:49:40	Soprano pipistrelle	FP-1	30/04/2016	23:13:13	Soprano pipistrelle	FP-1	30/04/2016	23:28:28	Pipistrelle sp.
FP-1	30/04/2016	22:02:14	Common pipistrell	FP-1	30/04/2016	22:50:17	Soprano pipistrelle	FP-1	30/04/2016	23:13:35	Soprano pipistrelle	FP-1	30/04/2016	23:28:43	Soprano pipistrelle
FP-1	30/04/2016	22:02:42	Common pipistrell	FP-1	30/04/2016	22:50:28	Soprano pipistrelle	FP-1	30/04/2016	23:14:05	Pipistrelle sp.	FP-1	30/04/2016	23:28:58	Soprano pipistrelle
FP-1	30/04/2016	22:02:42	Soprano pipistrelle	FP-1	30/04/2016	22:50:36	Soprano pipistrelle	FP-1	30/04/2016	23:14:36	Pipistrelle sp.	FP-1	30/04/2016	23:29:14	Soprano pipistrelle
FP-1	30/04/2016	22:03:01	Common pipistrell	FP-1	30/04/2016	22:50:46	Soprano pipistrelle	FP-1	30/04/2016	23:14:53	Common pipistrell	FP-1	30/04/2016	23:29:31	Soprano pipistrelle
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FP-1	30/04/2016	22:06:35	Pipistrelle sp.	FP-1	30/04/2016	22:51:46	Common pipistrell	FP-1	30/04/2016	23:16:03	Myotis sp.	FP-1	30/04/2016	23:29:41	Soprano pipistrelle
FP-1	30/04/2016	22:07:32	Soprano pipistrelle	FP-1	30/04/2016	22:52:05	Soprano pipistrelle	FP-1	30/04/2016	23:16:03	Soprano pipistrelle	FP-1	30/04/2016	23:30:00	Common pipistrelle
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FP-1	30/04/2016	22:09:41	Pipistrelle sp.	FP-1	30/04/2016	22:52:33	Soprano pipistrelle	FP-1	30/04/2016	23:16:58	Pipistrelle sp.	FP-1	30/04/2016	23:31:08	Soprano pipistrelle
FP-1	30/04/2016	22:14:13	Soprano pipistrelle	FP-1	30/04/2016	22:53:55	Pipistrelle sp.	FP-1	30/04/2016	23:17:18	Soprano pipistrelle	FP-1	30/04/2016	23:31:32	Soprano pipistrelle
FP-1	30/04/2016	22:17:28	Common pipistrell	FP-1	30/04/2016	22:54:20	Soprano pipistrelle	FP-1	30/04/2016	23:17:32	Soprano pipistrelle	FP-1	30/04/2016	23:31:59	Soprano pipistrelle
FP-1	30/04/2016	22:17:28	Soprano pipistrelle	FP-1	30/04/2016	22:54:30	Soprano pipistrelle	FP-1	30/04/2016	23:17:41	Soprano pipistrelle	FP-1	30/04/2016	23:32:35	Common pipistrelle
FP-1	30/04/2016	22:18:03	Common pipistrell	FP-1	30/04/2016	22:56:03	Common pipistrell	FP-1	30/04/2016	23:17:53	Soprano pipistrelle	FP-1	30/04/2016	23:32:35	Soprano pipistrelle
FP-1	30/04/2016	22:22:20	Common pipistrell	FP-1	30/04/2016	22:56:20	Soprano pipistrelle	FP-1	30/04/2016	23:18:06	Soprano pipistrelle	FP-1	30/04/2016	23:33:06	Soprano pipistrelle
FP-1	30/04/2016	22:22:35	Common pipistrell	FP-1	30/04/2016	22:56:38	Soprano pipistrelle	FP-1	30/04/2016	23:18:15	Soprano pipistrelle	FP-1	30/04/2016	23:33:17	Soprano pipistrelle
FP-1	30/04/2016	22:22:45	Common pipistrell	FP-1	30/04/2016	23:04:54	Soprano pipistrelle	FP-1	30/04/2016	23:18:37	Common pipistrell	FP-1	30/04/2016	23:33:30	Common pipistrelle
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FP-1	30/04/2016	22:25:31	Soprano pipistrelle	FP-1	30/04/2016	23:05:33	Soprano pipistrelle	FP-1	30/04/2016	23:19:31	Soprano pipistrelle	FP-1	30/04/2016	23:33:59	Soprano pipistrelle
FP-1	30/04/2016	22:26:09	Pipistrelle sp.	FP-1	30/04/2016	23:06:40	Soprano pipistrelle	FP-1	30/04/2016	23:19:49	Soprano pipistrelle	FP-1	30/04/2016	23:34:08	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	30/04/2016	23:34:08	Soprano pipistrelle	FP-1	30/04/2016	23:48:29	Soprano pipistrelle	FP-1	01/05/2016	00:01:32	Common pipistrell	FP-1	01/05/2016	00:23:31	Soprano pipistrelle
FP-1	30/04/2016	23:34:21	Soprano pipistrelle	FP-1	30/04/2016	23:48:47	Common pipistrell	FP-1	01/05/2016	00:02:44	Common pipistrell	FP-1	01/05/2016	00:23:56	Soprano pipistrelle
FP-1	30/04/2016	23:34:36	Common pipistrell	FP-1	30/04/2016	23:49:00	Common pipistrell	FP-1	01/05/2016	00:02:44	Soprano pipistrelle	FP-1	01/05/2016	00:44:52	Common pipistrelle
FP-1	30/04/2016	23:36:38	Common pipistrell	FP-1	30/04/2016	23:49:25	Common pipistrell	FP-1	01/05/2016	00:05:08	Soprano pipistrelle	FP-1	01/05/2016	00:48:33	Common pipistrelle
FP-1	30/04/2016	23:37:24	Pipistrelle sp.	FP-1	30/04/2016	23:49:41	Common pipistrell	FP-1	01/05/2016	00:05:24	Soprano pipistrelle	FP-1	01/05/2016	00:48:45	Common pipistrelle
FP-1	30/04/2016	23:37:42	Pipistrelle sp.	FP-1	30/04/2016	23:49:54	Common pipistrell	FP-1	01/05/2016	00:05:49	Soprano pipistrelle	FP-1	01/05/2016	00:48:57	Common pipistrelle
FP-1	30/04/2016	23:38:12	Pipistrelle sp.	FP-1	30/04/2016	23:50:19	Common pipistrell	FP-1	01/05/2016	00:06:25	Soprano pipistrelle	FP-1	01/05/2016	00:49:15	Common pipistrelle
FP-1	30/04/2016	23:38:55	Soprano pipistrelle	FP-1	30/04/2016	23:50:30	Common pipistrell	FP-1	01/05/2016	00:06:44	Soprano pipistrelle	FP-1	01/05/2016	00:49:29	Common pipistrelle
FP-1	30/04/2016	23:39:08	Soprano pipistrelle	FP-1	30/04/2016	23:50:53	Common pipistrell	FP-1	01/05/2016	00:07:02	Common pipistrell	FP-1	01/05/2016	00:49:41	Common pipistrelle
FP-1	30/04/2016	23:39:28	Soprano pipistrelle	FP-1	30/04/2016	23:51:07	Common pipistrell	FP-1	01/05/2016	00:07:31	Common pipistrell	FP-1	01/05/2016	00:50:02	Common pipistrelle
FP-1	30/04/2016	23:39:51	Pipistrelle sp.	FP-1	30/04/2016	23:51:25	Common pipistrell	FP-1	01/05/2016	00:08:37	Pipistrelle sp.	FP-1	01/05/2016	00:50:24	Common pipistrelle
FP-1	30/04/2016	23:40:02	Pipistrelle sp.	FP-1	30/04/2016	23:51:25	Soprano pipistrelle	FP-1	01/05/2016	00:08:55	Soprano pipistrelle	FP-1	01/05/2016	00:50:38	Common pipistrelle
FP-1	30/04/2016	23:41:20	Pipistrelle sp.	FP-1	30/04/2016	23:51:41	Soprano pipistrelle	FP-1	01/05/2016	00:09:09	Pipistrelle sp.	FP-1	01/05/2016	00:50:53	Common pipistrelle
FP-1	30/04/2016	23:41:28	Soprano pipistrelle	FP-1	30/04/2016	23:51:52	Soprano pipistrelle	FP-1	01/05/2016	00:09:21	Pipistrelle sp.	FP-1	01/05/2016	00:51:12	Common pipistrelle
FP-1	30/04/2016	23:41:46	Soprano pipistrelle	FP-1	30/04/2016	23:52:10	Soprano pipistrelle	FP-1	01/05/2016	00:09:28	Pipistrelle sp.	FP-1	01/05/2016	00:51:32	Common pipistrelle
FP-1	30/04/2016	23:42:00	Soprano pipistrelle	FP-1	30/04/2016	23:52:18	Common pipistrell	FP-1	01/05/2016	00:09:50	Soprano pipistrelle	FP-1	01/05/2016	00:51:52	Common pipistrelle
FP-1	30/04/2016	23:42:13	Soprano pipistrelle	FP-1	30/04/2016	23:52:18	Soprano pipistrelle	FP-1	01/05/2016	00:10:09	Pipistrelle sp.	FP-1	01/05/2016	00:52:17	Common pipistrelle
FP-1	30/04/2016	23:42:24	Common pipistrell	FP-1	30/04/2016	23:52:36	Soprano pipistrelle	FP-1	01/05/2016	00:10:25	Common pipistrell	FP-1	01/05/2016	00:52:37	Common pipistrelle
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FP-1	30/04/2016	23:42:53	Soprano pipistrelle	FP-1	30/04/2016	23:53:28	Common pipistrell	FP-1	01/05/2016	00:10:55	Common pipistrell	FP-1	01/05/2016	00:53:39	Common pipistrelle
FP-1	30/04/2016	23:43:11	Soprano pipistrelle	FP-1	30/04/2016	23:53:47	Pipistrelle sp.	FP-1	01/05/2016	00:11:04	Common pipistrell	FP-1	01/05/2016	00:54:02	Common pipistrelle
FP-1	30/04/2016	23:43:31	Soprano pipistrelle	FP-1	30/04/2016	23:53:54	Soprano pipistrelle	FP-1	01/05/2016	00:11:15	Myotis sp.	FP-1	01/05/2016	00:54:22	Common pipistrelle
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FP-1	30/04/2016	23:44:14	Common pipistrell	FP-1	30/04/2016	23:55:08	Common pipistrell	FP-1	01/05/2016	00:11:52	Soprano pipistrelle	FP-1	01/05/2016	00:55:24	Common pipistrelle
FP-1	30/04/2016	23:44:14	Soprano pipistrelle	FP-1	30/04/2016	23:55:28	Common pipistrell	FP-1	01/05/2016	00:12:20	Common pipistrell	FP-1	01/05/2016	00:55:43	Common pipistrelle
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FP-1	30/04/2016	23:44:57	Pipistrelle sp.	FP-1	30/04/2016	23:56:24	Common pipistrell	FP-1	01/05/2016	00:13:04	Common pipistrell	FP-1	01/05/2016	00:56:18	Common pipistrelle
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FP-1	30/04/2016	23:45:19	Soprano pipistrelle	FP-1	30/04/2016	23:56:33	Soprano pipistrelle	FP-1	01/05/2016	00:14:20	Common pipistrell	FP-1	01/05/2016	00:57:00	Common pipistrelle
FP-1	30/04/2016	23:45:42	Soprano pipistrelle	FP-1	30/04/2016	23:56:56	Soprano pipistrelle	FP-1	01/05/2016	00:14:20	Soprano pipistrelle	FP-1	01/05/2016	00:57:13	Common pipistrelle
FP-1	30/04/2016	23:45:51	Common pipistrell	FP-1	30/04/2016	23:57:05	Common pipistrell	FP-1	01/05/2016	00:14:55	Soprano pipistrelle	FP-1	01/05/2016	00:57:29	Common pipistrelle
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FP-1	30/04/2016	23:46:15	Common pipistrell	FP-1	30/04/2016	23:57:30	Common pipistrell	FP-1	01/05/2016	00:16:32	Soprano pipistrelle	FP-1	01/05/2016	00:58:04	Common pipistrelle
FP-1	30/04/2016	23:46:15	Soprano pipistrelle	FP-1	30/04/2016	23:57:30	Soprano pipistrelle	FP-1	01/05/2016	00:17:13	Pipistrelle sp.	FP-1	01/05/2016	00:58:26	Common pipistrelle
FP-1	30/04/2016	23:46:38	Soprano pipistrelle	FP-1	30/04/2016	23:58:36	Common pipistrell	FP-1	01/05/2016	00:17:29	Soprano pipistrelle	FP-1	01/05/2016	00:58:48	Common pipistrelle
FP-1	30/04/2016	23:46:46	Pipistrelle sp.	FP-1	30/04/2016	23:59:18	Pipistrelle sp.	FP-1	01/05/2016	00:17:55	Soprano pipistrelle	FP-1	01/05/2016	00:59:11	Common pipistrelle
FP-1	30/04/2016	23:47:20	Soprano pipistrelle	FP-1	30/04/2016	23:59:26	Soprano pipistrelle	FP-1	01/05/2016	00:18:41	Soprano pipistrelle	FP-1	01/05/2016	00:59:24	Common pipistrelle
FP-1	30/04/2016	23:47:43	Soprano pipistrelle	FP-1	30/04/2016	23:59:39	Common pipistrell	FP-1	01/05/2016	00:19:12	Pipistrelle sp.	FP-1	01/05/2016	00:59:36	Common pipistrelle
FP-1	30/04/2016	23:47:56	Soprano pipistrelle	FP-1	30/04/2016	23:59:47	Common pipistrell	FP-1	01/05/2016	00:20:36	Soprano pipistrelle	FP-1	01/05/2016	01:00:03	Common pipistrelle
FP-1	30/04/2016	23:48:03	Soprano pipistrelle	FP-1	01/05/2016	00:00:14	Soprano pipistrelle	FP-1	01/05/2016	00:21:29	Soprano pipistrelle	FP-1	01/05/2016	01:00:18	Common pipistrelle
FP-1	30/04/2016	23:48:13	Soprano pipistrelle	FP-1	01/05/2016	00:00:30	Soprano pipistrelle	FP-1	01/05/2016	00:22:01	Soprano pipistrelle	FP-1	01/05/2016	01:00:28	Common pipistrelle
FP-1	30/04/2016	23:48:29	Common pipistrell	FP-1	01/05/2016	00:01:21	Common pipistrell	FP-1	01/05/2016	00:23:00	Soprano pipistrelle	FP-1	01/05/2016	01:00:46	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	01/05/2016	01:01:04	Common pipistrell	FP-1	01/05/2016	01:59:20	Soprano pipistrelle	FP-1	01/05/2016	02:44:32	Soprano pipistrelle	FP-1	01/05/2016	21:46:44	Soprano pipistrelle
FP-1	01/05/2016	01:01:17	Common pipistrell	FP-1	01/05/2016	02:01:03	Soprano pipistrelle	FP-1	01/05/2016	02:46:26	Soprano pipistrelle	FP-1	01/05/2016	21:47:47	Pipistrelle sp.
FP-1	01/05/2016	01:01:37	Common pipistrell	FP-1	01/05/2016	02:01:33	Soprano pipistrelle	FP-1	01/05/2016	02:46:46	Soprano pipistrelle	FP-1	01/05/2016	21:48:48	Common pipistrelle
FP-1	01/05/2016	01:01:56	Common pipistrell	FP-1	01/05/2016	02:02:03	Soprano pipistrelle	FP-1	01/05/2016	02:47:04	Pipistrelle sp.	FP-1	01/05/2016	21:49:03	Common pipistrelle
FP-1	01/05/2016	01:02:15	Common pipistrell	FP-1	01/05/2016	02:03:08	Pipistrelle sp.	FP-1	01/05/2016	02:47:34	Soprano pipistrelle	FP-1	01/05/2016	21:49:03	Soprano pipistrelle
FP-1	01/05/2016	01:02:36	Common pipistrell	FP-1	01/05/2016	02:03:34	Soprano pipistrelle	FP-1	01/05/2016	02:48:17	Soprano pipistrelle	FP-1	01/05/2016	21:49:55	Soprano pipistrelle
FP-1	01/05/2016	01:02:54	Common pipistrell	FP-1	01/05/2016	02:03:47	Pipistrelle sp.	FP-1	01/05/2016	02:49:13	Soprano pipistrelle	FP-1	01/05/2016	21:50:16	Pipistrelle sp.
FP-1	01/05/2016	01:03:06	Common pipistrell	FP-1	01/05/2016	02:05:26	Soprano pipistrelle	FP-1	01/05/2016	02:50:15	Soprano pipistrelle	FP-1	01/05/2016	21:54:22	Common pipistrelle
FP-1	01/05/2016	01:03:27	Common pipistrell	FP-1	01/05/2016	02:06:58	Soprano pipistrelle	FP-1	01/05/2016	02:51:26	Soprano pipistrelle	FP-1	01/05/2016	21:54:41	Common pipistrelle
FP-1	01/05/2016	01:03:44	Common pipistrell	FP-1	01/05/2016	02:07:22	Soprano pipistrelle	FP-1	01/05/2016	02:52:24	Pipistrelle sp.	FP-1	01/05/2016	21:54:57	Common pipistrelle
FP-1	01/05/2016	01:04:06	Common pipistrell	FP-1	01/05/2016	02:08:01	Soprano pipistrelle	FP-1	01/05/2016	02:52:36	Soprano pipistrelle	FP-1	01/05/2016	21:55:19	Common pipistrelle
FP-1	01/05/2016	01:04:27	Common pipistrell	FP-1	01/05/2016	02:08:13	Soprano pipistrelle	FP-1	01/05/2016	02:52:57	Soprano pipistrelle	FP-1	01/05/2016	21:56:43	Common pipistrelle
FP-1	01/05/2016	01:04:44	Common pipistrell	FP-1	01/05/2016	02:08:50	Soprano pipistrelle	FP-1	01/05/2016	02:53:48	Pipistrelle sp.	FP-1	01/05/2016	21:57:13	Common pipistrelle
FP-1	01/05/2016	01:05:03	Common pipistrell	FP-1	01/05/2016	02:10:11	Pipistrelle sp.	FP-1	01/05/2016	02:56:17	Soprano pipistrelle	FP-1	01/05/2016	21:57:28	Common pipistrelle
FP-1	01/05/2016	01:05:15	Common pipistrell	FP-1	01/05/2016	02:12:42	Pipistrelle sp.	FP-1	01/05/2016	02:57:06	Soprano pipistrelle	FP-1	01/05/2016	21:57:45	Common pipistrelle
FP-1	01/05/2016	01:05:25	Common pipistrell	FP-1	01/05/2016	02:14:52	Soprano pipistrelle	FP-1	01/05/2016	02:57:34	Soprano pipistrelle	FP-1	01/05/2016	21:59:16	Common pipistrelle
FP-1	01/05/2016	01:05:39	Common pipistrell	FP-1	01/05/2016	02:15:26	Soprano pipistrelle	FP-1	01/05/2016	02:58:05	Soprano pipistrelle	FP-1	01/05/2016	22:02:05	Common pipistrelle
FP-1	01/05/2016	01:05:47	Common pipistrell	FP-1	01/05/2016	02:16:12	Soprano pipistrelle	FP-1	01/05/2016	02:58:47	Soprano pipistrelle	FP-1	01/05/2016	22:05:02	Common pipistrelle
FP-1	01/05/2016	01:06:06	Common pipistrell	FP-1	01/05/2016	02:20:08	Soprano pipistrelle	FP-1	01/05/2016	03:00:06	Soprano pipistrelle	FP-1	01/05/2016	22:07:01	Pipistrelle sp.
FP-1	01/05/2016	01:06:06	Soprano pipistrelle	FP-1	01/05/2016	02:22:21	Soprano pipistrelle	FP-1	01/05/2016	03:01:40	Myotis sp.	FP-1	01/05/2016	22:10:38	Pipistrelle sp.
FP-1	01/05/2016	01:07:04	Soprano pipistrelle	FP-1	01/05/2016	02:22:33	Pipistrelle sp.	FP-1	01/05/2016	03:02:01	Soprano pipistrelle	FP-1	01/05/2016	22:19:46	Common pipistrelle
FP-1	01/05/2016	01:07:17	Soprano pipistrelle	FP-1	01/05/2016	02:22:50	Soprano pipistrelle	FP-1	01/05/2016	03:02:12	Soprano pipistrelle	FP-1	01/05/2016	22:19:59	Common pipistrelle
FP-1	01/05/2016	01:07:33	Soprano pipistrelle	FP-1	01/05/2016	02:23:39	Soprano pipistrelle	FP-1	01/05/2016	03:04:11	Common pipistrell	FP-1	01/05/2016	22:21:19	Soprano pipistrelle
FP-1	01/05/2016	01:07:46	Soprano pipistrelle	FP-1	01/05/2016	02:25:10	Soprano pipistrelle	FP-1	01/05/2016	21:28:59	Leisler's bat	FP-1	01/05/2016	22:26:19	Soprano pipistrelle
FP-1	01/05/2016	01:32:55	Soprano pipistrelle	FP-1	01/05/2016	02:29:00	Pipistrelle sp.	FP-1	01/05/2016	21:28:59	Soprano pipistrelle	FP-1	01/05/2016	22:35:55	Soprano pipistrelle
FP-1	01/05/2016	01:48:16	Common pipistrell	FP-1	01/05/2016	02:31:29	Soprano pipistrelle	FP-1	01/05/2016	21:29:11	Pipistrelle sp.	FP-1	01/05/2016	22:42:28	Soprano pipistrelle
FP-1	01/05/2016	01:48:35	Common pipistrell	FP-1	01/05/2016	02:33:32	Soprano pipistrelle	FP-1	01/05/2016	21:30:39	Pipistrelle sp.	FP-1	01/05/2016	22:52:53	Pipistrelle sp.
FP-1	01/05/2016	01:48:44	Common pipistrell	FP-1	01/05/2016	02:33:41	Soprano pipistrelle	FP-1	01/05/2016	21:31:36	Pipistrelle sp.	FP-1	01/05/2016	22:53:52	Soprano pipistrelle
FP-1	01/05/2016	01:49:01	Common pipistrell	FP-1	01/05/2016	02:33:59	Soprano pipistrelle	FP-1	01/05/2016	21:32:36	Soprano pipistrelle	FP-1	01/05/2016	22:54:01	Pipistrelle sp.
FP-1	01/05/2016	01:49:15	Common pipistrell	FP-1	01/05/2016	02:35:48	Soprano pipistrelle	FP-1	01/05/2016	21:32:52	Soprano pipistrelle	FP-1	01/05/2016	22:56:13	Soprano pipistrelle
FP-1	01/05/2016	01:49:33	Common pipistrell	FP-1	01/05/2016	02:36:14	Soprano pipistrelle	FP-1	01/05/2016	21:34:53	Common pipistrell	FP-1	01/05/2016	22:56:24	Soprano pipistrelle
FP-1	01/05/2016	01:49:56	Common pipistrell	FP-1	01/05/2016	02:37:01	Soprano pipistrelle	FP-1	01/05/2016	21:35:00	Common pipistrell	FP-1	01/05/2016	22:56:46	Soprano pipistrelle
FP-1	01/05/2016	01:50:14	Common pipistrell	FP-1	01/05/2016	02:37:16	Soprano pipistrelle	FP-1	01/05/2016	21:35:11	Common pipistrell	FP-1	01/05/2016	22:56:56	Pipistrelle sp.
FP-1	01/05/2016	01:50:27	Common pipistrell	FP-1	01/05/2016	02:38:10	Soprano pipistrelle	FP-1	01/05/2016	21:35:35	Common pipistrell	FP-1	01/05/2016	22:57:05	Soprano pipistrelle
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FP-1	01/05/2016	01:50:58	Soprano pipistrelle	FP-1	01/05/2016	02:38:30	Pipistrelle sp.	FP-1	01/05/2016	21:42:03	Common pipistrell	FP-1	01/05/2016	23:03:19	Soprano pipistrelle
FP-1	01/05/2016	01:51:49	Soprano pipistrelle	FP-1	01/05/2016	02:39:16	Soprano pipistrelle	FP-1	01/05/2016	21:42:21	Common pipistrell	FP-1	01/05/2016	23:08:30	Common pipistrelle
FP-1	01/05/2016	01:52:42	Soprano pipistrelle	FP-1	01/05/2016	02:41:29	Soprano pipistrelle	FP-1	01/05/2016	21:42:27	Common pipistrell	FP-1	01/05/2016	23:08:46	Common pipistrelle
FP-1	01/05/2016	01:54:10	Soprano pipistrelle	FP-1	01/05/2016	02:42:09	Soprano pipistrelle	FP-1	01/05/2016	21:42:46	Soprano pipistrelle	FP-1	01/05/2016	23:09:17	Common pipistrelle
FP-1	01/05/2016	01:54:46	Soprano pipistrelle	FP-1	01/05/2016	02:42:28	Soprano pipistrelle	FP-1	01/05/2016	21:43:02	Soprano pipistrelle	FP-1	01/05/2016	23:10:12	Soprano pipistrelle
FP-1	01/05/2016	01:55:00	Pipistrelle sp.	FP-1	01/05/2016	02:42:54	Soprano pipistrelle	FP-1	01/05/2016	21:43:56	Soprano pipistrelle	FP-1	01/05/2016	23:10:23	Soprano pipistrelle
FP-1	01/05/2016	01:55:25	Soprano pipistrelle	FP-1	01/05/2016	02:43:36	Soprano pipistrelle	FP-1	01/05/2016	21:44:16	Soprano pipistrelle	FP-1	01/05/2016	23:10:40	Pipistrelle sp.
FP-1	01/05/2016	01:57:14	Soprano pipistrelle	FP-1	01/05/2016	02:43:58	Soprano pipistrelle	FP-1	01/05/2016	21:45:17	Common pipistrell	FP-1	01/05/2016	23:12:09	Soprano pipistrelle
FP-1	01/05/2016	01:58:49	Soprano pipistrelle	FP-1	01/05/2016	02:44:14	Pipistrelle sp.	FP-1	01/05/2016	21:45:34	Common pipistrell	FP-1	01/05/2016	23:12:27	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	01/05/2016	23:12:27	Soprano pipistrelle	FP-1	01/05/2016	23:24:40	Common pipistrelle	FP-1	01/05/2016	23:51:46	Common pipistrelle	FP-1	02/05/2016	00:18:18	Common pipistrelle
FP-1	01/05/2016	23:12:46	Common pipistrelle	FP-1	01/05/2016	23:25:10	Soprano pipistrelle	FP-1	01/05/2016	23:52:00	Common pipistrelle	FP-1	02/05/2016	00:18:36	Common pipistrelle
FP-1	01/05/2016	23:12:46	Soprano pipistrelle	FP-1	01/05/2016	23:25:27	Soprano pipistrelle	FP-1	01/05/2016	23:59:22	Common pipistrelle	FP-1	02/05/2016	00:19:01	Common pipistrelle
FP-1	01/05/2016	23:12:58	Common pipistrelle	FP-1	01/05/2016	23:28:23	Common pipistrelle	FP-1	01/05/2016	23:59:40	Common pipistrelle	FP-1	02/05/2016	00:19:01	Soprano pipistrelle
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FP-1	01/05/2016	23:13:23	Soprano pipistrelle	FP-1	01/05/2016	23:29:00	Common pipistrelle	FP-1	02/05/2016	00:00:16	Common pipistrelle	FP-1	02/05/2016	00:19:27	Soprano pipistrelle
FP-1	01/05/2016	23:13:48	Soprano pipistrelle	FP-1	01/05/2016	23:29:08	Common pipistrelle	FP-1	02/05/2016	00:00:36	Common pipistrelle	FP-1	02/05/2016	00:19:45	Soprano pipistrelle
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FP-1	01/05/2016	23:14:18	Soprano pipistrelle	FP-1	01/05/2016	23:30:42	Common pipistrelle	FP-1	02/05/2016	00:01:19	Pipistrelle sp.	FP-1	02/05/2016	00:20:21	Pipistrelle sp.
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FP-1	01/05/2016	23:15:30	Soprano pipistrelle	FP-1	01/05/2016	23:32:18	Common pipistrelle	FP-1	02/05/2016	00:02:23	Common pipistrelle	FP-1	02/05/2016	00:21:11	Common pipistrelle
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FP-1	01/05/2016	23:16:11	Soprano pipistrelle	FP-1	01/05/2016	23:33:15	Common pipistrelle	FP-1	02/05/2016	00:07:47	Soprano pipistrelle	FP-1	02/05/2016	00:21:55	Common pipistrelle
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FP-1	01/05/2016	23:16:47	Soprano pipistrelle	FP-1	01/05/2016	23:34:09	Common pipistrelle	FP-1	02/05/2016	00:09:50	Common pipistrelle	FP-1	02/05/2016	00:22:44	Common pipistrelle
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FP-1	01/05/2016	23:18:12	Common pipistrelle	FP-1	01/05/2016	23:35:24	Common pipistrelle	FP-1	02/05/2016	00:11:11	Common pipistrelle	FP-1	02/05/2016	00:24:04	Common pipistrelle
FP-1	01/05/2016	23:18:29	Common pipistrelle	FP-1	01/05/2016	23:35:53	Common pipistrelle	FP-1	02/05/2016	00:11:29	Common pipistrelle	FP-1	02/05/2016	00:24:22	Common pipistrelle
FP-1	01/05/2016	23:18:47	Common pipistrelle	FP-1	01/05/2016	23:38:28	Soprano pipistrelle	FP-1	02/05/2016	00:11:47	Common pipistrelle	FP-1	02/05/2016	00:25:16	Soprano pipistrelle
FP-1	01/05/2016	23:19:05	Common pipistrelle	FP-1	01/05/2016	23:38:44	Pipistrelle sp.	FP-1	02/05/2016	00:12:32	Common pipistrelle	FP-1	02/05/2016	00:25:29	Soprano pipistrelle
FP-1	01/05/2016	23:19:23	Common pipistrelle	FP-1	01/05/2016	23:44:59	Common pipistrelle	FP-1	02/05/2016	00:12:32	Soprano pipistrelle	FP-1	02/05/2016	00:26:09	Soprano pipistrelle
FP-1	01/05/2016	23:19:41	Common pipistrelle	FP-1	01/05/2016	23:45:23	Common pipistrelle	FP-1	02/05/2016	00:13:05	Common pipistrelle	FP-1	02/05/2016	00:27:03	Soprano pipistrelle
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FP-1	01/05/2016	23:21:02	Common pipistrelle	FP-1	01/05/2016	23:46:45	Common pipistrelle	FP-1	02/05/2016	00:14:35	Common pipistrelle	FP-1	02/05/2016	00:28:26	Common pipistrelle
FP-1	01/05/2016	23:21:20	Common pipistrelle	FP-1	01/05/2016	23:47:03	Common pipistrelle	FP-1	02/05/2016	00:14:53	Common pipistrelle	FP-1	02/05/2016	00:28:44	Common pipistrelle
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FP-1	01/05/2016	23:23:25	Common pipistrelle	FP-1	01/05/2016	23:50:42	Common pipistrelle	FP-1	02/05/2016	00:17:00	Soprano pipistrelle	FP-1	02/05/2016	00:34:24	Common pipistrelle
FP-1	01/05/2016	23:23:46	Common pipistrelle	FP-1	01/05/2016	23:51:00	Common pipistrelle	FP-1	02/05/2016	00:17:18	Common pipistrelle	FP-1	02/05/2016	00:34:37	Common pipistrelle
FP-1	01/05/2016	23:24:04	Common pipistrelle	FP-1	01/05/2016	23:51:18	Common pipistrelle	FP-1	02/05/2016	00:17:36	Common pipistrelle	FP-1	02/05/2016	00:34:55	Common pipistrelle
FP-1	01/05/2016	23:24:22	Common pipistrelle	FP-1	01/05/2016	23:51:28	Common pipistrelle	FP-1	02/05/2016	00:18:00	Common pipistrelle	FP-1	02/05/2016	00:35:13	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	02/05/2016	00:35:32	Common pipistrell	FP-1	02/05/2016	00:53:59	Common pipistrell	FP-1	02/05/2016	01:27:53	Common pipistrell	FP-1	02/05/2016	01:52:53	Common pipistrelle
FP-1	02/05/2016	00:35:50	Common pipistrell	FP-1	02/05/2016	00:54:06	Pipistrelle sp.	FP-1	02/05/2016	01:28:17	Common pipistrell	FP-1	02/05/2016	01:53:11	Common pipistrelle
FP-1	02/05/2016	00:36:08	Common pipistrell	FP-1	02/05/2016	00:54:24	Pipistrelle sp.	FP-1	02/05/2016	01:28:35	Common pipistrell	FP-1	02/05/2016	01:53:29	Common pipistrelle
FP-1	02/05/2016	00:36:26	Common pipistrell	FP-1	02/05/2016	00:54:42	Common pipistrell	FP-1	02/05/2016	01:28:53	Common pipistrell	FP-1	02/05/2016	01:53:47	Common pipistrelle
FP-1	02/05/2016	00:36:44	Common pipistrell	FP-1	02/05/2016	00:55:52	Common pipistrell	FP-1	02/05/2016	01:29:12	Common pipistrell	FP-1	02/05/2016	01:54:05	Common pipistrelle
FP-1	02/05/2016	00:37:02	Common pipistrell	FP-1	02/05/2016	00:56:10	Common pipistrell	FP-1	02/05/2016	01:29:24	Common pipistrell	FP-1	02/05/2016	01:54:23	Common pipistrelle
FP-1	02/05/2016	00:37:20	Common pipistrell	FP-1	02/05/2016	00:56:42	Common pipistrell	FP-1	02/05/2016	01:29:42	Common pipistrell	FP-1	02/05/2016	01:54:30	Common pipistrelle
FP-1	02/05/2016	00:37:38	Common pipistrell	FP-1	02/05/2016	00:57:00	Common pipistrell	FP-1	02/05/2016	01:29:53	Common pipistrell	FP-1	02/05/2016	01:54:48	Common pipistrelle
FP-1	02/05/2016	00:37:56	Common pipistrell	FP-1	02/05/2016	00:58:46	Common pipistrell	FP-1	02/05/2016	01:30:11	Common pipistrell	FP-1	02/05/2016	01:55:06	Common pipistrelle
FP-1	02/05/2016	00:38:14	Common pipistrell	FP-1	02/05/2016	00:59:05	Common pipistrell	FP-1	02/05/2016	01:30:29	Common pipistrell	FP-1	02/05/2016	01:55:30	Common pipistrelle
FP-1	02/05/2016	00:38:50	Common pipistrell	FP-1	02/05/2016	00:59:23	Common pipistrell	FP-1	02/05/2016	01:30:47	Common pipistrell	FP-1	02/05/2016	01:55:48	Common pipistrelle
FP-1	02/05/2016	00:39:08	Common pipistrell	FP-1	02/05/2016	01:06:37	Common pipistrell	FP-1	02/05/2016	01:31:04	Common pipistrell	FP-1	02/05/2016	01:56:06	Common pipistrelle
FP-1	02/05/2016	00:43:17	Soprano pipistrelle	FP-1	02/05/2016	01:06:57	Common pipistrell	FP-1	02/05/2016	01:31:22	Common pipistrell	FP-1	02/05/2016	01:56:14	Common pipistrelle
FP-1	02/05/2016	00:43:36	Soprano pipistrelle	FP-1	02/05/2016	01:14:17	Common pipistrell	FP-1	02/05/2016	01:31:41	Common pipistrell	FP-1	02/05/2016	01:56:32	Common pipistrelle
FP-1	02/05/2016	00:43:55	Soprano pipistrelle	FP-1	02/05/2016	01:14:36	Common pipistrell	FP-1	02/05/2016	01:31:51	Common pipistrell	FP-1	02/05/2016	01:56:49	Common pipistrelle
FP-1	02/05/2016	00:44:13	Soprano pipistrelle	FP-1	02/05/2016	01:14:45	Common pipistrell	FP-1	02/05/2016	01:32:09	Common pipistrell	FP-1	02/05/2016	01:57:08	Common pipistrelle
FP-1	02/05/2016	00:44:22	Soprano pipistrelle	FP-1	02/05/2016	01:15:03	Common pipistrell	FP-1	02/05/2016	01:32:27	Common pipistrell	FP-1	02/05/2016	01:57:26	Common pipistrelle
FP-1	02/05/2016	00:44:41	Soprano pipistrelle	FP-1	02/05/2016	01:15:21	Common pipistrell	FP-1	02/05/2016	01:32:45	Common pipistrell	FP-1	02/05/2016	01:58:26	Common pipistrelle
FP-1	02/05/2016	00:44:59	Soprano pipistrelle	FP-1	02/05/2016	01:15:46	Common pipistrell	FP-1	02/05/2016	01:33:03	Common pipistrell	FP-1	02/05/2016	01:58:45	Common pipistrelle
FP-1	02/05/2016	00:45:14	Pipistrelle sp.	FP-1	02/05/2016	01:16:05	Common pipistrell	FP-1	02/05/2016	01:33:21	Common pipistrell	FP-1	02/05/2016	01:59:03	Common pipistrelle
FP-1	02/05/2016	00:45:21	Soprano pipistrelle	FP-1	02/05/2016	01:16:34	Common pipistrell	FP-1	02/05/2016	01:33:39	Common pipistrell	FP-1	02/05/2016	01:59:22	Common pipistrelle
FP-1	02/05/2016	00:45:29	Soprano pipistrelle	FP-1	02/05/2016	01:17:25	Common pipistrell	FP-1	02/05/2016	01:33:58	Common pipistrell	FP-1	02/05/2016	01:59:40	Common pipistrelle
FP-1	02/05/2016	00:45:49	Soprano pipistrelle	FP-1	02/05/2016	01:17:44	Common pipistrell	FP-1	02/05/2016	01:34:10	Common pipistrell	FP-1	02/05/2016	02:01:45	Common pipistrelle
FP-1	02/05/2016	00:46:14	Soprano pipistrelle	FP-1	02/05/2016	01:18:02	Common pipistrell	FP-1	02/05/2016	01:36:13	Common pipistrell	FP-1	02/05/2016	02:02:03	Common pipistrelle
FP-1	02/05/2016	00:46:46	Soprano pipistrelle	FP-1	02/05/2016	01:18:20	Common pipistrell	FP-1	02/05/2016	01:36:29	Common pipistrell	FP-1	02/05/2016	02:04:24	Common pipistrelle
FP-1	02/05/2016	00:47:20	Pipistrelle sp.	FP-1	02/05/2016	01:18:38	Common pipistrell	FP-1	02/05/2016	01:36:48	Common pipistrell	FP-1	02/05/2016	02:04:43	Soprano pipistrelle
FP-1	02/05/2016	00:47:39	Pipistrelle sp.	FP-1	02/05/2016	01:18:56	Common pipistrell	FP-1	02/05/2016	01:37:06	Common pipistrell	FP-1	02/05/2016	02:04:54	Common pipistrelle
FP-1	02/05/2016	00:47:57	Pipistrelle sp.	FP-1	02/05/2016	01:19:14	Common pipistrell	FP-1	02/05/2016	01:37:24	Common pipistrell	FP-1	02/05/2016	02:10:10	Common pipistrelle
FP-1	02/05/2016	00:48:15	Pipistrelle sp.	FP-1	02/05/2016	01:19:32	Common pipistrell	FP-1	02/05/2016	01:38:10	Common pipistrell	FP-1	02/05/2016	02:10:28	Common pipistrelle
FP-1	02/05/2016	00:48:24	Pipistrelle sp.	FP-1	02/05/2016	01:19:50	Common pipistrell	FP-1	02/05/2016	01:41:11	Common pipistrell	FP-1	02/05/2016	02:10:35	Common pipistrelle
FP-1	02/05/2016	00:48:42	Common pipistrell	FP-1	02/05/2016	01:20:08	Common pipistrell	FP-1	02/05/2016	01:41:30	Common pipistrell	FP-1	02/05/2016	02:10:53	Common pipistrelle
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FP-1	02/05/2016	00:49:18	Common pipistrell	FP-1	02/05/2016	01:24:17	Common pipistrell	FP-1	02/05/2016	01:42:06	Common pipistrell	FP-1	02/05/2016	02:11:29	Common pipistrelle
FP-1	02/05/2016	00:49:36	Common pipistrell	FP-1	02/05/2016	01:24:35	Common pipistrell	FP-1	02/05/2016	01:42:25	Common pipistrell	FP-1	02/05/2016	02:11:47	Common pipistrelle
FP-1	02/05/2016	00:49:48	Pipistrelle sp.	FP-1	02/05/2016	01:24:53	Common pipistrell	FP-1	02/05/2016	01:42:42	Common pipistrell	FP-1	02/05/2016	02:14:01	Common pipistrelle
FP-1	02/05/2016	00:50:06	Common pipistrell	FP-1	02/05/2016	01:25:11	Common pipistrell	FP-1	02/05/2016	01:43:00	Common pipistrell	FP-1	02/05/2016	02:14:20	Common pipistrelle
FP-1	02/05/2016	00:50:25	Common pipistrell	FP-1	02/05/2016	01:25:29	Common pipistrell	FP-1	02/05/2016	01:43:18	Common pipistrell	FP-1	02/05/2016	02:14:38	Common pipistrelle
FP-1	02/05/2016	00:50:33	Pipistrelle sp.	FP-1	02/05/2016	01:25:47	Common pipistrell	FP-1	02/05/2016	01:43:37	Common pipistrell	FP-1	02/05/2016	02:14:57	Common pipistrelle
FP-1	02/05/2016	00:50:51	Pipistrelle sp.	FP-1	02/05/2016	01:26:05	Common pipistrell	FP-1	02/05/2016	01:43:49	Common pipistrell	FP-1	02/05/2016	02:17:01	Common pipistrelle
FP-1	02/05/2016	00:51:11	Pipistrelle sp.	FP-1	02/05/2016	01:26:23	Common pipistrell	FP-1	02/05/2016	01:44:07	Common pipistrell	FP-1	02/05/2016	02:17:19	Common pipistrelle
FP-1	02/05/2016	00:51:30	Pipistrelle sp.	FP-1	02/05/2016	01:26:41	Common pipistrell	FP-1	02/05/2016	01:44:25	Common pipistrell	FP-1	02/05/2016	02:17:38	Common pipistrelle
FP-1	02/05/2016	00:51:45	Common pipistrell	FP-1	02/05/2016	01:26:59	Common pipistrell	FP-1	02/05/2016	01:44:43	Common pipistrell	FP-1	02/05/2016	02:17:56	Common pipistrelle
FP-1	02/05/2016	00:52:04	Common pipistrell	FP-1	02/05/2016	01:27:17	Common pipistrell	FP-1	02/05/2016	01:45:01	Common pipistrell	FP-1	02/05/2016	02:18:14	Common pipistrelle
FP-1	02/05/2016	00:53:40	Pipistrelle sp.	FP-1	02/05/2016	01:27:35	Common pipistrell	FP-1	02/05/2016	01:45:19	Common pipistrell	FP-1	02/05/2016	02:20:57	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	02/05/2016	02:21:23	Common pipistrell	FP-1	02/05/2016	02:43:48	Common pipistrell	FP-1	02/05/2016	02:56:11	Common pipistrell	FP-1	02/05/2016	03:08:26	Common pipistrelle
FP-1	02/05/2016	02:21:41	Common pipistrell	FP-1	02/05/2016	02:43:59	Common pipistrell	FP-1	02/05/2016	02:56:33	Common pipistrell	FP-1	02/05/2016	03:08:44	Common pipistrelle
FP-1	02/05/2016	02:22:26	Common pipistrell	FP-1	02/05/2016	02:44:17	Common pipistrell	FP-1	02/05/2016	02:56:52	Common pipistrell	FP-1	02/05/2016	03:09:02	Common pipistrelle
FP-1	02/05/2016	02:22:39	Common pipistrell	FP-1	02/05/2016	02:44:35	Common pipistrell	FP-1	02/05/2016	02:57:03	Common pipistrell	FP-1	02/05/2016	03:09:20	Common pipistrelle
FP-1	02/05/2016	02:22:52	Common pipistrell	FP-1	02/05/2016	02:44:53	Common pipistrell	FP-1	02/05/2016	02:57:22	Common pipistrell	FP-1	02/05/2016	03:09:38	Common pipistrelle
FP-1	02/05/2016	02:23:10	Common pipistrell	FP-1	02/05/2016	02:45:11	Common pipistrell	FP-1	02/05/2016	02:57:42	Common pipistrell	FP-1	02/05/2016	03:09:48	Common pipistrelle
FP-1	02/05/2016	02:23:29	Common pipistrell	FP-1	02/05/2016	02:45:22	Common pipistrell	FP-1	02/05/2016	02:57:56	Common pipistrell	FP-1	02/05/2016	03:10:06	Common pipistrelle
FP-1	02/05/2016	02:23:47	Common pipistrell	FP-1	02/05/2016	02:45:32	Common pipistrell	FP-1	02/05/2016	02:58:14	Common pipistrell	FP-1	02/05/2016	03:10:24	Common pipistrelle
FP-1	02/05/2016	02:24:05	Common pipistrell	FP-1	02/05/2016	02:45:50	Common pipistrell	FP-1	02/05/2016	02:58:27	Common pipistrell	FP-1	02/05/2016	03:10:51	Common pipistrelle
FP-1	02/05/2016	02:25:14	Common pipistrell	FP-1	02/05/2016	02:46:08	Common pipistrell	FP-1	02/05/2016	02:58:46	Common pipistrell	FP-1	02/05/2016	03:11:10	Common pipistrelle
FP-1	02/05/2016	02:25:33	Common pipistrell	FP-1	02/05/2016	02:46:26	Common pipistrell	FP-1	02/05/2016	02:59:04	Common pipistrell	FP-1	02/05/2016	03:11:28	Common pipistrelle
FP-1	02/05/2016	02:25:51	Common pipistrell	FP-1	02/05/2016	02:46:44	Common pipistrell	FP-1	02/05/2016	02:59:22	Common pipistrell	FP-1	02/05/2016	03:11:46	Common pipistrelle
FP-1	02/05/2016	02:26:29	Common pipistrell	FP-1	02/05/2016	02:47:02	Common pipistrell	FP-1	02/05/2016	02:59:40	Common pipistrell	FP-1	02/05/2016	03:12:04	Common pipistrelle
FP-1	02/05/2016	02:26:47	Common pipistrell	FP-1	02/05/2016	02:47:20	Common pipistrell	FP-1	02/05/2016	02:59:51	Common pipistrell	FP-1	02/05/2016	03:12:22	Common pipistrelle
FP-1	02/05/2016	02:27:05	Common pipistrell	FP-1	02/05/2016	02:47:28	Common pipistrell	FP-1	02/05/2016	03:00:09	Common pipistrell	FP-1	02/05/2016	03:12:40	Common pipistrelle
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FP-1	02/05/2016	02:36:08	Common pipistrell	FP-1	02/05/2016	02:48:04	Common pipistrell	FP-1	02/05/2016	03:00:45	Common pipistrell	FP-1	02/05/2016	03:13:16	Common pipistrelle
FP-1	02/05/2016	02:36:27	Common pipistrell	FP-1	02/05/2016	02:48:17	Common pipistrell	FP-1	02/05/2016	03:01:03	Common pipistrell	FP-1	02/05/2016	03:13:35	Common pipistrelle
FP-1	02/05/2016	02:36:45	Common pipistrell	FP-1	02/05/2016	02:48:35	Common pipistrell	FP-1	02/05/2016	03:01:21	Common pipistrell	FP-1	02/05/2016	03:13:53	Common pipistrelle
FP-1	02/05/2016	02:37:03	Common pipistrell	FP-1	02/05/2016	02:48:53	Common pipistrell	FP-1	02/05/2016	03:01:39	Common pipistrell	FP-1	02/05/2016	03:14:11	Common pipistrelle
FP-1	02/05/2016	02:37:20	Common pipistrell	FP-1	02/05/2016	02:49:12	Common pipistrell	FP-1	02/05/2016	03:01:57	Common pipistrell	FP-1	02/05/2016	03:14:29	Common pipistrelle
FP-1	02/05/2016	02:37:38	Common pipistrell	FP-1	02/05/2016	02:49:30	Common pipistrell	FP-1	02/05/2016	03:02:03	Common pipistrell	FP-1	02/05/2016	03:14:47	Common pipistrelle
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FP-1	02/05/2016	02:38:14	Common pipistrell	FP-1	02/05/2016	02:50:03	Common pipistrell	FP-1	02/05/2016	03:02:40	Common pipistrell	FP-1	02/05/2016	03:15:17	Common pipistrelle
FP-1	02/05/2016	02:38:34	Common pipistrell	FP-1	02/05/2016	02:50:17	Common pipistrell	FP-1	02/05/2016	03:02:58	Common pipistrell	FP-1	02/05/2016	03:15:35	Common pipistrelle
FP-1	02/05/2016	02:38:53	Common pipistrell	FP-1	02/05/2016	02:50:35	Common pipistrell	FP-1	02/05/2016	03:03:13	Common pipistrell	FP-1	02/05/2016	03:15:53	Common pipistrelle
FP-1	02/05/2016	02:39:02	Common pipistrell	FP-1	02/05/2016	02:50:53	Common pipistrell	FP-1	02/05/2016	03:03:31	Common pipistrell	FP-1	02/05/2016	03:16:09	Common pipistrelle
FP-1	02/05/2016	02:39:20	Common pipistrell	FP-1	02/05/2016	02:51:11	Common pipistrell	FP-1	02/05/2016	03:03:49	Common pipistrell	FP-1	02/05/2016	03:16:23	Common pipistrelle
FP-1	02/05/2016	02:39:38	Common pipistrell	FP-1	02/05/2016	02:51:29	Common pipistrell	FP-1	02/05/2016	03:04:04	Common pipistrell	FP-1	02/05/2016	03:16:42	Common pipistrelle
FP-1	02/05/2016	02:39:46	Common pipistrell	FP-1	02/05/2016	02:52:06	Common pipistrell	FP-1	02/05/2016	03:04:22	Common pipistrell	FP-1	02/05/2016	03:17:12	Common pipistrelle
FP-1	02/05/2016	02:40:05	Common pipistrell	FP-1	02/05/2016	02:52:21	Common pipistrell	FP-1	02/05/2016	03:04:41	Common pipistrell	FP-1	02/05/2016	03:17:30	Common pipistrelle
FP-1	02/05/2016	02:40:23	Common pipistrell	FP-1	02/05/2016	02:52:39	Common pipistrell	FP-1	02/05/2016	03:04:59	Common pipistrell	FP-1	02/05/2016	03:17:48	Common pipistrelle
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FP-1	02/05/2016	02:40:59	Common pipistrell	FP-1	02/05/2016	02:53:15	Common pipistrell	FP-1	02/05/2016	03:05:31	Common pipistrell	FP-1	02/05/2016	03:18:24	Common pipistrelle
FP-1	02/05/2016	02:41:17	Common pipistrell	FP-1	02/05/2016	02:53:33	Common pipistrell	FP-1	02/05/2016	03:05:40	Common pipistrell	FP-1	02/05/2016	03:18:42	Common pipistrelle
FP-1	02/05/2016	02:41:26	Common pipistrell	FP-1	02/05/2016	02:53:51	Common pipistrell	FP-1	02/05/2016	03:05:58	Common pipistrell	FP-1	02/05/2016	03:19:00	Common pipistrelle
FP-1	02/05/2016	02:41:44	Common pipistrell	FP-1	02/05/2016	02:54:02	Common pipistrell	FP-1	02/05/2016	03:06:16	Common pipistrell	FP-1	02/05/2016	03:19:18	Common pipistrelle
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FP-1	02/05/2016	02:42:20	Common pipistrell	FP-1	02/05/2016	02:54:30	Common pipistrell	FP-1	02/05/2016	03:06:45	Common pipistrell	FP-1	02/05/2016	03:19:56	Common pipistrelle
FP-1	02/05/2016	02:42:39	Common pipistrell	FP-1	02/05/2016	02:54:48	Common pipistrell	FP-1	02/05/2016	03:07:03	Common pipistrell	FP-1	02/05/2016	03:20:15	Common pipistrelle
FP-1	02/05/2016	02:42:53	Common pipistrell	FP-1	02/05/2016	02:55:06	Common pipistrell	FP-1	02/05/2016	03:07:22	Common pipistrell	FP-1	02/05/2016	03:20:33	Common pipistrelle
FP-1	02/05/2016	02:43:10	Common pipistrell	FP-1	02/05/2016	02:55:17	Common pipistrell	FP-1	02/05/2016	03:07:41	Common pipistrell	FP-1	02/05/2016	03:20:51	Common pipistrelle
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FP-1	02/05/2016	02:43:40	Common pipistrell	FP-1	02/05/2016	02:55:53	Common pipistrell	FP-1	02/05/2016	03:08:08	Common pipistrell	FP-1	02/05/2016	03:21:11	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	02/05/2016	03:21:48	Common pipistrell	FP-1	02/05/2016	03:35:02	Common pipistrell	FP-1	02/05/2016	03:47:54	Soprano pipistrelle	FP-1	02/05/2016	22:12:49	Common pipistrelle
FP-1	02/05/2016	03:22:06	Common pipistrell	FP-1	02/05/2016	03:35:20	Common pipistrell	FP-1	02/05/2016	03:48:12	Soprano pipistrelle	FP-1	02/05/2016	22:14:32	Common pipistrelle
FP-1	02/05/2016	03:22:24	Common pipistrell	FP-1	02/05/2016	03:35:38	Common pipistrell	FP-1	02/05/2016	03:48:30	Soprano pipistrelle	FP-1	02/05/2016	22:15:02	Common pipistrelle
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FP-1	02/05/2016	03:23:18	Common pipistrell	FP-1	02/05/2016	03:36:31	Common pipistrell	FP-1	02/05/2016	03:49:32	Common pipistrell	FP-1	02/05/2016	22:17:29	Soprano pipistrelle
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FP-1	02/05/2016	03:23:47	Common pipistrell	FP-1	02/05/2016	03:37:07	Common pipistrell	FP-1	02/05/2016	03:49:59	Common pipistrell	FP-1	02/05/2016	22:19:11	Soprano pipistrelle
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FP-1	02/05/2016	03:24:36	Common pipistrell	FP-1	02/05/2016	03:37:49	Common pipistrell	FP-1	02/05/2016	03:50:33	Common pipistrell	FP-1	03/05/2016	21:49:01	Common pipistrelle
FP-1	02/05/2016	03:24:55	Common pipistrell	FP-1	02/05/2016	03:37:57	Common pipistrell	FP-1	02/05/2016	03:50:51	Common pipistrell	FP-1	03/05/2016	21:59:34	Soprano pipistrelle
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FP-1	02/05/2016	03:25:32	Common pipistrell	FP-1	02/05/2016	03:38:27	Common pipistrell	FP-1	02/05/2016	03:52:56	Soprano pipistrelle	FP-1	03/05/2016	22:02:15	Soprano pipistrelle
FP-1	02/05/2016	03:25:50	Common pipistrell	FP-1	02/05/2016	03:38:45	Common pipistrell	FP-1	02/05/2016	03:53:10	Soprano pipistrelle	FP-1	03/05/2016	22:02:45	Soprano pipistrelle
FP-1	02/05/2016	03:26:08	Common pipistrell	FP-1	02/05/2016	03:39:03	Common pipistrell	FP-1	02/05/2016	03:53:23	Soprano pipistrelle	FP-1	03/05/2016	22:05:14	Soprano pipistrelle
FP-1	02/05/2016	03:26:26	Common pipistrell	FP-1	02/05/2016	03:39:21	Common pipistrell	FP-1	02/05/2016	03:53:58	Soprano pipistrelle	FP-1	03/05/2016	22:05:20	Pipistrelle sp.
FP-1	02/05/2016	03:26:44	Common pipistrell	FP-1	02/05/2016	03:39:39	Common pipistrell	FP-1	02/05/2016	03:54:09	Soprano pipistrelle	FP-1	03/05/2016	22:05:54	Soprano pipistrelle
FP-1	02/05/2016	03:27:02	Common pipistrell	FP-1	02/05/2016	03:39:57	Common pipistrell	FP-1	02/05/2016	03:54:15	Soprano pipistrelle	FP-1	03/05/2016	22:06:12	Soprano pipistrelle
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FP-1	02/05/2016	03:27:36	Common pipistrell	FP-1	02/05/2016	03:40:33	Common pipistrell	FP-1	02/05/2016	03:56:19	Myotis sp.	FP-1	03/05/2016	22:11:41	Common pipistrelle
FP-1	02/05/2016	03:27:54	Common pipistrell	FP-1	02/05/2016	03:40:51	Common pipistrell	FP-1	02/05/2016	04:00:55	Soprano pipistrelle	FP-1	03/05/2016	22:19:24	Common pipistrelle
FP-1	02/05/2016	03:28:12	Common pipistrell	FP-1	02/05/2016	03:41:09	Common pipistrell	FP-1	02/05/2016	04:07:20	Soprano pipistrelle	FP-1	03/05/2016	22:19:54	Common pipistrelle
FP-1	02/05/2016	03:28:21	Common pipistrell	FP-1	02/05/2016	03:41:27	Common pipistrell	FP-1	02/05/2016	21:36:23	Soprano pipistrelle	FP-1	03/05/2016	22:20:42	Common pipistrelle
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FP-1	02/05/2016	03:28:55	Common pipistrell	FP-1	02/05/2016	03:42:03	Common pipistrell	FP-1	02/05/2016	21:38:33	Leisler's bat	FP-1	03/05/2016	22:21:28	Common pipistrelle
FP-1	02/05/2016	03:29:13	Common pipistrell	FP-1	02/05/2016	03:42:22	Common pipistrell	FP-1	02/05/2016	21:43:03	Common pipistrell	FP-1	03/05/2016	22:22:36	Common pipistrelle
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FP-1	02/05/2016	03:30:34	Common pipistrell	FP-1	02/05/2016	03:43:51	Common pipistrell	FP-1	02/05/2016	21:53:03	Soprano pipistrelle	FP-1	03/05/2016	22:24:32	Common pipistrelle
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FP-1	02/05/2016	03:32:38	Common pipistrell	FP-1	02/05/2016	03:46:09	Common pipistrell	FP-1	02/05/2016	22:01:13	Common pipistrell	FP-1	03/05/2016	22:27:57	Pipistrelle sp.
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FP-1	02/05/2016	03:34:16	Common pipistrell	FP-1	02/05/2016	03:47:20	Common pipistrell	FP-1	02/05/2016	22:08:31	Soprano pipistrelle	FP-1	03/05/2016	22:29:34	Common pipistrelle
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ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	03/05/2016	22:34:11	Soprano pipistrelle	FP-1	03/05/2016	22:52:50	Common pipistrell	FP-1	03/05/2016	23:13:35	Common pipistrell	FP-1	03/05/2016	23:40:17	Common pipistrelle
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FP-1	03/05/2016	22:37:24	Common pipistrell	FP-1	03/05/2016	22:53:09	Soprano pipistrelle	FP-1	03/05/2016	23:14:33	Common pipistrell	FP-1	03/05/2016	23:40:40	Myotis sp.
FP-1	03/05/2016	22:37:41	Common pipistrell	FP-1	03/05/2016	22:53:33	Common pipistrell	FP-1	03/05/2016	23:14:49	Common pipistrell	FP-1	03/05/2016	23:40:40	Soprano pipistrelle
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FP-1	03/05/2016	22:42:27	Common pipistrell	FP-1	03/05/2016	22:58:43	Common pipistrell	FP-1	03/05/2016	23:22:36	Common pipistrell	FP-1	03/05/2016	23:46:27	Common pipistrelle
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FP-1	03/05/2016	22:43:43	Common pipistrell	FP-1	03/05/2016	22:59:06	Soprano pipistrelle	FP-1	03/05/2016	23:24:23	Common pipistrell	FP-1	03/05/2016	23:48:59	Pipistrelle sp.
FP-1	03/05/2016	22:43:57	Pipistrelle sp.	FP-1	03/05/2016	22:59:31	Common pipistrell	FP-1	03/05/2016	23:24:39	Common pipistrell	FP-1	03/05/2016	23:49:24	Common pipistrelle
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FP-1	03/05/2016	22:45:37	Common pipistrell	FP-1	03/05/2016	23:01:35	Common pipistrell	FP-1	03/05/2016	23:26:17	Common pipistrell	FP-1	03/05/2016	23:55:41	Common pipistrelle
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FP-1	03/05/2016	22:48:22	Pipistrelle sp.	FP-1	03/05/2016	23:02:15	Common pipistrell	FP-1	03/05/2016	23:26:52	Common pipistrell	FP-1	03/05/2016	23:56:06	Soprano pipistrelle
FP-1	03/05/2016	22:48:41	Common pipistrell	FP-1	03/05/2016	23:02:45	Common pipistrell	FP-1	03/05/2016	23:28:00	Soprano pipistrelle	FP-1	03/05/2016	23:56:23	Common pipistrelle
FP-1	03/05/2016	22:49:13	Common pipistrell	FP-1	03/05/2016	23:03:33	Common pipistrell	FP-1	03/05/2016	23:29:10	Common pipistrell	FP-1	03/05/2016	23:56:23	Soprano pipistrelle
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FP-1	03/05/2016	22:49:31	Soprano pipistrelle	FP-1	03/05/2016	23:04:54	Pipistrelle sp.	FP-1	03/05/2016	23:29:32	Common pipistrell	FP-1	03/05/2016	23:56:56	Soprano pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	03/05/2016	23:57:49	Common pipistrelle	FP-1	04/05/2016	00:15:49	Soprano pipistrelle	FP-1	04/05/2016	00:28:25	Common pipistrelle	FP-1	04/05/2016	00:39:02	Common pipistrelle
FP-1	03/05/2016	23:58:10	Pipistrelle sp.	FP-1	04/05/2016	00:16:07	Soprano pipistrelle	FP-1	04/05/2016	00:28:42	Common pipistrelle	FP-1	04/05/2016	00:39:02	Soprano pipistrelle
FP-1	03/05/2016	23:58:30	Pipistrelle sp.	FP-1	04/05/2016	00:16:15	Soprano pipistrelle	FP-1	04/05/2016	00:28:55	Common pipistrelle	FP-1	04/05/2016	00:39:20	Common pipistrelle
FP-1	03/05/2016	23:58:47	Pipistrelle sp.	FP-1	04/05/2016	00:16:29	Soprano pipistrelle	FP-1	04/05/2016	00:29:07	Common pipistrelle	FP-1	04/05/2016	00:39:20	Soprano pipistrelle
FP-1	03/05/2016	23:59:11	Soprano pipistrelle	FP-1	04/05/2016	00:17:46	Pipistrelle sp.	FP-1	04/05/2016	00:29:23	Common pipistrelle	FP-1	04/05/2016	00:39:38	Common pipistrelle
FP-1	03/05/2016	23:59:29	Pipistrelle sp.	FP-1	04/05/2016	00:18:26	Soprano pipistrelle	FP-1	04/05/2016	00:29:35	Common pipistrelle	FP-1	04/05/2016	00:39:38	Soprano pipistrelle
FP-1	03/05/2016	23:59:36	Pipistrelle sp.	FP-1	04/05/2016	00:18:41	Soprano pipistrelle	FP-1	04/05/2016	00:29:43	Common pipistrelle	FP-1	04/05/2016	00:39:57	Common pipistrelle
FP-1	03/05/2016	23:59:50	Common pipistrelle	FP-1	04/05/2016	00:18:49	Soprano pipistrelle	FP-1	04/05/2016	00:29:58	Common pipistrelle	FP-1	04/05/2016	00:39:57	Soprano pipistrelle
FP-1	04/05/2016	00:00:26	Soprano pipistrelle	FP-1	04/05/2016	00:19:00	Soprano pipistrelle	FP-1	04/05/2016	00:30:26	Soprano pipistrelle	FP-1	04/05/2016	00:40:15	Common pipistrelle
FP-1	04/05/2016	00:00:48	Soprano pipistrelle	FP-1	04/05/2016	00:19:08	Soprano pipistrelle	FP-1	04/05/2016	00:30:41	Common pipistrelle	FP-1	04/05/2016	00:40:15	Soprano pipistrelle
FP-1	04/05/2016	00:01:15	Soprano pipistrelle	FP-1	04/05/2016	00:19:24	Soprano pipistrelle	FP-1	04/05/2016	00:30:41	Soprano pipistrelle	FP-1	04/05/2016	00:40:49	Common pipistrelle
FP-1	04/05/2016	00:01:26	Soprano pipistrelle	FP-1	04/05/2016	00:19:33	Soprano pipistrelle	FP-1	04/05/2016	00:30:56	Common pipistrelle	FP-1	04/05/2016	00:41:01	Common pipistrelle
FP-1	04/05/2016	00:01:44	Soprano pipistrelle	FP-1	04/05/2016	00:19:40	Soprano pipistrelle	FP-1	04/05/2016	00:31:11	Common pipistrelle	FP-1	04/05/2016	00:41:15	Common pipistrelle
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FP-1	04/05/2016	00:02:20	Soprano pipistrelle	FP-1	04/05/2016	00:20:36	Common pipistrelle	FP-1	04/05/2016	00:31:53	Common pipistrelle	FP-1	04/05/2016	00:41:35	Common pipistrelle
FP-1	04/05/2016	00:02:29	Soprano pipistrelle	FP-1	04/05/2016	00:20:43	Soprano pipistrelle	FP-1	04/05/2016	00:32:02	Common pipistrelle	FP-1	04/05/2016	00:41:52	Common pipistrelle
FP-1	04/05/2016	00:02:47	Soprano pipistrelle	FP-1	04/05/2016	00:20:50	Pipistrelle sp.	FP-1	04/05/2016	00:32:14	Common pipistrelle	FP-1	04/05/2016	00:42:00	Common pipistrelle
FP-1	04/05/2016	00:03:06	Pipistrelle sp.	FP-1	04/05/2016	00:20:58	Pipistrelle sp.	FP-1	04/05/2016	00:32:26	Common pipistrelle	FP-1	04/05/2016	00:42:14	Common pipistrelle
FP-1	04/05/2016	00:03:14	Soprano pipistrelle	FP-1	04/05/2016	00:21:12	Pipistrelle sp.	FP-1	04/05/2016	00:32:35	Common pipistrelle	FP-1	04/05/2016	00:42:32	Common pipistrelle
FP-1	04/05/2016	00:03:24	Common pipistrelle	FP-1	04/05/2016	00:21:31	Common pipistrelle	FP-1	04/05/2016	00:33:33	Pipistrelle sp.	FP-1	04/05/2016	00:42:40	Common pipistrelle
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FP-1	04/05/2016	00:15:13	Soprano pipistrelle	FP-1	04/05/2016	00:27:37	Common pipistrelle	FP-1	04/05/2016	00:38:11	Soprano pipistrelle	FP-1	04/05/2016	00:47:43	Common pipistrelle
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ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	04/05/2016	00:59:43	Common pipistrell	FP-1	04/05/2016	01:21:44	Soprano pipistrelle	FP-1	04/05/2016	02:18:02	Common pipistrell	FP-1	04/05/2016	02:36:12	Common pipistrelle
FP-1	04/05/2016	01:00:01	Pipistrelle sp.	FP-1	04/05/2016	01:22:02	Soprano pipistrelle	FP-1	04/05/2016	02:18:25	Pipistrelle sp.	FP-1	04/05/2016	02:36:37	Common pipistrelle
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FP-1	04/05/2016	01:00:44	Soprano pipistrelle	FP-1	04/05/2016	01:22:41	Myotis sp.	FP-1	04/05/2016	02:19:40	Common pipistrell	FP-1	04/05/2016	02:37:32	Common pipistrelle
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FP-1	04/05/2016	01:03:34	Pipistrelle sp.	FP-1	04/05/2016	01:25:03	Soprano pipistrelle	FP-1	04/05/2016	02:21:34	Pipistrelle sp.	FP-1	04/05/2016	02:38:18	Common pipistrelle
FP-1	04/05/2016	01:03:49	Pipistrelle sp.	FP-1	04/05/2016	01:26:23	Soprano pipistrelle	FP-1	04/05/2016	02:22:06	Pipistrelle sp.	FP-1	04/05/2016	02:38:36	Common pipistrelle
FP-1	04/05/2016	01:03:58	Pipistrelle sp.	FP-1	04/05/2016	01:30:42	Pipistrelle sp.	FP-1	04/05/2016	02:22:32	Soprano pipistrelle	FP-1	04/05/2016	02:38:54	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	04/05/2016	02:39:12	Common pipistrell	FP-1	04/05/2016	03:03:48	Pipistrelle sp.	FP-1	04/05/2016	03:27:12	Common pipistrell	FP-1	04/05/2016	03:43:27	Common pipistrelle
FP-1	04/05/2016	02:40:03	Common pipistrell	FP-1	04/05/2016	03:06:09	Soprano pipistrelle	FP-1	04/05/2016	03:27:34	Common pipistrell	FP-1	04/05/2016	03:45:13	Pipistrelle sp.
FP-1	04/05/2016	02:40:17	Common pipistrell	FP-1	04/05/2016	03:06:26	Pipistrelle sp.	FP-1	04/05/2016	03:28:07	Common pipistrell	FP-1	04/05/2016	03:47:52	Pipistrelle sp.
FP-1	04/05/2016	02:40:42	Common pipistrell	FP-1	04/05/2016	03:08:17	Soprano pipistrelle	FP-1	04/05/2016	03:28:33	Common pipistrell	FP-1	04/05/2016	03:48:34	Pipistrelle sp.
FP-1	04/05/2016	02:41:10	Common pipistrell	FP-1	04/05/2016	03:09:05	Pipistrelle sp.	FP-1	04/05/2016	03:28:44	Common pipistrell	FP-1	04/05/2016	03:51:26	Pipistrelle sp.
FP-1	04/05/2016	02:43:04	Common pipistrell	FP-1	04/05/2016	03:09:29	Pipistrelle sp.	FP-1	04/05/2016	03:28:59	Common pipistrell	FP-1	04/05/2016	03:52:44	Common pipistrelle
FP-1	04/05/2016	02:43:23	Common pipistrell	FP-1	04/05/2016	03:09:57	Pipistrelle sp.	FP-1	04/05/2016	03:29:18	Common pipistrell	FP-1	04/05/2016	03:53:05	Common pipistrelle
FP-1	04/05/2016	02:44:09	Soprano pipistrelle	FP-1	04/05/2016	03:10:23	Pipistrelle sp.	FP-1	04/05/2016	03:29:27	Common pipistrell	FP-1	04/05/2016	03:53:23	Common pipistrelle
FP-1	04/05/2016	02:44:37	Soprano pipistrelle	FP-1	04/05/2016	03:10:40	Pipistrelle sp.	FP-1	04/05/2016	03:30:33	Common pipistrell	FP-1	04/05/2016	03:53:32	Common pipistrelle
FP-1	04/05/2016	02:45:02	Common pipistrell	FP-1	04/05/2016	03:11:36	Pipistrelle sp.	FP-1	04/05/2016	03:30:49	Common pipistrell	FP-1	04/05/2016	03:53:45	Common pipistrelle
FP-1	04/05/2016	02:45:21	Common pipistrell	FP-1	04/05/2016	03:12:33	Pipistrelle sp.	FP-1	04/05/2016	03:31:00	Common pipistrell	FP-1	04/05/2016	03:54:03	Common pipistrelle
FP-1	04/05/2016	02:45:40	Common pipistrell	FP-1	04/05/2016	03:14:07	Common pipistrell	FP-1	04/05/2016	03:31:18	Common pipistrell	FP-1	04/05/2016	03:54:18	Common pipistrelle
FP-1	04/05/2016	02:45:58	Common pipistrell	FP-1	04/05/2016	03:14:19	Common pipistrell	FP-1	04/05/2016	03:31:28	Common pipistrell	FP-1	04/05/2016	03:54:36	Common pipistrelle
FP-1	04/05/2016	02:46:16	Common pipistrell	FP-1	04/05/2016	03:14:29	Common pipistrell	FP-1	04/05/2016	03:31:47	Common pipistrell	FP-1	04/05/2016	03:54:54	Common pipistrelle
FP-1	04/05/2016	02:46:34	Common pipistrell	FP-1	04/05/2016	03:16:09	Common pipistrell	FP-1	04/05/2016	03:31:54	Common pipistrell	FP-1	04/05/2016	03:55:52	Common pipistrelle
FP-1	04/05/2016	02:46:45	Common pipistrell	FP-1	04/05/2016	03:16:27	Common pipistrell	FP-1	04/05/2016	03:32:12	Common pipistrell	FP-1	04/05/2016	03:56:18	Common pipistrelle
FP-1	04/05/2016	02:47:03	Common pipistrell	FP-1	04/05/2016	03:16:55	Soprano pipistrelle	FP-1	04/05/2016	03:32:21	Common pipistrell	FP-1	04/05/2016	03:56:49	Common pipistrelle
FP-1	04/05/2016	02:47:17	Common pipistrell	FP-1	04/05/2016	03:18:05	Soprano pipistrelle	FP-1	04/05/2016	03:32:41	Common pipistrell	FP-1	04/05/2016	03:57:08	Common pipistrelle
FP-1	04/05/2016	02:47:36	Common pipistrell	FP-1	04/05/2016	03:19:30	Common pipistrell	FP-1	04/05/2016	03:32:59	Common pipistrell	FP-1	04/05/2016	03:57:23	Common pipistrelle
FP-1	04/05/2016	02:47:53	Common pipistrell	FP-1	04/05/2016	03:19:47	Common pipistrell	FP-1	04/05/2016	03:33:17	Common pipistrell	FP-1	04/05/2016	03:57:41	Common pipistrelle
FP-1	04/05/2016	02:49:19	Common pipistrell	FP-1	04/05/2016	03:20:01	Common pipistrell	FP-1	04/05/2016	03:33:36	Common pipistrell	FP-1	04/05/2016	03:57:53	Common pipistrelle
FP-1	04/05/2016	02:49:37	Common pipistrell	FP-1	04/05/2016	03:20:19	Common pipistrell	FP-1	04/05/2016	03:33:50	Common pipistrell	FP-1	04/05/2016	03:58:12	Pipistrelle sp.
FP-1	04/05/2016	02:49:59	Common pipistrell	FP-1	04/05/2016	03:20:37	Common pipistrell	FP-1	04/05/2016	03:34:55	Pipistrelle sp.	FP-1	04/05/2016	03:58:45	Common pipistrelle
FP-1	04/05/2016	02:50:17	Common pipistrell	FP-1	04/05/2016	03:20:37	Soprano pipistrelle	FP-1	04/05/2016	03:35:22	Pipistrelle sp.	FP-1	04/05/2016	03:58:59	Pipistrelle sp.
FP-1	04/05/2016	02:50:35	Common pipistrell	FP-1	04/05/2016	03:20:55	Common pipistrell	FP-1	04/05/2016	03:35:54	Pipistrelle sp.	FP-1	04/05/2016	03:59:07	Common pipistrelle
FP-1	04/05/2016	02:50:50	Common pipistrell	FP-1	04/05/2016	03:21:21	Common pipistrell	FP-1	04/05/2016	03:36:56	Pipistrelle sp.	FP-1	04/05/2016	03:59:25	Common pipistrelle
FP-1	04/05/2016	02:53:00	Common pipistrell	FP-1	04/05/2016	03:21:40	Common pipistrell	FP-1	04/05/2016	03:37:15	Pipistrelle sp.	FP-1	04/05/2016	03:59:47	Common pipistrelle
FP-1	04/05/2016	02:53:00	Soprano pipistrelle	FP-1	04/05/2016	03:21:58	Common pipistrell	FP-1	04/05/2016	03:38:24	Common pipistrell	FP-1	04/05/2016	04:00:02	Common pipistrelle
FP-1	04/05/2016	02:53:19	Common pipistrell	FP-1	04/05/2016	03:22:09	Common pipistrell	FP-1	04/05/2016	03:38:24	Soprano pipistrelle	FP-1	04/05/2016	04:00:20	Common pipistrelle
FP-1	04/05/2016	02:53:27	Common pipistrell	FP-1	04/05/2016	03:22:28	Common pipistrell	FP-1	04/05/2016	03:38:47	Common pipistrell	FP-1	04/05/2016	04:00:40	Common pipistrelle
FP-1	04/05/2016	02:53:45	Common pipistrell	FP-1	04/05/2016	03:22:46	Common pipistrell	FP-1	04/05/2016	03:39:06	Common pipistrell	FP-1	04/05/2016	04:00:58	Common pipistrelle
FP-1	04/05/2016	02:54:03	Common pipistrell	FP-1	04/05/2016	03:22:57	Common pipistrell	FP-1	04/05/2016	03:39:21	Common pipistrell	FP-1	04/05/2016	04:01:08	Common pipistrelle
FP-1	04/05/2016	02:54:14	Common pipistrell	FP-1	04/05/2016	03:23:06	Common pipistrell	FP-1	04/05/2016	03:39:39	Common pipistrell	FP-1	04/05/2016	04:01:17	Common pipistrelle
FP-1	04/05/2016	02:54:38	Pipistrelle sp.	FP-1	04/05/2016	03:23:24	Common pipistrell	FP-1	04/05/2016	03:39:54	Common pipistrell	FP-1	04/05/2016	04:01:28	Common pipistrelle
FP-1	04/05/2016	02:55:02	Pipistrelle sp.	FP-1	04/05/2016	03:23:46	Common pipistrell	FP-1	04/05/2016	03:40:13	Common pipistrell	FP-1	04/05/2016	04:01:47	Common pipistrelle
FP-1	04/05/2016	02:56:52	Pipistrelle sp.	FP-1	04/05/2016	03:24:01	Common pipistrell	FP-1	04/05/2016	03:40:23	Common pipistrell	FP-1	04/05/2016	04:01:59	Common pipistrelle
FP-1	04/05/2016	02:57:19	Pipistrelle sp.	FP-1	04/05/2016	03:24:27	Common pipistrell	FP-1	04/05/2016	03:40:40	Common pipistrell	FP-1	04/05/2016	04:02:28	Common pipistrelle
FP-1	04/05/2016	02:57:43	Pipistrelle sp.	FP-1	04/05/2016	03:24:59	Common pipistrell	FP-1	04/05/2016	03:42:16	Common pipistrell	FP-1	04/05/2016	04:02:47	Common pipistrelle
FP-1	04/05/2016	02:58:33	Soprano pipistrelle	FP-1	04/05/2016	03:25:15	Common pipistrell	FP-1	04/05/2016	03:42:35	Common pipistrell	FP-1	04/05/2016	04:03:11	Common pipistrelle
FP-1	04/05/2016	02:59:39	Soprano pipistrelle	FP-1	04/05/2016	03:25:25	Common pipistrell	FP-1	04/05/2016	03:42:35	Soprano pipistrelle	FP-1	04/05/2016	04:03:29	Common pipistrelle
FP-1	04/05/2016	03:00:00	Pipistrelle sp.	FP-1	04/05/2016	03:25:43	Common pipistrell	FP-1	04/05/2016	03:42:53	Common pipistrell	FP-1	04/05/2016	04:03:38	Common pipistrelle
FP-1	04/05/2016	03:00:41	Soprano pipistrelle	FP-1	04/05/2016	03:26:09	Common pipistrell	FP-1	04/05/2016	03:43:00	Common pipistrell	FP-1	04/05/2016	04:03:51	Common pipistrelle
FP-1	04/05/2016	03:02:04	Soprano pipistrelle	FP-1	04/05/2016	03:26:27	Common pipistrell	FP-1	04/05/2016	03:43:09	Common pipistrell	FP-1	04/05/2016	04:03:51	Soprano pipistrelle
FP-1	04/05/2016	03:03:20	Pipistrelle sp.	FP-1	04/05/2016	03:26:54	Common pipistrell	FP-1	04/05/2016	03:43:09	Soprano pipistrelle	FP-1	04/05/2016	04:04:16	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	04/05/2016	04:04:34	Common pipistrell	FP-1	04/05/2016	04:43:37	Pipistrelle sp.	FP-1	04/05/2016	21:41:54	Leisler's bat	FP-1	04/05/2016	22:05:12	Common pipistrelle
FP-1	04/05/2016	04:04:44	Common pipistrell	FP-1	04/05/2016	04:43:57	Pipistrelle sp.	FP-1	04/05/2016	21:42:11	Pipistrelle sp.	FP-1	04/05/2016	22:05:30	Soprano pipistrelle
FP-1	04/05/2016	04:05:03	Soprano pipistrelle	FP-1	04/05/2016	04:44:08	Soprano pipistrelle	FP-1	04/05/2016	21:42:29	Soprano pipistrelle	FP-1	04/05/2016	22:05:37	Soprano pipistrelle
FP-1	04/05/2016	04:06:13	Pipistrelle sp.	FP-1	04/05/2016	04:44:20	Pipistrelle sp.	FP-1	04/05/2016	21:42:55	Soprano pipistrelle	FP-1	04/05/2016	22:06:03	Common pipistrelle
FP-1	04/05/2016	04:07:20	Pipistrelle sp.	FP-1	04/05/2016	04:45:06	Common pipistrell	FP-1	04/05/2016	21:44:05	Soprano pipistrelle	FP-1	04/05/2016	22:06:15	Common pipistrelle
FP-1	04/05/2016	04:08:12	Pipistrelle sp.	FP-1	04/05/2016	04:45:24	Common pipistrell	FP-1	04/05/2016	21:44:16	Common pipistrell	FP-1	04/05/2016	22:07:28	Soprano pipistrelle
FP-1	04/05/2016	04:09:08	Common pipistrell	FP-1	04/05/2016	04:45:31	Pipistrelle sp.	FP-1	04/05/2016	21:44:29	Common pipistrell	FP-1	04/05/2016	22:07:50	Soprano pipistrelle
FP-1	04/05/2016	04:09:26	Common pipistrell	FP-1	04/05/2016	04:45:49	Soprano pipistrelle	FP-1	04/05/2016	21:44:38	Common pipistrell	FP-1	04/05/2016	22:26:39	Soprano pipistrelle
FP-1	04/05/2016	04:12:28	Pipistrelle sp.	FP-1	04/05/2016	04:46:20	Pipistrelle sp.	FP-1	04/05/2016	21:44:45	Common pipistrell	FP-1	04/05/2016	22:32:37	Soprano pipistrelle
FP-1	04/05/2016	04:13:21	Common pipistrell	FP-1	04/05/2016	04:47:48	Soprano pipistrelle	FP-1	04/05/2016	21:45:03	Common pipistrell	FP-1	04/05/2016	22:32:46	Soprano pipistrelle
FP-1	04/05/2016	04:13:40	Common pipistrell	FP-1	04/05/2016	04:48:22	Pipistrelle sp.	FP-1	04/05/2016	21:45:09	Common pipistrell	FP-1	04/05/2016	22:32:56	Pipistrelle sp.
FP-1	04/05/2016	04:13:40	Soprano pipistrelle	FP-1	04/05/2016	04:48:44	Pipistrelle sp.	FP-1	04/05/2016	21:45:09	Soprano pipistrelle	FP-1	04/05/2016	22:33:02	Soprano pipistrelle
FP-1	04/05/2016	04:16:00	Pipistrelle sp.	FP-1	04/05/2016	04:48:56	Pipistrelle sp.	FP-1	04/05/2016	21:45:32	Common pipistrell	FP-1	04/05/2016	22:33:18	Soprano pipistrelle
FP-1	04/05/2016	04:22:57	Soprano pipistrelle	FP-1	04/05/2016	04:49:20	Pipistrelle sp.	FP-1	04/05/2016	21:46:08	Common pipistrell	FP-1	04/05/2016	22:33:38	Soprano pipistrelle
FP-1	04/05/2016	04:24:18	Soprano pipistrelle	FP-1	04/05/2016	04:49:37	Pipistrelle sp.	FP-1	04/05/2016	21:46:23	Common pipistrell	FP-1	04/05/2016	22:33:56	Soprano pipistrelle
FP-1	04/05/2016	04:25:00	Pipistrelle sp.	FP-1	04/05/2016	04:49:51	Soprano pipistrelle	FP-1	04/05/2016	21:46:41	Common pipistrell	FP-1	04/05/2016	22:34:12	Soprano pipistrelle
FP-1	04/05/2016	04:26:48	Soprano pipistrelle	FP-1	04/05/2016	04:50:20	Pipistrelle sp.	FP-1	04/05/2016	21:47:13	Soprano pipistrelle	FP-1	04/05/2016	22:34:31	Soprano pipistrelle
FP-1	04/05/2016	04:27:15	Soprano pipistrelle	FP-1	04/05/2016	04:50:43	Pipistrelle sp.	FP-1	04/05/2016	21:47:44	Soprano pipistrelle	FP-1	04/05/2016	22:34:42	Soprano pipistrelle
FP-1	04/05/2016	04:27:33	Common pipistrell	FP-1	04/05/2016	04:51:05	Pipistrelle sp.	FP-1	04/05/2016	21:48:06	Common pipistrell	FP-1	04/05/2016	22:35:00	Soprano pipistrelle
FP-1	04/05/2016	04:27:33	Soprano pipistrelle	FP-1	04/05/2016	04:51:16	Pipistrelle sp.	FP-1	04/05/2016	21:48:06	Soprano pipistrelle	FP-1	04/05/2016	22:35:18	Soprano pipistrelle
FP-1	04/05/2016	04:27:53	Soprano pipistrelle	FP-1	04/05/2016	04:51:31	Pipistrelle sp.	FP-1	04/05/2016	21:48:19	Common pipistrell	FP-1	04/05/2016	22:35:49	Soprano pipistrelle
FP-1	04/05/2016	04:28:09	Soprano pipistrelle	FP-1	04/05/2016	04:51:59	Pipistrelle sp.	FP-1	04/05/2016	21:48:19	Soprano pipistrelle	FP-1	04/05/2016	22:35:58	Soprano pipistrelle
FP-1	04/05/2016	04:29:11	Pipistrelle sp.	FP-1	04/05/2016	04:52:16	Pipistrelle sp.	FP-1	04/05/2016	21:48:32	Common pipistrell	FP-1	04/05/2016	22:36:12	Soprano pipistrelle
FP-1	04/05/2016	04:31:15	Common pipistrell	FP-1	04/05/2016	04:52:34	Pipistrelle sp.	FP-1	04/05/2016	21:50:24	Common pipistrell	FP-1	04/05/2016	22:36:21	Soprano pipistrelle
FP-1	04/05/2016	04:32:11	Soprano pipistrelle	FP-1	04/05/2016	04:52:51	Pipistrelle sp.	FP-1	04/05/2016	21:50:36	Common pipistrell	FP-1	04/05/2016	22:42:58	Pipistrelle sp.
FP-1	04/05/2016	04:33:15	Common pipistrell	FP-1	04/05/2016	04:53:13	Pipistrelle sp.	FP-1	04/05/2016	21:51:00	Pipistrelle sp.	FP-1	04/05/2016	22:43:12	Soprano pipistrelle
FP-1	04/05/2016	04:33:35	Soprano pipistrelle	FP-1	04/05/2016	04:53:32	Pipistrelle sp.	FP-1	04/05/2016	21:51:15	Common pipistrell	FP-1	04/05/2016	22:43:34	Soprano pipistrelle
FP-1	04/05/2016	04:34:35	Soprano pipistrelle	FP-1	04/05/2016	04:53:54	Pipistrelle sp.	FP-1	04/05/2016	21:51:27	Common pipistrell	FP-1	04/05/2016	22:43:43	Soprano pipistrelle
FP-1	04/05/2016	04:34:50	Pipistrelle sp.	FP-1	04/05/2016	04:56:09	Pipistrelle sp.	FP-1	04/05/2016	21:51:46	Common pipistrell	FP-1	04/05/2016	22:43:58	Soprano pipistrelle
FP-1	04/05/2016	04:36:30	Pipistrelle sp.	FP-1	04/05/2016	04:56:18	Pipistrelle sp.	FP-1	04/05/2016	21:51:59	Pipistrelle sp.	FP-1	04/05/2016	22:44:27	Soprano pipistrelle
FP-1	04/05/2016	04:39:11	Common pipistrell	FP-1	04/05/2016	04:56:37	Pipistrelle sp.	FP-1	04/05/2016	21:52:45	Soprano pipistrelle	FP-1	04/05/2016	22:44:45	Pipistrelle sp.
FP-1	04/05/2016	04:39:51	Pipistrelle sp.	FP-1	04/05/2016	04:57:13	Pipistrelle sp.	FP-1	04/05/2016	21:53:54	Common pipistrell	FP-1	04/05/2016	22:44:53	Soprano pipistrelle
FP-1	04/05/2016	04:40:09	Pipistrelle sp.	FP-1	04/05/2016	04:57:38	Pipistrelle sp.	FP-1	04/05/2016	21:58:31	Common pipistrell	FP-1	04/05/2016	22:45:07	Soprano pipistrelle
FP-1	04/05/2016	04:40:27	Pipistrelle sp.	FP-1	04/05/2016	04:57:49	Pipistrelle sp.	FP-1	04/05/2016	21:58:50	Common pipistrell	FP-1	04/05/2016	22:45:21	Pipistrelle sp.
FP-1	04/05/2016	04:40:36	Pipistrelle sp.	FP-1	04/05/2016	04:58:24	Pipistrelle sp.	FP-1	04/05/2016	21:59:09	Common pipistrell	FP-1	04/05/2016	22:47:58	Common pipistrelle
FP-1	04/05/2016	04:40:54	Pipistrelle sp.	FP-1	04/05/2016	04:58:41	Pipistrelle sp.	FP-1	04/05/2016	21:59:29	Common pipistrell	FP-1	04/05/2016	22:48:52	Soprano pipistrelle
FP-1	04/05/2016	04:41:12	Pipistrelle sp.	FP-1	04/05/2016	04:58:54	Pipistrelle sp.	FP-1	04/05/2016	21:59:42	Common pipistrell	FP-1	04/05/2016	22:49:10	Soprano pipistrelle
FP-1	04/05/2016	04:41:29	Pipistrelle sp.	FP-1	04/05/2016	04:59:12	Pipistrelle sp.	FP-1	04/05/2016	22:00:00	Soprano pipistrelle	FP-1	04/05/2016	22:49:22	Soprano pipistrelle
FP-1	04/05/2016	04:41:48	Pipistrelle sp.	FP-1	04/05/2016	04:59:46	Pipistrelle sp.	FP-1	04/05/2016	22:01:23	Common pipistrell	FP-1	04/05/2016	22:50:27	Soprano pipistrelle
FP-1	04/05/2016	04:42:07	Pipistrelle sp.	FP-1	04/05/2016	05:00:05	Pipistrelle sp.	FP-1	04/05/2016	22:01:43	Soprano pipistrelle	FP-1	04/05/2016	22:54:06	Common pipistrelle
FP-1	04/05/2016	04:42:28	Soprano pipistrelle	FP-1	04/05/2016	05:00:22	Pipistrelle sp.	FP-1	04/05/2016	22:02:57	Common pipistrell	FP-1	04/05/2016	22:54:20	Common pipistrelle
FP-1	04/05/2016	04:42:47	Pipistrelle sp.	FP-1	04/05/2016	05:00:34	Pipistrelle sp.	FP-1	04/05/2016	22:03:12	Soprano pipistrelle	FP-1	04/05/2016	22:54:31	Common pipistrelle
FP-1	04/05/2016	04:43:02	Pipistrelle sp.	FP-1	04/05/2016	21:34:57	Soprano pipistrelle	FP-1	04/05/2016	22:03:55	Soprano pipistrelle	FP-1	04/05/2016	22:54:50	Common pipistrelle
FP-1	04/05/2016	04:43:22	Pipistrelle sp.	FP-1	04/05/2016	21:39:48	Pipistrelle sp.	FP-1	04/05/2016	22:04:46	Common pipistrell	FP-1	04/05/2016	22:55:08	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	04/05/2016	22:55:26	Common pipistrell	FP-1	04/05/2016	23:37:00	Common pipistrell	FP-1	04/05/2016	23:55:05	Soprano pipistrelle	FP-1	05/05/2016	00:07:35	Soprano pipistrelle
FP-1	04/05/2016	22:57:36	Common pipistrell	FP-1	04/05/2016	23:37:21	Common pipistrell	FP-1	04/05/2016	23:55:13	Soprano pipistrelle	FP-1	05/05/2016	00:07:53	Soprano pipistrelle
FP-1	04/05/2016	22:57:54	Common pipistrell	FP-1	04/05/2016	23:37:46	Common pipistrell	FP-1	04/05/2016	23:55:31	Soprano pipistrelle	FP-1	05/05/2016	00:08:12	Soprano pipistrelle
FP-1	04/05/2016	22:58:01	Common pipistrell	FP-1	04/05/2016	23:38:04	Common pipistrell	FP-1	04/05/2016	23:55:42	Soprano pipistrelle	FP-1	05/05/2016	00:08:26	Soprano pipistrelle
FP-1	04/05/2016	22:58:17	Common pipistrell	FP-1	04/05/2016	23:38:50	Common pipistrell	FP-1	04/05/2016	23:55:52	Soprano pipistrelle	FP-1	05/05/2016	00:08:44	Soprano pipistrelle
FP-1	04/05/2016	22:58:30	Common pipistrell	FP-1	04/05/2016	23:39:08	Common pipistrell	FP-1	04/05/2016	23:56:08	Soprano pipistrelle	FP-1	05/05/2016	00:08:53	Common pipistrelle
FP-1	04/05/2016	23:02:49	Soprano pipistrelle	FP-1	04/05/2016	23:39:20	Common pipistrell	FP-1	04/05/2016	23:56:24	Common pipistrell	FP-1	05/05/2016	00:08:53	Soprano pipistrelle
FP-1	04/05/2016	23:03:15	Soprano pipistrelle	FP-1	04/05/2016	23:39:45	Common pipistrell	FP-1	04/05/2016	23:56:24	Soprano pipistrelle	FP-1	05/05/2016	00:09:10	Soprano pipistrelle
FP-1	04/05/2016	23:03:30	Soprano pipistrelle	FP-1	04/05/2016	23:41:46	Soprano pipistrelle	FP-1	04/05/2016	23:56:43	Common pipistrell	FP-1	05/05/2016	00:09:28	Soprano pipistrelle
FP-1	04/05/2016	23:07:35	Soprano pipistrelle	FP-1	04/05/2016	23:42:06	Soprano pipistrelle	FP-1	04/05/2016	23:56:43	Soprano pipistrelle	FP-1	05/05/2016	00:09:48	Soprano pipistrelle
FP-1	04/05/2016	23:14:08	Common pipistrell	FP-1	04/05/2016	23:42:25	Soprano pipistrelle	FP-1	04/05/2016	23:57:02	Common pipistrell	FP-1	05/05/2016	00:10:02	Soprano pipistrelle
FP-1	04/05/2016	23:16:45	Pipistrelle sp.	FP-1	04/05/2016	23:42:44	Soprano pipistrelle	FP-1	04/05/2016	23:57:02	Soprano pipistrelle	FP-1	05/05/2016	00:10:09	Soprano pipistrelle
FP-1	04/05/2016	23:19:09	Common pipistrell	FP-1	04/05/2016	23:45:16	Pipistrelle sp.	FP-1	04/05/2016	23:57:20	Soprano pipistrelle	FP-1	05/05/2016	00:10:16	Common pipistrelle
FP-1	04/05/2016	23:19:28	Common pipistrell	FP-1	04/05/2016	23:48:40	Pipistrelle sp.	FP-1	04/05/2016	23:57:34	Soprano pipistrelle	FP-1	05/05/2016	00:11:20	Soprano pipistrelle
FP-1	04/05/2016	23:20:18	Common pipistrell	FP-1	04/05/2016	23:49:02	Soprano pipistrelle	FP-1	04/05/2016	23:57:52	Soprano pipistrelle	FP-1	05/05/2016	00:11:31	Soprano pipistrelle
FP-1	04/05/2016	23:21:58	Common pipistrell	FP-1	04/05/2016	23:49:14	Soprano pipistrelle	FP-1	04/05/2016	23:58:10	Soprano pipistrelle	FP-1	05/05/2016	00:11:39	Soprano pipistrelle
FP-1	04/05/2016	23:23:13	Common pipistrell	FP-1	04/05/2016	23:49:27	Soprano pipistrelle	FP-1	04/05/2016	23:58:28	Soprano pipistrelle	FP-1	05/05/2016	00:11:57	Common pipistrelle
FP-1	04/05/2016	23:23:58	Common pipistrell	FP-1	04/05/2016	23:49:36	Soprano pipistrelle	FP-1	04/05/2016	23:58:43	Soprano pipistrelle	FP-1	05/05/2016	00:11:57	Soprano pipistrelle
FP-1	04/05/2016	23:24:16	Common pipistrell	FP-1	04/05/2016	23:49:51	Soprano pipistrelle	FP-1	04/05/2016	23:59:01	Common pipistrell	FP-1	05/05/2016	00:12:15	Common pipistrelle
FP-1	04/05/2016	23:24:30	Common pipistrell	FP-1	04/05/2016	23:50:02	Soprano pipistrelle	FP-1	04/05/2016	23:59:30	Common pipistrell	FP-1	05/05/2016	00:12:35	Soprano pipistrelle
FP-1	04/05/2016	23:24:49	Common pipistrell	FP-1	04/05/2016	23:50:21	Soprano pipistrelle	FP-1	05/05/2016	00:00:07	Common pipistrell	FP-1	05/05/2016	00:12:56	Common pipistrelle
FP-1	04/05/2016	23:25:50	Common pipistrell	FP-1	04/05/2016	23:50:33	Soprano pipistrelle	FP-1	05/05/2016	00:00:07	Soprano pipistrelle	FP-1	05/05/2016	00:12:56	Soprano pipistrelle
FP-1	04/05/2016	23:26:13	Common pipistrell	FP-1	04/05/2016	23:50:42	Soprano pipistrelle	FP-1	05/05/2016	00:00:25	Common pipistrell	FP-1	05/05/2016	00:13:53	Soprano pipistrelle
FP-1	04/05/2016	23:26:32	Common pipistrell	FP-1	04/05/2016	23:50:54	Soprano pipistrelle	FP-1	05/05/2016	00:01:10	Common pipistrell	FP-1	05/05/2016	00:14:12	Soprano pipistrelle
FP-1	04/05/2016	23:26:50	Common pipistrell	FP-1	04/05/2016	23:51:08	Soprano pipistrelle	FP-1	05/05/2016	00:01:10	Soprano pipistrelle	FP-1	05/05/2016	00:14:24	Soprano pipistrelle
FP-1	04/05/2016	23:27:19	Common pipistrell	FP-1	04/05/2016	23:51:27	Soprano pipistrelle	FP-1	05/05/2016	00:01:28	Common pipistrell	FP-1	05/05/2016	00:14:42	Common pipistrelle
FP-1	04/05/2016	23:27:38	Common pipistrell	FP-1	04/05/2016	23:51:48	Soprano pipistrelle	FP-1	05/05/2016	00:02:46	Soprano pipistrelle	FP-1	05/05/2016	00:14:42	Soprano pipistrelle
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FP-1	04/05/2016	23:31:55	Soprano pipistrelle	FP-1	04/05/2016	23:53:25	Common pipistrell	FP-1	05/05/2016	00:05:07	Soprano pipistrelle	FP-1	05/05/2016	00:17:12	Common pipistrelle
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FP-1	04/05/2016	23:32:27	Common pipistrell	FP-1	04/05/2016	23:53:45	Soprano pipistrelle	FP-1	05/05/2016	00:05:54	Soprano pipistrelle	FP-1	05/05/2016	00:18:08	Soprano pipistrelle
FP-1	04/05/2016	23:32:35	Common pipistrell	FP-1	04/05/2016	23:54:04	Common pipistrell	FP-1	05/05/2016	00:06:12	Soprano pipistrelle	FP-1	05/05/2016	00:18:28	Soprano pipistrelle
FP-1	04/05/2016	23:33:00	Common pipistrell	FP-1	04/05/2016	23:54:04	Soprano pipistrelle	FP-1	05/05/2016	00:06:33	Soprano pipistrelle	FP-1	05/05/2016	00:18:46	Soprano pipistrelle
FP-1	04/05/2016	23:35:30	Common pipistrell	FP-1	04/05/2016	23:54:22	Soprano pipistrelle	FP-1	05/05/2016	00:06:44	Soprano pipistrelle	FP-1	05/05/2016	00:18:54	Soprano pipistrelle
FP-1	04/05/2016	23:36:04	Common pipistrell	FP-1	04/05/2016	23:54:40	Soprano pipistrelle	FP-1	05/05/2016	00:07:03	Soprano pipistrelle	FP-1	05/05/2016	00:19:12	Soprano pipistrelle
FP-1	04/05/2016	23:36:22	Common pipistrell	FP-1	04/05/2016	23:54:56	Soprano pipistrelle	FP-1	05/05/2016	00:07:16	Soprano pipistrelle	FP-1	05/05/2016	00:19:33	Soprano pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	05/05/2016	00:19:51	Soprano pipistrelle	FP-1	05/05/2016	00:31:09	Soprano pipistrelle	FP-1	05/05/2016	00:42:10	Soprano pipistrelle	FP-1	05/05/2016	00:57:10	Soprano pipistrelle
FP-1	05/05/2016	00:19:59	Soprano pipistrelle	FP-1	05/05/2016	00:31:27	Soprano pipistrelle	FP-1	05/05/2016	00:42:31	Common pipistrelle	FP-1	05/05/2016	00:57:18	Soprano pipistrelle
FP-1	05/05/2016	00:20:17	Soprano pipistrelle	FP-1	05/05/2016	00:31:41	Soprano pipistrelle	FP-1	05/05/2016	00:42:49	Common pipistrelle	FP-1	05/05/2016	00:57:36	Common pipistrelle
FP-1	05/05/2016	00:20:35	Soprano pipistrelle	FP-1	05/05/2016	00:31:57	Soprano pipistrelle	FP-1	05/05/2016	00:43:55	Common pipistrelle	FP-1	05/05/2016	00:57:36	Soprano pipistrelle
FP-1	05/05/2016	00:20:43	Soprano pipistrelle	FP-1	05/05/2016	00:32:05	Soprano pipistrelle	FP-1	05/05/2016	00:44:14	Common pipistrelle	FP-1	05/05/2016	00:57:54	Common pipistrelle
FP-1	05/05/2016	00:21:01	Soprano pipistrelle	FP-1	05/05/2016	00:32:23	Soprano pipistrelle	FP-1	05/05/2016	00:44:52	Common pipistrelle	FP-1	05/05/2016	00:57:54	Soprano pipistrelle
FP-1	05/05/2016	00:21:10	Soprano pipistrelle	FP-1	05/05/2016	00:32:36	Soprano pipistrelle	FP-1	05/05/2016	00:45:33	Common pipistrelle	FP-1	05/05/2016	00:58:12	Common pipistrelle
FP-1	05/05/2016	00:21:28	Soprano pipistrelle	FP-1	05/05/2016	00:32:54	Soprano pipistrelle	FP-1	05/05/2016	00:46:54	Soprano pipistrelle	FP-1	05/05/2016	00:58:43	Common pipistrelle
FP-1	05/05/2016	00:21:39	Soprano pipistrelle	FP-1	05/05/2016	00:33:12	Soprano pipistrelle	FP-1	05/05/2016	00:47:13	Soprano pipistrelle	FP-1	05/05/2016	00:59:02	Common pipistrelle
FP-1	05/05/2016	00:21:53	Soprano pipistrelle	FP-1	05/05/2016	00:33:37	Soprano pipistrelle	FP-1	05/05/2016	00:47:21	Soprano pipistrelle	FP-1	05/05/2016	00:59:17	Common pipistrelle
FP-1	05/05/2016	00:22:10	Soprano pipistrelle	FP-1	05/05/2016	00:33:45	Soprano pipistrelle	FP-1	05/05/2016	00:47:37	Soprano pipistrelle	FP-1	05/05/2016	00:59:36	Common pipistrelle
FP-1	05/05/2016	00:22:28	Soprano pipistrelle	FP-1	05/05/2016	00:34:03	Soprano pipistrelle	FP-1	05/05/2016	00:47:56	Soprano pipistrelle	FP-1	05/05/2016	00:59:36	Soprano pipistrelle
FP-1	05/05/2016	00:22:46	Soprano pipistrelle	FP-1	05/05/2016	00:34:21	Soprano pipistrelle	FP-1	05/05/2016	00:48:14	Soprano pipistrelle	FP-1	05/05/2016	01:00:08	Common pipistrelle
FP-1	05/05/2016	00:22:58	Soprano pipistrelle	FP-1	05/05/2016	00:34:39	Soprano pipistrelle	FP-1	05/05/2016	00:48:32	Soprano pipistrelle	FP-1	05/05/2016	01:00:08	Soprano pipistrelle
FP-1	05/05/2016	00:23:07	Soprano pipistrelle	FP-1	05/05/2016	00:34:47	Soprano pipistrelle	FP-1	05/05/2016	00:48:50	Soprano pipistrelle	FP-1	05/05/2016	01:00:38	Common pipistrelle
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FP-1	05/05/2016	00:23:25	Soprano pipistrelle	FP-1	05/05/2016	00:35:24	Soprano pipistrelle	FP-1	05/05/2016	00:49:26	Soprano pipistrelle	FP-1	05/05/2016	01:01:40	Common pipistrelle
FP-1	05/05/2016	00:23:40	Soprano pipistrelle	FP-1	05/05/2016	00:35:42	Soprano pipistrelle	FP-1	05/05/2016	00:49:44	Soprano pipistrelle	FP-1	05/05/2016	01:02:06	Common pipistrelle
FP-1	05/05/2016	00:23:58	Soprano pipistrelle	FP-1	05/05/2016	00:36:00	Soprano pipistrelle	FP-1	05/05/2016	00:49:56	Soprano pipistrelle	FP-1	05/05/2016	01:02:19	Soprano pipistrelle
FP-1	05/05/2016	00:24:17	Soprano pipistrelle	FP-1	05/05/2016	00:36:28	Soprano pipistrelle	FP-1	05/05/2016	00:50:13	Soprano pipistrelle	FP-1	05/05/2016	01:02:37	Common pipistrelle
FP-1	05/05/2016	00:24:35	Soprano pipistrelle	FP-1	05/05/2016	00:36:46	Soprano pipistrelle	FP-1	05/05/2016	00:50:27	Soprano pipistrelle	FP-1	05/05/2016	01:02:37	Soprano pipistrelle
FP-1	05/05/2016	00:24:51	Soprano pipistrelle	FP-1	05/05/2016	00:37:04	Soprano pipistrelle	FP-1	05/05/2016	00:50:38	Soprano pipistrelle	FP-1	05/05/2016	01:02:50	Common pipistrelle
FP-1	05/05/2016	00:25:10	Soprano pipistrelle	FP-1	05/05/2016	00:37:14	Soprano pipistrelle	FP-1	05/05/2016	00:50:56	Soprano pipistrelle	FP-1	05/05/2016	01:02:59	Common pipistrelle
FP-1	05/05/2016	00:25:22	Soprano pipistrelle	FP-1	05/05/2016	00:37:32	Soprano pipistrelle	FP-1	05/05/2016	00:51:14	Soprano pipistrelle	FP-1	05/05/2016	01:03:16	Common pipistrelle
FP-1	05/05/2016	00:25:40	Soprano pipistrelle	FP-1	05/05/2016	00:37:50	Soprano pipistrelle	FP-1	05/05/2016	00:51:28	Soprano pipistrelle	FP-1	05/05/2016	01:03:33	Common pipistrelle
FP-1	05/05/2016	00:25:58	Soprano pipistrelle	FP-1	05/05/2016	00:38:00	Soprano pipistrelle	FP-1	05/05/2016	00:51:44	Soprano pipistrelle	FP-1	05/05/2016	01:03:47	Common pipistrelle
FP-1	05/05/2016	00:26:16	Soprano pipistrelle	FP-1	05/05/2016	00:38:09	Soprano pipistrelle	FP-1	05/05/2016	00:52:04	Soprano pipistrelle	FP-1	05/05/2016	01:03:56	Common pipistrelle
FP-1	05/05/2016	00:26:32	Soprano pipistrelle	FP-1	05/05/2016	00:38:27	Soprano pipistrelle	FP-1	05/05/2016	00:52:22	Soprano pipistrelle	FP-1	05/05/2016	01:04:09	Common pipistrelle
FP-1	05/05/2016	00:26:50	Soprano pipistrelle	FP-1	05/05/2016	00:38:35	Soprano pipistrelle	FP-1	05/05/2016	00:52:31	Soprano pipistrelle	FP-1	05/05/2016	01:04:34	Common pipistrelle
FP-1	05/05/2016	00:27:09	Soprano pipistrelle	FP-1	05/05/2016	00:38:53	Soprano pipistrelle	FP-1	05/05/2016	00:52:49	Common pipistrelle	FP-1	05/05/2016	01:04:53	Common pipistrelle
FP-1	05/05/2016	00:27:28	Soprano pipistrelle	FP-1	05/05/2016	00:39:10	Soprano pipistrelle	FP-1	05/05/2016	00:52:49	Soprano pipistrelle	FP-1	05/05/2016	01:05:11	Common pipistrelle
FP-1	05/05/2016	00:27:46	Soprano pipistrelle	FP-1	05/05/2016	00:39:23	Soprano pipistrelle	FP-1	05/05/2016	00:53:08	Soprano pipistrelle	FP-1	05/05/2016	01:05:30	Common pipistrelle
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FP-1	05/05/2016	00:28:22	Soprano pipistrelle	FP-1	05/05/2016	00:39:52	Soprano pipistrelle	FP-1	05/05/2016	00:53:33	Soprano pipistrelle	FP-1	05/05/2016	01:06:13	Common pipistrelle
FP-1	05/05/2016	00:28:40	Soprano pipistrelle	FP-1	05/05/2016	00:39:59	Soprano pipistrelle	FP-1	05/05/2016	00:53:43	Common pipistrelle	FP-1	05/05/2016	01:06:24	Common pipistrelle
FP-1	05/05/2016	00:28:50	Soprano pipistrelle	FP-1	05/05/2016	00:40:08	Soprano pipistrelle	FP-1	05/05/2016	00:53:43	Soprano pipistrelle	FP-1	05/05/2016	01:06:42	Common pipistrelle
FP-1	05/05/2016	00:28:58	Soprano pipistrelle	FP-1	05/05/2016	00:40:24	Soprano pipistrelle	FP-1	05/05/2016	00:54:01	Common pipistrelle	FP-1	05/05/2016	01:07:03	Common pipistrelle
FP-1	05/05/2016	00:29:16	Soprano pipistrelle	FP-1	05/05/2016	00:40:43	Soprano pipistrelle	FP-1	05/05/2016	00:54:29	Common pipistrelle	FP-1	05/05/2016	01:07:22	Common pipistrelle
FP-1	05/05/2016	00:29:24	Soprano pipistrelle	FP-1	05/05/2016	00:41:01	Common pipistrelle	FP-1	05/05/2016	00:54:52	Common pipistrelle	FP-1	05/05/2016	01:07:40	Common pipistrelle
FP-1	05/05/2016	00:29:42	Soprano pipistrelle	FP-1	05/05/2016	00:41:01	Soprano pipistrelle	FP-1	05/05/2016	00:55:44	Common pipistrelle	FP-1	05/05/2016	01:07:58	Common pipistrelle
FP-1	05/05/2016	00:30:00	Soprano pipistrelle	FP-1	05/05/2016	00:41:19	Common pipistrelle	FP-1	05/05/2016	00:56:03	Soprano pipistrelle	FP-1	05/05/2016	01:08:14	Common pipistrelle
FP-1	05/05/2016	00:30:18	Soprano pipistrelle	FP-1	05/05/2016	00:41:27	Soprano pipistrelle	FP-1	05/05/2016	00:56:21	Common pipistrelle	FP-1	05/05/2016	01:08:36	Common pipistrelle
FP-1	05/05/2016	00:30:36	Soprano pipistrelle	FP-1	05/05/2016	00:41:45	Soprano pipistrelle	FP-1	05/05/2016	00:56:42	Common pipistrelle	FP-1	05/05/2016	01:08:58	Common pipistrelle
FP-1	05/05/2016	00:30:51	Soprano pipistrelle	FP-1	05/05/2016	00:42:10	Common pipistrelle	FP-1	05/05/2016	00:56:59	Soprano pipistrelle	FP-1	05/05/2016	01:09:30	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	05/05/2016	01:09:53	Common pipistrell	FP-1	05/05/2016	01:34:47	Soprano pipistrelle	FP-1	05/05/2016	01:46:57	Common pipistrell	FP-1	05/05/2016	01:59:28	Pipistrelle sp.
FP-1	05/05/2016	01:10:12	Common pipistrell	FP-1	05/05/2016	01:34:59	Soprano pipistrelle	FP-1	05/05/2016	01:46:57	Soprano pipistrelle	FP-1	05/05/2016	01:59:40	Common pipistrelle
FP-1	05/05/2016	01:10:30	Common pipistrell	FP-1	05/05/2016	01:35:19	Soprano pipistrelle	FP-1	05/05/2016	01:47:15	Common pipistrell	FP-1	05/05/2016	02:00:02	Common pipistrelle
FP-1	05/05/2016	01:10:48	Common pipistrell	FP-1	05/05/2016	01:35:37	Soprano pipistrelle	FP-1	05/05/2016	01:47:33	Common pipistrell	FP-1	05/05/2016	02:00:13	Common pipistrelle
FP-1	05/05/2016	01:11:06	Common pipistrell	FP-1	05/05/2016	01:35:55	Soprano pipistrelle	FP-1	05/05/2016	01:47:46	Common pipistrell	FP-1	05/05/2016	02:00:29	Common pipistrelle
FP-1	05/05/2016	01:11:21	Common pipistrell	FP-1	05/05/2016	01:36:14	Soprano pipistrelle	FP-1	05/05/2016	01:48:21	Common pipistrell	FP-1	05/05/2016	02:00:51	Common pipistrelle
FP-1	05/05/2016	01:11:40	Common pipistrell	FP-1	05/05/2016	01:36:33	Soprano pipistrelle	FP-1	05/05/2016	01:48:21	Soprano pipistrelle	FP-1	05/05/2016	02:01:10	Common pipistrelle
FP-1	05/05/2016	01:11:58	Common pipistrell	FP-1	05/05/2016	01:36:53	Soprano pipistrelle	FP-1	05/05/2016	01:48:46	Common pipistrell	FP-1	05/05/2016	02:01:10	Soprano pipistrelle
FP-1	05/05/2016	01:12:27	Common pipistrell	FP-1	05/05/2016	01:37:04	Soprano pipistrelle	FP-1	05/05/2016	01:48:46	Soprano pipistrelle	FP-1	05/05/2016	02:01:25	Common pipistrelle
FP-1	05/05/2016	01:12:45	Common pipistrell	FP-1	05/05/2016	01:37:13	Soprano pipistrelle	FP-1	05/05/2016	01:49:04	Common pipistrell	FP-1	05/05/2016	02:01:25	Soprano pipistrelle
FP-1	05/05/2016	01:13:03	Common pipistrell	FP-1	05/05/2016	01:37:25	Soprano pipistrelle	FP-1	05/05/2016	01:49:04	Soprano pipistrelle	FP-1	05/05/2016	02:01:39	Common pipistrelle
FP-1	05/05/2016	01:13:16	Common pipistrell	FP-1	05/05/2016	01:37:37	Soprano pipistrelle	FP-1	05/05/2016	01:49:23	Soprano pipistrelle	FP-1	05/05/2016	02:01:39	Soprano pipistrelle
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FP-1	05/05/2016	01:14:15	Common pipistrell	FP-1	05/05/2016	01:38:02	Soprano pipistrelle	FP-1	05/05/2016	01:51:49	Soprano pipistrelle	FP-1	05/05/2016	02:02:08	Common pipistrelle
FP-1	05/05/2016	01:18:48	Pipistrelle sp.	FP-1	05/05/2016	01:38:20	Soprano pipistrelle	FP-1	05/05/2016	01:51:59	Soprano pipistrelle	FP-1	05/05/2016	02:02:16	Common pipistrelle
FP-1	05/05/2016	01:21:22	Soprano pipistrelle	FP-1	05/05/2016	01:38:30	Soprano pipistrelle	FP-1	05/05/2016	01:52:18	Soprano pipistrelle	FP-1	05/05/2016	02:02:44	Common pipistrelle
FP-1	05/05/2016	01:21:40	Soprano pipistrelle	FP-1	05/05/2016	01:38:48	Soprano pipistrelle	FP-1	05/05/2016	01:52:29	Soprano pipistrelle	FP-1	05/05/2016	02:03:05	Common pipistrelle
FP-1	05/05/2016	01:21:58	Soprano pipistrelle	FP-1	05/05/2016	01:39:07	Soprano pipistrelle	FP-1	05/05/2016	01:52:37	Soprano pipistrelle	FP-1	05/05/2016	02:03:19	Common pipistrelle
FP-1	05/05/2016	01:22:20	Soprano pipistrelle	FP-1	05/05/2016	01:39:16	Soprano pipistrelle	FP-1	05/05/2016	01:52:45	Soprano pipistrelle	FP-1	05/05/2016	02:03:37	Common pipistrelle
FP-1	05/05/2016	01:22:38	Soprano pipistrelle	FP-1	05/05/2016	01:39:30	Soprano pipistrelle	FP-1	05/05/2016	01:53:07	Soprano pipistrelle	FP-1	05/05/2016	02:03:44	Common pipistrelle
FP-1	05/05/2016	01:22:56	Soprano pipistrelle	FP-1	05/05/2016	01:39:39	Pipistrelle sp.	FP-1	05/05/2016	01:53:25	Soprano pipistrelle	FP-1	05/05/2016	02:04:01	Common pipistrelle
FP-1	05/05/2016	01:23:06	Soprano pipistrelle	FP-1	05/05/2016	01:39:46	Soprano pipistrelle	FP-1	05/05/2016	01:53:41	Soprano pipistrelle	FP-1	05/05/2016	02:05:10	Common pipistrelle
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FP-1	05/05/2016	01:26:32	Pipistrelle sp.	FP-1	05/05/2016	01:40:16	Soprano pipistrelle	FP-1	05/05/2016	01:54:18	Soprano pipistrelle	FP-1	05/05/2016	02:07:03	Soprano pipistrelle
FP-1	05/05/2016	01:28:23	Soprano pipistrelle	FP-1	05/05/2016	01:40:28	Soprano pipistrelle	FP-1	05/05/2016	01:54:37	Soprano pipistrelle	FP-1	05/05/2016	02:07:13	Soprano pipistrelle
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FP-1	05/05/2016	01:28:56	Soprano pipistrelle	FP-1	05/05/2016	01:40:56	Soprano pipistrelle	FP-1	05/05/2016	01:55:09	Soprano pipistrelle	FP-1	05/05/2016	02:07:46	Soprano pipistrelle
FP-1	05/05/2016	01:30:23	Soprano pipistrelle	FP-1	05/05/2016	01:41:15	Common pipistrell	FP-1	05/05/2016	01:55:27	Soprano pipistrelle	FP-1	05/05/2016	02:08:03	Soprano pipistrelle
FP-1	05/05/2016	01:30:37	Soprano pipistrelle	FP-1	05/05/2016	01:41:30	Common pipistrell	FP-1	05/05/2016	01:55:38	Soprano pipistrelle	FP-1	05/05/2016	02:08:18	Soprano pipistrelle
FP-1	05/05/2016	01:30:46	Soprano pipistrelle	FP-1	05/05/2016	01:41:43	Common pipistrell	FP-1	05/05/2016	01:55:49	Soprano pipistrelle	FP-1	05/05/2016	02:08:55	Soprano pipistrelle
FP-1	05/05/2016	01:31:10	Soprano pipistrelle	FP-1	05/05/2016	01:41:56	Common pipistrell	FP-1	05/05/2016	01:56:06	Soprano pipistrelle	FP-1	05/05/2016	02:09:43	Soprano pipistrelle
FP-1	05/05/2016	01:31:24	Soprano pipistrelle	FP-1	05/05/2016	01:42:28	Common pipistrell	FP-1	05/05/2016	01:56:19	Soprano pipistrelle	FP-1	05/05/2016	02:10:09	Soprano pipistrelle
FP-1	05/05/2016	01:31:36	Soprano pipistrelle	FP-1	05/05/2016	01:42:44	Common pipistrell	FP-1	05/05/2016	01:56:37	Soprano pipistrelle	FP-1	05/05/2016	02:10:17	Soprano pipistrelle
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FP-1	05/05/2016	01:32:30	Soprano pipistrelle	FP-1	05/05/2016	01:43:50	Common pipistrell	FP-1	05/05/2016	01:57:09	Common pipistrell	FP-1	05/05/2016	02:11:05	Soprano pipistrelle
FP-1	05/05/2016	01:32:40	Soprano pipistrelle	FP-1	05/05/2016	01:44:08	Common pipistrell	FP-1	05/05/2016	01:57:18	Common pipistrell	FP-1	05/05/2016	02:11:20	Soprano pipistrelle
FP-1	05/05/2016	01:32:55	Soprano pipistrelle	FP-1	05/05/2016	01:44:38	Common pipistrell	FP-1	05/05/2016	01:57:46	Common pipistrell	FP-1	05/05/2016	02:11:31	Soprano pipistrelle
FP-1	05/05/2016	01:33:13	Leisler's bat	FP-1	05/05/2016	01:44:55	Pipistrelle sp.	FP-1	05/05/2016	01:58:03	Common pipistrell	FP-1	05/05/2016	02:11:49	Common pipistrelle
FP-1	05/05/2016	01:33:21	Soprano pipistrelle	FP-1	05/05/2016	01:45:13	Common pipistrell	FP-1	05/05/2016	01:58:28	Common pipistrell	FP-1	05/05/2016	02:11:49	Soprano pipistrelle
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FP-1	05/05/2016	01:34:10	Soprano pipistrelle	FP-1	05/05/2016	01:46:42	Common pipistrell	FP-1	05/05/2016	01:59:06	Common pipistrell	FP-1	05/05/2016	02:12:25	Soprano pipistrelle
FP-1	05/05/2016	01:34:29	Soprano pipistrelle	FP-1	05/05/2016	01:46:42	Soprano pipistrelle	FP-1	05/05/2016	01:59:14	Common pipistrell	FP-1	05/05/2016	02:12:36	Soprano pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	05/05/2016	02:12:45	Soprano pipistrelle	FP-1	05/05/2016	02:27:43	Common pipistrell	FP-1	05/05/2016	02:40:46	Common pipistrell	FP-1	05/05/2016	02:55:38	Common pipistrelle
FP-1	05/05/2016	02:13:03	Pipistrelle sp.	FP-1	05/05/2016	02:28:14	Common pipistrell	FP-1	05/05/2016	02:41:00	Common pipistrell	FP-1	05/05/2016	02:55:55	Common pipistrelle
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FP-1	05/05/2016	02:15:39	Common pipistrell	FP-1	05/05/2016	02:30:44	Common pipistrell	FP-1	05/05/2016	02:42:54	Common pipistrell	FP-1	05/05/2016	02:58:21	Common pipistrelle
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FP-1	05/05/2016	02:16:00	Common pipistrell	FP-1	05/05/2016	02:31:22	Common pipistrell	FP-1	05/05/2016	02:43:47	Common pipistrell	FP-1	05/05/2016	02:59:10	Common pipistrelle
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FP-1	05/05/2016	02:21:46	Common pipistrell	FP-1	05/05/2016	02:35:21	Common pipistrell	FP-1	05/05/2016	02:49:38	Common pipistrell	FP-1	05/05/2016	03:04:21	Common pipistrelle
FP-1	05/05/2016	02:22:06	Common pipistrell	FP-1	05/05/2016	02:35:34	Common pipistrell	FP-1	05/05/2016	02:50:13	Common pipistrell	FP-1	05/05/2016	03:04:49	Common pipistrelle
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FP-1	05/05/2016	02:24:10	Common pipistrell	FP-1	05/05/2016	02:37:20	Common pipistrell	FP-1	05/05/2016	02:52:11	Common pipistrell	FP-1	05/05/2016	03:07:27	Common pipistrelle
FP-1	05/05/2016	02:24:48	Common pipistrell	FP-1	05/05/2016	02:37:36	Common pipistrell	FP-1	05/05/2016	02:52:47	Common pipistrell	FP-1	05/05/2016	03:07:38	Common pipistrelle
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FP-1	05/05/2016	02:25:18	Common pipistrell	FP-1	05/05/2016	02:38:24	Common pipistrell	FP-1	05/05/2016	02:53:28	Common pipistrell	FP-1	05/05/2016	03:08:18	Common pipistrelle
FP-1	05/05/2016	02:25:50	Common pipistrell	FP-1	05/05/2016	02:38:40	Common pipistrell	FP-1	05/05/2016	02:53:41	Common pipistrell	FP-1	05/05/2016	03:08:41	Common pipistrelle
FP-1	05/05/2016	02:26:15	Common pipistrell	FP-1	05/05/2016	02:39:01	Common pipistrell	FP-1	05/05/2016	02:54:00	Common pipistrell	FP-1	05/05/2016	03:09:09	Common pipistrelle
FP-1	05/05/2016	02:26:33	Common pipistrell	FP-1	05/05/2016	02:39:18	Common pipistrell	FP-1	05/05/2016	02:54:09	Common pipistrell	FP-1	05/05/2016	03:09:21	Pipistrelle sp.
FP-1	05/05/2016	02:26:51	Common pipistrell	FP-1	05/05/2016	02:39:37	Common pipistrell	FP-1	05/05/2016	02:54:24	Common pipistrell	FP-1	05/05/2016	03:09:54	Common pipistrelle
FP-1	05/05/2016	02:27:05	Common pipistrell	FP-1	05/05/2016	02:39:47	Common pipistrell	FP-1	05/05/2016	02:54:49	Common pipistrell	FP-1	05/05/2016	03:10:35	Common pipistrelle
FP-1	05/05/2016	02:27:24	Common pipistrell	FP-1	05/05/2016	02:40:01	Common pipistrell	FP-1	05/05/2016	02:55:03	Common pipistrell	FP-1	05/05/2016	03:11:04	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	05/05/2016	03:11:19	Common pipistrell	FP-1	05/05/2016	03:32:14	Common pipistrell	FP-1	05/05/2016	04:39:37	Common pipistrell	FP-1	05/05/2016	05:06:04	Common pipistrelle
FP-1	05/05/2016	03:11:40	Common pipistrell	FP-1	05/05/2016	03:32:50	Common pipistrell	FP-1	05/05/2016	04:41:57	Pipistrelle sp.	FP-1	05/05/2016	05:06:12	Common pipistrelle
FP-1	05/05/2016	03:12:01	Common pipistrell	FP-1	05/05/2016	03:33:17	Common pipistrell	FP-1	05/05/2016	04:46:30	Soprano pipistrelle	FP-1	05/05/2016	05:06:26	Common pipistrelle
FP-1	05/05/2016	03:12:25	Common pipistrell	FP-1	05/05/2016	03:33:36	Common pipistrell	FP-1	05/05/2016	04:47:26	Common pipistrell	FP-1	05/05/2016	05:06:38	Common pipistrelle
FP-1	05/05/2016	03:12:55	Common pipistrell	FP-1	05/05/2016	03:33:55	Common pipistrell	FP-1	05/05/2016	04:47:54	Pipistrelle sp.	FP-1	05/05/2016	05:06:52	Common pipistrelle
FP-1	05/05/2016	03:13:20	Common pipistrell	FP-1	05/05/2016	03:34:08	Common pipistrell	FP-1	05/05/2016	04:48:10	Pipistrelle sp.	FP-1	05/05/2016	05:07:03	Common pipistrelle
FP-1	05/05/2016	03:13:38	Common pipistrell	FP-1	05/05/2016	03:34:21	Common pipistrell	FP-1	05/05/2016	04:50:37	Pipistrelle sp.	FP-1	05/05/2016	21:32:07	Leisler's bat
FP-1	05/05/2016	03:13:45	Common pipistrell	FP-1	05/05/2016	03:34:30	Common pipistrell	FP-1	05/05/2016	04:50:52	Pipistrelle sp.	FP-1	05/05/2016	21:32:18	Leisler's bat
FP-1	05/05/2016	03:14:01	Common pipistrell	FP-1	05/05/2016	03:34:43	Common pipistrell	FP-1	05/05/2016	04:52:22	Common pipistrell	FP-1	05/05/2016	21:37:50	Leisler's bat
FP-1	05/05/2016	03:14:18	Common pipistrell	FP-1	05/05/2016	03:35:00	Common pipistrell	FP-1	05/05/2016	04:53:42	Common pipistrell	FP-1	05/05/2016	21:39:30	Pipistrelle sp.
FP-1	05/05/2016	03:14:41	Common pipistrell	FP-1	05/05/2016	03:35:09	Common pipistrell	FP-1	05/05/2016	04:54:11	Common pipistrell	FP-1	05/05/2016	21:39:47	Pipistrelle sp.
FP-1	05/05/2016	03:14:50	Common pipistrell	FP-1	05/05/2016	03:35:19	Common pipistrell	FP-1	05/05/2016	04:54:33	Common pipistrell	FP-1	05/05/2016	21:39:57	Pipistrelle sp.
FP-1	05/05/2016	03:15:04	Common pipistrell	FP-1	05/05/2016	03:35:37	Common pipistrell	FP-1	05/05/2016	04:54:42	Common pipistrell	FP-1	05/05/2016	21:40:14	Pipistrelle sp.
FP-1	05/05/2016	03:15:17	Common pipistrell	FP-1	05/05/2016	03:36:27	Soprano pipistrelle	FP-1	05/05/2016	04:55:02	Common pipistrell	FP-1	05/05/2016	21:40:27	Pipistrelle sp.
FP-1	05/05/2016	03:15:26	Common pipistrell	FP-1	05/05/2016	03:36:53	Soprano pipistrelle	FP-1	05/05/2016	04:55:13	Common pipistrell	FP-1	05/05/2016	21:50:48	Soprano pipistrelle
FP-1	05/05/2016	03:15:58	Common pipistrell	FP-1	05/05/2016	03:37:24	Soprano pipistrelle	FP-1	05/05/2016	04:55:42	Common pipistrell	FP-1	05/05/2016	21:51:33	Soprano pipistrelle
FP-1	05/05/2016	03:16:11	Common pipistrell	FP-1	05/05/2016	03:40:32	Pipistrelle sp.	FP-1	05/05/2016	04:56:08	Common pipistrell	FP-1	05/05/2016	22:03:43	Common pipistrelle
FP-1	05/05/2016	03:17:30	Common pipistrell	FP-1	05/05/2016	03:41:13	Soprano pipistrelle	FP-1	05/05/2016	04:56:49	Common pipistrell	FP-1	05/05/2016	22:13:56	Pipistrelle sp.
FP-1	05/05/2016	03:17:44	Common pipistrell	FP-1	05/05/2016	03:42:41	Soprano pipistrelle	FP-1	05/05/2016	04:56:58	Common pipistrell	FP-1	05/05/2016	22:36:30	Pipistrelle sp.
FP-1	05/05/2016	03:18:23	Common pipistrell	FP-1	05/05/2016	03:43:08	Soprano pipistrelle	FP-1	05/05/2016	04:57:15	Common pipistrell	FP-1	05/05/2016	22:39:49	Pipistrelle sp.
FP-1	05/05/2016	03:18:59	Common pipistrell	FP-1	05/05/2016	03:43:44	Soprano pipistrelle	FP-1	05/05/2016	04:57:38	Common pipistrell	FP-1	05/05/2016	22:43:01	Common pipistrelle
FP-1	05/05/2016	03:19:17	Common pipistrell	FP-1	05/05/2016	03:44:51	Soprano pipistrelle	FP-1	05/05/2016	04:57:59	Common pipistrell	FP-1	05/05/2016	22:43:09	Common pipistrelle
FP-1	05/05/2016	03:20:10	Pipistrelle sp.	FP-1	05/05/2016	04:27:52	Soprano pipistrelle	FP-1	05/05/2016	04:58:12	Common pipistrell	FP-1	05/05/2016	22:44:35	Pipistrelle sp.
FP-1	05/05/2016	03:20:19	Common pipistrell	FP-1	05/05/2016	04:29:12	Common pipistrell	FP-1	05/05/2016	04:58:53	Common pipistrell	FP-1	05/05/2016	22:47:18	Pipistrelle sp.
FP-1	05/05/2016	03:20:38	Common pipistrell	FP-1	05/05/2016	04:29:40	Common pipistrell	FP-1	05/05/2016	04:59:05	Common pipistrell	FP-1	05/05/2016	23:03:14	Pipistrelle sp.
FP-1	05/05/2016	03:21:11	Common pipistrell	FP-1	05/05/2016	04:30:10	Common pipistrell	FP-1	05/05/2016	04:59:28	Common pipistrell	FP-1	05/05/2016	23:10:49	Common pipistrelle
FP-1	05/05/2016	03:21:35	Common pipistrell	FP-1	05/05/2016	04:30:32	Common pipistrell	FP-1	05/05/2016	04:59:41	Common pipistrell	FP-1	05/05/2016	23:12:39	Soprano pipistrelle
FP-1	05/05/2016	03:22:52	Common pipistrell	FP-1	05/05/2016	04:30:41	Common pipistrell	FP-1	05/05/2016	04:59:56	Common pipistrell	FP-1	05/05/2016	23:14:11	Soprano pipistrelle
FP-1	05/05/2016	03:23:30	Pipistrelle sp.	FP-1	05/05/2016	04:30:54	Common pipistrell	FP-1	05/05/2016	05:00:25	Common pipistrell	FP-1	05/05/2016	23:14:55	Common pipistrelle
FP-1	05/05/2016	03:24:47	Common pipistrell	FP-1	05/05/2016	04:31:19	Common pipistrell	FP-1	05/05/2016	05:00:37	Common pipistrell	FP-1	05/05/2016	23:25:42	Pipistrelle sp.
FP-1	05/05/2016	03:25:27	Common pipistrell	FP-1	05/05/2016	04:31:47	Common pipistrell	FP-1	05/05/2016	05:01:16	Common pipistrell	FP-1	05/05/2016	23:26:35	Common pipistrelle
FP-1	05/05/2016	03:26:08	Common pipistrell	FP-1	05/05/2016	04:32:23	Common pipistrell	FP-1	05/05/2016	05:01:43	Common pipistrell	FP-1	05/05/2016	23:26:57	Soprano pipistrelle
FP-1	05/05/2016	03:26:57	Common pipistrell	FP-1	05/05/2016	04:32:32	Common pipistrell	FP-1	05/05/2016	05:02:00	Common pipistrell	FP-1	05/05/2016	23:28:15	Common pipistrelle
FP-1	05/05/2016	03:26:57	Soprano pipistrelle	FP-1	05/05/2016	04:32:50	Common pipistrell	FP-1	05/05/2016	05:02:22	Common pipistrell	FP-1	05/05/2016	23:33:57	Pipistrelle sp.
FP-1	05/05/2016	03:27:16	Common pipistrell	FP-1	05/05/2016	04:33:03	Common pipistrell	FP-1	05/05/2016	05:02:39	Common pipistrell	FP-1	05/05/2016	23:39:26	Common pipistrelle
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FP-1	05/05/2016	03:27:50	Common pipistrell	FP-1	05/05/2016	04:33:30	Common pipistrell	FP-1	05/05/2016	05:03:20	Common pipistrell	FP-1	05/05/2016	23:51:01	Pipistrelle sp.
FP-1	05/05/2016	03:28:39	Common pipistrell	FP-1	05/05/2016	04:33:45	Soprano pipistrelle	FP-1	05/05/2016	05:04:11	Common pipistrell	FP-1	06/05/2016	00:11:34	Common pipistrelle
FP-1	05/05/2016	03:29:20	Common pipistrell	FP-1	05/05/2016	04:33:54	Soprano pipistrelle	FP-1	05/05/2016	05:04:30	Common pipistrell	FP-1	06/05/2016	00:17:39	Pipistrelle sp.
FP-1	05/05/2016	03:29:43	Common pipistrell	FP-1	05/05/2016	04:34:11	Common pipistrell	FP-1	05/05/2016	05:04:50	Common pipistrell	FP-1	06/05/2016	00:18:36	Pipistrelle sp.
FP-1	05/05/2016	03:30:05	Common pipistrell	FP-1	05/05/2016	04:34:20	Common pipistrell	FP-1	05/05/2016	05:05:01	Common pipistrell	FP-1	06/05/2016	00:20:44	Common pipistrelle
FP-1	05/05/2016	03:30:58	Common pipistrell	FP-1	05/05/2016	04:34:32	Common pipistrell	FP-1	05/05/2016	05:05:13	Common pipistrell	FP-1	06/05/2016	00:34:21	Common pipistrelle
FP-1	05/05/2016	03:31:55	Common pipistrell	FP-1	05/05/2016	04:34:46	Common pipistrell	FP-1	05/05/2016	05:05:29	Common pipistrell	FP-1	06/05/2016	00:36:16	Common pipistrelle
FP-1	05/05/2016	03:32:04	Common pipistrell	FP-1	05/05/2016	04:39:19	Pipistrelle sp.	FP-1	05/05/2016	05:05:40	Common pipistrell	FP-1	06/05/2016	01:03:37	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	06/05/2016	01:09:07	Common pipistrell	FP-1	06/05/2016	22:38:27	Pipistrelle sp.	FP-1	07/05/2016	22:01:38	Soprano pipistrelle	FP-1	08/05/2016	03:51:20	Common pipistrelle
FP-1	06/05/2016	01:50:24	Common pipistrell	FP-1	06/05/2016	22:39:58	Common pipistrell	FP-1	07/05/2016	22:02:25	Soprano pipistrelle	FP-1	08/05/2016	03:53:15	Common pipistrelle
FP-1	06/05/2016	01:51:41	Common pipistrell	FP-1	06/05/2016	22:40:57	Pipistrelle sp.	FP-1	07/05/2016	22:06:39	Pipistrelle sp.	FP-1	08/05/2016	03:57:36	Leisler's bat
FP-1	06/05/2016	02:57:00	Common pipistrell	FP-1	06/05/2016	22:42:58	Common pipistrell	FP-1	07/05/2016	22:08:47	Common pipistrell	FP-1	08/05/2016	04:17:55	Soprano pipistrelle
FP-1	06/05/2016	03:14:06	Pipistrelle sp.	FP-1	06/05/2016	22:45:09	Soprano pipistrelle	FP-1	07/05/2016	22:12:24	Soprano pipistrelle	FP-1	08/05/2016	04:19:32	Common pipistrelle
FP-1	06/05/2016	03:57:08	Leisler's bat	FP-1	06/05/2016	22:50:04	Pipistrelle sp.	FP-1	07/05/2016	22:13:09	Soprano pipistrelle	FP-1	08/05/2016	04:25:34	Pipistrelle sp.
FP-1	06/05/2016	03:57:16	Leisler's bat	FP-1	06/05/2016	22:59:00	Pipistrelle sp.	FP-1	07/05/2016	22:15:08	Soprano pipistrelle	FP-1	08/05/2016	04:32:10	Soprano pipistrelle
FP-1	06/05/2016	04:03:08	Common pipistrell	FP-1	06/05/2016	23:10:43	Common pipistrell	FP-1	07/05/2016	22:26:18	Leisler's bat	FP-1	08/05/2016	04:32:24	Soprano pipistrelle
FP-1	06/05/2016	04:04:17	Soprano pipistrelle	FP-1	06/05/2016	23:12:15	Common pipistrell	FP-1	07/05/2016	22:29:58	Myotis sp.	FP-1	08/05/2016	04:32:34	Soprano pipistrelle
FP-1	06/05/2016	04:22:55	Soprano pipistrelle	FP-1	06/05/2016	23:12:24	Common pipistrell	FP-1	07/05/2016	22:52:05	Leisler's bat	FP-1	08/05/2016	04:37:32	Soprano pipistrelle
FP-1	06/05/2016	04:25:04	Common pipistrell	FP-1	06/05/2016	23:13:36	Common pipistrell	FP-1	07/05/2016	22:52:18	Leisler's bat	FP-1	08/05/2016	04:57:20	Common pipistrelle
FP-1	06/05/2016	04:26:28	Pipistrelle sp.	FP-1	06/05/2016	23:20:27	Pipistrelle sp.	FP-1	07/05/2016	23:27:18	Leisler's bat	FP-1	08/05/2016	04:58:13	Common pipistrelle
FP-1	06/05/2016	04:27:33	Leisler's bat	FP-1	06/05/2016	23:24:10	Soprano pipistrelle	FP-1	07/05/2016	23:27:32	Leisler's bat	FP-1	08/05/2016	21:45:41	Soprano pipistrelle
FP-1	06/05/2016	04:28:32	Soprano pipistrelle	FP-1	06/05/2016	23:24:43	Soprano pipistrelle	FP-1	07/05/2016	23:33:52	Pipistrelle sp.	FP-1	08/05/2016	21:49:12	Soprano pipistrelle
FP-1	06/05/2016	04:42:13	Common pipistrell	FP-1	06/05/2016	23:45:17	Soprano pipistrelle	FP-1	07/05/2016	23:38:59	Pipistrelle sp.	FP-1	08/05/2016	21:49:19	Soprano pipistrelle
FP-1	06/05/2016	04:50:56	Soprano pipistrelle	FP-1	06/05/2016	23:45:28	Soprano pipistrelle	FP-1	07/05/2016	23:41:34	Common pipistrell	FP-1	08/05/2016	21:56:31	Leisler's bat
FP-1	06/05/2016	04:56:16	Common pipistrell	FP-1	06/05/2016	23:46:35	Soprano pipistrelle	FP-1	07/05/2016	23:47:31	Pipistrelle sp.	FP-1	08/05/2016	22:00:26	Leisler's bat
FP-1	06/05/2016	04:56:25	Common pipistrell	FP-1	06/05/2016	23:46:48	Soprano pipistrelle	FP-1	08/05/2016	00:38:54	Soprano pipistrelle	FP-1	08/05/2016	22:02:58	Leisler's bat
FP-1	06/05/2016	05:01:07	Common pipistrell	FP-1	06/05/2016	23:49:08	Soprano pipistrelle	FP-1	08/05/2016	00:52:34	Soprano pipistrelle	FP-1	08/05/2016	22:05:55	Pipistrelle sp.
FP-1	06/05/2016	21:34:45	Leisler's bat	FP-1	06/05/2016	23:51:30	Common pipistrell	FP-1	08/05/2016	00:56:08	Soprano pipistrelle	FP-1	08/05/2016	22:11:16	Common pipistrelle
FP-1	06/05/2016	21:37:57	Leisler's bat	FP-1	06/05/2016	23:55:35	Pipistrelle sp.	FP-1	08/05/2016	01:15:14	Soprano pipistrelle	FP-1	08/05/2016	22:29:25	Common pipistrelle
FP-1	06/05/2016	21:42:09	Leisler's bat	FP-1	07/05/2016	00:12:03	Soprano pipistrelle	FP-1	08/05/2016	01:44:47	Common pipistrell	FP-1	08/05/2016	22:31:18	Soprano pipistrelle
FP-1	06/05/2016	21:44:04	Pipistrelle sp.	FP-1	07/05/2016	00:12:22	Soprano pipistrelle	FP-1	08/05/2016	01:46:23	Pipistrelle sp.	FP-1	08/05/2016	22:38:50	Soprano pipistrelle
FP-1	06/05/2016	21:45:11	Common pipistrell	FP-1	07/05/2016	00:13:02	Soprano pipistrelle	FP-1	08/05/2016	02:04:55	Soprano pipistrelle	FP-1	08/05/2016	22:40:45	Soprano pipistrelle
FP-1	06/05/2016	21:45:31	Soprano pipistrelle	FP-1	07/05/2016	00:13:14	Common pipistrell	FP-1	08/05/2016	02:10:03	Leisler's bat	FP-1	08/05/2016	22:47:14	Soprano pipistrelle
FP-1	06/05/2016	21:48:39	Soprano pipistrelle	FP-1	07/05/2016	00:13:33	Common pipistrell	FP-1	08/05/2016	02:19:51	Common pipistrell	FP-1	08/05/2016	22:48:53	Leisler's bat
FP-1	06/05/2016	21:48:53	Common pipistrell	FP-1	07/05/2016	00:17:14	Leisler's bat	FP-1	08/05/2016	02:19:51	Leisler's bat	FP-1	08/05/2016	23:07:00	Common pipistrelle
FP-1	06/05/2016	21:49:46	Common pipistrell	FP-1	07/05/2016	00:27:16	Leisler's bat	FP-1	08/05/2016	02:20:10	Common pipistrell	FP-1	08/05/2016	23:10:17	Soprano pipistrelle
FP-1	06/05/2016	21:51:06	Pipistrelle sp.	FP-1	07/05/2016	00:27:29	Leisler's bat	FP-1	08/05/2016	02:51:43	Pipistrelle sp.	FP-1	08/05/2016	23:13:44	Common pipistrelle
FP-1	06/05/2016	21:56:09	Common pipistrell	FP-1	07/05/2016	00:38:02	Leisler's bat	FP-1	08/05/2016	03:08:03	Myotis sp.	FP-1	08/05/2016	23:18:59	Common pipistrelle
FP-1	06/05/2016	21:57:50	Common pipistrell	FP-1	07/05/2016	00:46:00	Leisler's bat	FP-1	08/05/2016	03:10:54	Pipistrelle sp.	FP-1	08/05/2016	23:19:15	Soprano pipistrelle
FP-1	06/05/2016	21:59:03	Leisler's bat	FP-1	07/05/2016	00:57:06	Soprano pipistrelle	FP-1	08/05/2016	03:23:24	Soprano pipistrelle	FP-1	08/05/2016	23:29:47	Common pipistrelle
FP-1	06/05/2016	22:03:45	Pipistrelle sp.	FP-1	07/05/2016	01:19:40	Leisler's bat	FP-1	08/05/2016	03:26:37	Soprano pipistrelle	FP-1	08/05/2016	23:33:22	Soprano pipistrelle
FP-1	06/05/2016	22:06:41	Soprano pipistrelle	FP-1	07/05/2016	01:19:55	Leisler's bat	FP-1	08/05/2016	03:28:28	Soprano pipistrelle	FP-1	08/05/2016	23:47:30	Soprano pipistrelle
FP-1	06/05/2016	22:21:47	Common pipistrell	FP-1	07/05/2016	01:20:27	Soprano pipistrelle	FP-1	08/05/2016	03:30:35	Soprano pipistrelle	FP-1	08/05/2016	23:58:09	Leisler's bat
FP-1	06/05/2016	22:24:50	Common pipistrell	FP-1	07/05/2016	01:28:06	Soprano pipistrelle	FP-1	08/05/2016	03:30:52	Soprano pipistrelle	FP-1	09/05/2016	00:01:14	Leisler's bat
FP-1	06/05/2016	22:26:16	Leisler's bat	FP-1	07/05/2016	01:29:20	Leisler's bat	FP-1	08/05/2016	03:32:34	Common pipistrell	FP-1	09/05/2016	00:42:15	Leisler's bat
FP-1	06/05/2016	22:26:24	Leisler's bat	FP-1	07/05/2016	01:45:23	Common pipistrell	FP-1	08/05/2016	03:42:55	Pipistrelle sp.	FP-1	09/05/2016	00:42:23	Leisler's bat
FP-1	06/05/2016	22:27:35	Common pipistrell	FP-1	07/05/2016	02:02:53	Leisler's bat	FP-1	08/05/2016	03:43:04	Soprano pipistrelle	FP-1	09/05/2016	00:45:44	Myotis sp.
FP-1	06/05/2016	22:27:55	Pipistrelle sp.	FP-1	07/05/2016	04:31:51	Common pipistrell	FP-1	08/05/2016	03:44:44	Pipistrelle sp.	FP-1	09/05/2016	01:10:36	Myotis sp.
FP-1	06/05/2016	22:28:45	Common pipistrell	FP-1	07/05/2016	04:43:32	Leisler's bat	FP-1	08/05/2016	03:47:31	Common pipistrell	FP-1	09/05/2016	01:18:34	Leisler's bat
FP-1	06/05/2016	22:34:13	Pipistrelle sp.	FP-1	07/05/2016	21:40:05	Soprano pipistrelle	FP-1	08/05/2016	03:48:04	Common pipistrell	FP-1	09/05/2016	01:19:19	Leisler's bat
FP-1	06/05/2016	22:36:35	Pipistrelle sp.	FP-1	07/05/2016	22:00:44	Pipistrelle sp.	FP-1	08/05/2016	03:48:17	Soprano pipistrelle	FP-1	09/05/2016	01:35:01	Common pipistrelle
FP-1	06/05/2016	22:38:08	Pipistrelle sp.	FP-1	07/05/2016	22:01:00	Pipistrelle sp.	FP-1	08/05/2016	03:48:43	Common pipistrell	FP-1	09/05/2016	01:46:17	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	09/05/2016	01:50:58	Pipistrelle sp.	FP-1	09/05/2016	23:55:01	Pipistrelle sp.	FP-1	10/05/2016	02:42:36	Leisler's bat	FP-1	11/05/2016	03:53:15	Leisler's bat
FP-1	09/05/2016	01:51:43	Soprano pipistrelle	FP-1	10/05/2016	00:00:26	Leisler's bat	FP-1	10/05/2016	02:46:58	Leisler's bat	FP-1	11/05/2016	03:53:34	Leisler's bat
FP-1	09/05/2016	01:56:29	Soprano pipistrelle	FP-1	10/05/2016	00:02:16	Common pipistrell	FP-1	10/05/2016	02:47:07	Leisler's bat	FP-1	11/05/2016	04:01:49	Leisler's bat
FP-1	09/05/2016	01:58:15	Soprano pipistrelle	FP-1	10/05/2016	00:06:31	Leisler's bat	FP-1	10/05/2016	02:47:52	Leisler's bat	FP-1	11/05/2016	04:02:07	Leisler's bat
FP-1	09/05/2016	02:22:51	Leisler's bat	FP-1	10/05/2016	00:10:44	Leisler's bat	FP-1	10/05/2016	02:48:57	Pipistrelle sp.	FP-1	11/05/2016	04:16:03	Leisler's bat
FP-1	09/05/2016	02:30:24	Common pipistrell	FP-1	10/05/2016	00:11:26	Common pipistrell	FP-1	10/05/2016	02:58:08	Leisler's bat	FP-1	11/05/2016	04:16:36	Leisler's bat
FP-1	09/05/2016	02:41:14	Common pipistrell	FP-1	10/05/2016	00:15:36	Pipistrelle sp.	FP-1	10/05/2016	02:58:34	Leisler's bat	FP-1	11/05/2016	04:42:24	Leisler's bat
FP-1	09/05/2016	02:46:47	Pipistrelle sp.	FP-1	10/05/2016	00:17:55	Leisler's bat	FP-1	10/05/2016	03:15:19	Pipistrelle sp.	FP-1	11/05/2016	04:42:42	Common pipistrelle
FP-1	09/05/2016	02:48:44	Pipistrelle sp.	FP-1	10/05/2016	00:30:42	Soprano pipistrelle	FP-1	10/05/2016	03:20:26	Leisler's bat	FP-1	11/05/2016	04:50:04	Common pipistrelle
FP-1	09/05/2016	02:48:57	Pipistrelle sp.	FP-1	10/05/2016	00:33:03	Leisler's bat	FP-1	10/05/2016	03:26:38	Pipistrelle sp.	FP-1	11/05/2016	04:59:30	Leisler's bat
FP-1	09/05/2016	02:51:35	Soprano pipistrelle	FP-1	10/05/2016	00:41:57	Leisler's bat	FP-1	10/05/2016	03:31:44	Common pipistrell	FP-1	11/05/2016	22:07:57	Soprano pipistrelle
FP-1	09/05/2016	02:56:51	Pipistrelle sp.	FP-1	10/05/2016	00:44:56	Leisler's bat	FP-1	10/05/2016	03:56:30	Leisler's bat	FP-1	11/05/2016	22:15:56	Common pipistrelle
FP-1	09/05/2016	03:16:20	Common pipistrell	FP-1	10/05/2016	00:48:45	Common pipistrell	FP-1	10/05/2016	03:56:41	Leisler's bat	FP-1	11/05/2016	22:32:00	Common pipistrelle
FP-1	09/05/2016	03:50:03	Leisler's bat	FP-1	10/05/2016	00:50:45	Common pipistrell	FP-1	10/05/2016	03:57:58	Soprano pipistrelle	FP-1	11/05/2016	22:35:51	Common pipistrelle
FP-1	09/05/2016	03:50:20	Leisler's bat	FP-1	10/05/2016	00:52:26	Common pipistrell	FP-1	10/05/2016	04:02:39	Leisler's bat	FP-1	11/05/2016	22:36:23	Leisler's bat
FP-1	09/05/2016	04:27:07	Soprano pipistrelle	FP-1	10/05/2016	00:52:36	Common pipistrell	FP-1	10/05/2016	04:02:50	Leisler's bat	FP-1	11/05/2016	22:37:09	Leisler's bat
FP-1	09/05/2016	04:30:09	Soprano pipistrelle	FP-1	10/05/2016	00:54:02	Leisler's bat	FP-1	10/05/2016	04:05:00	Common pipistrell	FP-1	11/05/2016	22:40:43	Soprano pipistrelle
FP-1	09/05/2016	04:49:45	Leisler's bat	FP-1	10/05/2016	00:54:20	Leisler's bat	FP-1	10/05/2016	04:30:43	Leisler's bat	FP-1	11/05/2016	22:47:17	Common pipistrelle
FP-1	09/05/2016	04:52:24	Soprano pipistrelle	FP-1	10/05/2016	00:54:38	Leisler's bat	FP-1	10/05/2016	04:33:17	Leisler's bat	FP-1	11/05/2016	22:55:27	Leisler's bat
FP-1	09/05/2016	04:58:47	Leisler's bat	FP-1	10/05/2016	01:16:51	Common pipistrell	FP-1	10/05/2016	04:38:32	Leisler's bat	FP-1	11/05/2016	22:55:45	Leisler's bat
FP-1	09/05/2016	21:53:11	Pipistrelle sp.	FP-1	10/05/2016	01:17:30	Common pipistrell	FP-1	10/05/2016	04:39:08	Leisler's bat	FP-1	11/05/2016	23:05:26	Leisler's bat
FP-1	09/05/2016	21:54:52	Pipistrelle sp.	FP-1	10/05/2016	01:19:40	Common pipistrell	FP-1	10/05/2016	04:39:24	Leisler's bat	FP-1	11/05/2016	23:05:38	Common pipistrelle
FP-1	09/05/2016	22:02:32	Leisler's bat	FP-1	10/05/2016	01:26:22	Common pipistrell	FP-1	10/05/2016	04:40:48	Leisler's bat	FP-1	11/05/2016	23:06:16	Leisler's bat
FP-1	09/05/2016	22:02:43	Soprano pipistrelle	FP-1	10/05/2016	01:32:39	Leisler's bat	FP-1	10/05/2016	04:41:01	Common pipistrell	FP-1	11/05/2016	23:06:35	Soprano pipistrelle
FP-1	09/05/2016	22:03:38	Pipistrelle sp.	FP-1	10/05/2016	01:45:12	Leisler's bat	FP-1	10/05/2016	04:46:19	Pipistrelle sp.	FP-1	11/05/2016	23:07:17	Common pipistrelle
FP-1	09/05/2016	22:03:46	Soprano pipistrelle	FP-1	10/05/2016	01:45:55	Leisler's bat	FP-1	10/05/2016	04:56:23	Leisler's bat	FP-1	11/05/2016	23:09:59	Leisler's bat
FP-1	09/05/2016	22:09:13	Soprano pipistrelle	FP-1	10/05/2016	01:48:33	Pipistrelle sp.	FP-1	10/05/2016	04:56:43	Leisler's bat	FP-1	11/05/2016	23:10:43	Leisler's bat
FP-1	09/05/2016	22:14:09	Soprano pipistrelle	FP-1	10/05/2016	01:50:04	Common pipistrell	FP-1	10/05/2016	04:57:07	Leisler's bat	FP-1	11/05/2016	23:11:02	Leisler's bat
FP-1	09/05/2016	22:23:00	Common pipistrell	FP-1	10/05/2016	02:06:06	Pipistrelle sp.	FP-1	10/05/2016	04:57:24	Leisler's bat	FP-1	11/05/2016	23:12:12	Soprano pipistrelle
FP-1	09/05/2016	22:24:06	Soprano pipistrelle	FP-1	10/05/2016	02:07:30	Soprano pipistrelle	FP-1	10/05/2016	05:02:09	Leisler's bat	FP-1	11/05/2016	23:12:39	Leisler's bat
FP-1	09/05/2016	22:25:19	Leisler's bat	FP-1	10/05/2016	02:08:05	Common pipistrell	FP-1	10/05/2016	05:02:18	Leisler's bat	FP-1	11/05/2016	23:12:52	Leisler's bat
FP-1	09/05/2016	22:25:38	Leisler's bat	FP-1	10/05/2016	02:08:14	Common pipistrell	FP-1	10/05/2016	05:10:42	Leisler's bat	FP-1	11/05/2016	23:13:11	Leisler's bat
FP-1	09/05/2016	22:32:00	Pipistrelle sp.	FP-1	10/05/2016	02:08:28	Common pipistrell	FP-1	10/05/2016	05:14:17	Leisler's bat	FP-1	11/05/2016	23:13:29	Leisler's bat
FP-1	09/05/2016	22:36:31	Common pipistrell	FP-1	10/05/2016	02:09:21	Common pipistrell	FP-1	10/05/2016	05:14:27	Leisler's bat	FP-1	11/05/2016	23:13:39	Leisler's bat
FP-1	09/05/2016	22:46:21	Leisler's bat	FP-1	10/05/2016	02:09:51	Common pipistrell	FP-1	11/05/2016	01:04:23	Soprano pipistrelle	FP-1	11/05/2016	23:27:24	Soprano pipistrelle
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FP-1	09/05/2016	22:54:07	Leisler's bat	FP-1	10/05/2016	02:11:42	Common pipistrell	FP-1	11/05/2016	02:51:59	Leisler's bat	FP-1	11/05/2016	23:40:16	Common pipistrelle
FP-1	09/05/2016	22:57:23	Leisler's bat	FP-1	10/05/2016	02:13:07	Common pipistrell	FP-1	11/05/2016	02:58:37	Common pipistrell	FP-1	11/05/2016	23:45:00	Common pipistrelle
FP-1	09/05/2016	23:06:13	Common pipistrell	FP-1	10/05/2016	02:13:17	Common pipistrell	FP-1	11/05/2016	03:22:22	Common pipistrell	FP-1	11/05/2016	23:45:28	Soprano pipistrelle
FP-1	09/05/2016	23:16:12	Common pipistrell	FP-1	10/05/2016	02:16:42	Pipistrelle sp.	FP-1	11/05/2016	03:33:13	Leisler's bat	FP-1	11/05/2016	23:48:32	Common pipistrelle
FP-1	09/05/2016	23:25:43	Pipistrelle sp.	FP-1	10/05/2016	02:39:38	Common pipistrell	FP-1	11/05/2016	03:33:31	Leisler's bat	FP-1	11/05/2016	23:48:41	Common pipistrelle
FP-1	09/05/2016	23:43:06	Soprano pipistrelle	FP-1	10/05/2016	02:39:54	Common pipistrell	FP-1	11/05/2016	03:34:46	Leisler's bat	FP-1	11/05/2016	23:49:57	Leisler's bat
FP-1	09/05/2016	23:53:37	Leisler's bat	FP-1	10/05/2016	02:40:04	Common pipistrell	FP-1	11/05/2016	03:35:39	Leisler's bat	FP-1	11/05/2016	23:50:05	Common pipistrelle
FP-1	09/05/2016	23:53:54	Leisler's bat	FP-1	10/05/2016	02:42:17	Leisler's bat	FP-1	11/05/2016	03:43:31	Leisler's bat	FP-1	11/05/2016	23:50:05	Leisler's bat

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	11/05/2016	23:50:23	Leisler's bat	FP-1	12/05/2016	23:21:04	Leisler's bat	FP-1	13/05/2016	22:24:13	Leisler's bat	FP-1	14/05/2016	00:46:14	Leisler's bat
FP-1	11/05/2016	23:59:29	Common pipistrell	FP-1	12/05/2016	23:26:04	Common pipistrell	FP-1	13/05/2016	22:33:07	Soprano pipistrelle	FP-1	14/05/2016	00:46:34	Leisler's bat
FP-1	12/05/2016	00:18:54	Leisler's bat	FP-1	12/05/2016	23:29:39	Common pipistrell	FP-1	13/05/2016	22:40:09	Common pipistrell	FP-1	14/05/2016	00:49:43	Leisler's bat
FP-1	12/05/2016	01:00:10	Leisler's bat	FP-1	12/05/2016	23:46:08	Soprano pipistrelle	FP-1	13/05/2016	22:40:52	Common pipistrell	FP-1	14/05/2016	00:49:50	Leisler's bat
FP-1	12/05/2016	01:00:22	Leisler's bat	FP-1	12/05/2016	23:54:05	Soprano pipistrelle	FP-1	13/05/2016	22:56:50	Leisler's bat	FP-1	14/05/2016	01:06:45	Common pipistrelle
FP-1	12/05/2016	01:00:41	Leisler's bat	FP-1	13/05/2016	00:01:41	Soprano pipistrelle	FP-1	13/05/2016	22:59:48	Common pipistrell	FP-1	14/05/2016	01:20:42	Leisler's bat
FP-1	12/05/2016	01:01:00	Leisler's bat	FP-1	13/05/2016	00:11:44	Common pipistrell	FP-1	13/05/2016	22:59:55	Common pipistrell	FP-1	14/05/2016	01:24:56	Leisler's bat
FP-1	12/05/2016	01:04:57	Leisler's bat	FP-1	13/05/2016	00:21:43	Common pipistrell	FP-1	13/05/2016	23:12:12	Leisler's bat	FP-1	14/05/2016	01:29:58	Soprano pipistrelle
FP-1	12/05/2016	01:05:12	Leisler's bat	FP-1	13/05/2016	00:22:53	Leisler's bat	FP-1	13/05/2016	23:12:30	Leisler's bat	FP-1	14/05/2016	01:37:28	Leisler's bat
FP-1	12/05/2016	01:10:56	Leisler's bat	FP-1	13/05/2016	00:25:38	Leisler's bat	FP-1	13/05/2016	23:20:11	Soprano pipistrelle	FP-1	14/05/2016	01:42:40	Leisler's bat
FP-1	12/05/2016	01:15:25	Leisler's bat	FP-1	13/05/2016	00:37:49	Pipistrelle sp.	FP-1	13/05/2016	23:23:18	Soprano pipistrelle	FP-1	14/05/2016	01:47:46	Leisler's bat
FP-1	12/05/2016	02:22:42	Leisler's bat	FP-1	13/05/2016	00:39:30	Soprano pipistrelle	FP-1	13/05/2016	23:44:20	Common pipistrell	FP-1	14/05/2016	01:52:55	Leisler's bat
FP-1	12/05/2016	02:24:37	Leisler's bat	FP-1	13/05/2016	01:23:00	Common pipistrell	FP-1	14/05/2016	00:08:55	Leisler's bat	FP-1	14/05/2016	01:53:09	Leisler's bat
FP-1	12/05/2016	02:27:15	Leisler's bat	FP-1	13/05/2016	01:47:56	Leisler's bat	FP-1	14/05/2016	00:09:17	Leisler's bat	FP-1	14/05/2016	02:48:25	Myotis sp.
FP-1	12/05/2016	02:27:36	Common pipistrell	FP-1	13/05/2016	01:48:23	Leisler's bat	FP-1	14/05/2016	00:09:32	Leisler's bat	FP-1	14/05/2016	03:18:30	Soprano pipistrelle
FP-1	12/05/2016	02:37:44	Leisler's bat	FP-1	13/05/2016	01:48:43	Leisler's bat	FP-1	14/05/2016	00:10:00	Leisler's bat	FP-1	14/05/2016	03:25:49	Soprano pipistrelle
FP-1	12/05/2016	02:50:39	Leisler's bat	FP-1	13/05/2016	01:49:01	Leisler's bat	FP-1	14/05/2016	00:10:29	Leisler's bat	FP-1	14/05/2016	03:50:42	Leisler's bat
FP-1	12/05/2016	03:07:40	Leisler's bat	FP-1	13/05/2016	01:49:26	Leisler's bat	FP-1	14/05/2016	00:11:15	Leisler's bat	FP-1	14/05/2016	04:18:12	Common pipistrelle
FP-1	12/05/2016	03:08:00	Leisler's bat	FP-1	13/05/2016	01:49:45	Leisler's bat	FP-1	14/05/2016	00:24:16	Leisler's bat	FP-1	14/05/2016	21:44:23	Leisler's bat
FP-1	12/05/2016	03:15:41	Leisler's bat	FP-1	13/05/2016	01:49:57	Leisler's bat	FP-1	14/05/2016	00:25:59	Leisler's bat	FP-1	14/05/2016	22:10:42	Soprano pipistrelle
FP-1	12/05/2016	03:16:01	Leisler's bat	FP-1	13/05/2016	01:51:01	Leisler's bat	FP-1	14/05/2016	00:26:46	Leisler's bat	FP-1	14/05/2016	22:11:02	Pipistrelle sp.
FP-1	12/05/2016	03:16:32	Leisler's bat	FP-1	13/05/2016	02:09:10	Leisler's bat	FP-1	14/05/2016	00:26:57	Leisler's bat	FP-1	14/05/2016	22:13:55	Pipistrelle sp.
FP-1	12/05/2016	03:21:10	Leisler's bat	FP-1	13/05/2016	02:19:56	Leisler's bat	FP-1	14/05/2016	00:27:27	Leisler's bat	FP-1	14/05/2016	22:14:07	Common pipistrelle
FP-1	12/05/2016	03:39:50	Soprano pipistrelle	FP-1	13/05/2016	02:21:04	Leisler's bat	FP-1	14/05/2016	00:27:47	Leisler's bat	FP-1	14/05/2016	22:17:16	Soprano pipistrelle
FP-1	12/05/2016	03:42:55	Leisler's bat	FP-1	13/05/2016	02:59:00	Common pipistrell	FP-1	14/05/2016	00:28:03	Leisler's bat	FP-1	14/05/2016	22:17:29	Soprano pipistrelle
FP-1	12/05/2016	03:43:18	Leisler's bat	FP-1	13/05/2016	03:02:51	Leisler's bat	FP-1	14/05/2016	00:28:18	Leisler's bat	FP-1	14/05/2016	22:18:47	Common pipistrelle
FP-1	12/05/2016	03:57:51	Soprano pipistrelle	FP-1	13/05/2016	03:20:20	Pipistrelle sp.	FP-1	14/05/2016	00:28:29	Leisler's bat	FP-1	14/05/2016	22:19:18	Common pipistrelle
FP-1	12/05/2016	04:27:00	Leisler's bat	FP-1	13/05/2016	03:43:41	Leisler's bat	FP-1	14/05/2016	00:28:46	Leisler's bat	FP-1	14/05/2016	22:19:33	Common pipistrelle
FP-1	12/05/2016	04:27:33	Leisler's bat	FP-1	13/05/2016	04:01:35	Soprano pipistrelle	FP-1	14/05/2016	00:29:17	Leisler's bat	FP-1	14/05/2016	22:19:58	Common pipistrelle
FP-1	12/05/2016	04:35:21	Leisler's bat	FP-1	13/05/2016	04:10:51	Leisler's bat	FP-1	14/05/2016	00:29:36	Leisler's bat	FP-1	14/05/2016	22:22:49	Common pipistrelle
FP-1	12/05/2016	04:35:37	Leisler's bat	FP-1	13/05/2016	04:11:02	Leisler's bat	FP-1	14/05/2016	00:30:05	Leisler's bat	FP-1	14/05/2016	22:23:23	Common pipistrelle
FP-1	12/05/2016	04:36:03	Leisler's bat	FP-1	13/05/2016	04:11:26	Leisler's bat	FP-1	14/05/2016	00:30:36	Leisler's bat	FP-1	14/05/2016	22:24:40	Common pipistrelle
FP-1	12/05/2016	04:36:20	Leisler's bat	FP-1	13/05/2016	04:19:13	Pipistrelle sp.	FP-1	14/05/2016	00:30:55	Leisler's bat	FP-1	14/05/2016	22:24:59	Common pipistrelle
FP-1	12/05/2016	04:46:01	Leisler's bat	FP-1	13/05/2016	04:19:58	Leisler's bat	FP-1	14/05/2016	00:31:15	Leisler's bat	FP-1	14/05/2016	22:28:06	Common pipistrelle
FP-1	12/05/2016	04:53:25	Leisler's bat	FP-1	13/05/2016	04:21:52	Common pipistrell	FP-1	14/05/2016	00:31:34	Leisler's bat	FP-1	14/05/2016	22:28:36	Common pipistrelle
FP-1	12/05/2016	21:59:43	Leisler's bat	FP-1	13/05/2016	21:44:30	Leisler's bat	FP-1	14/05/2016	00:31:43	Leisler's bat	FP-1	14/05/2016	22:30:04	Common pipistrelle
FP-1	12/05/2016	22:16:09	Common pipistrell	FP-1	13/05/2016	21:45:36	Leisler's bat	FP-1	14/05/2016	00:32:02	Leisler's bat	FP-1	14/05/2016	22:35:33	Common pipistrelle
FP-1	12/05/2016	22:20:44	Common pipistrell	FP-1	13/05/2016	21:45:50	Leisler's bat	FP-1	14/05/2016	00:32:20	Leisler's bat	FP-1	14/05/2016	22:36:39	Common pipistrelle
FP-1	12/05/2016	22:34:59	Soprano pipistrelle	FP-1	13/05/2016	21:52:45	Leisler's bat	FP-1	14/05/2016	00:32:48	Leisler's bat	FP-1	14/05/2016	22:38:31	Common pipistrelle
FP-1	12/05/2016	22:44:21	Leisler's bat	FP-1	13/05/2016	22:14:08	Leisler's bat	FP-1	14/05/2016	00:42:44	Leisler's bat	FP-1	14/05/2016	22:48:30	Common pipistrelle
FP-1	12/05/2016	22:44:55	Common pipistrell	FP-1	13/05/2016	22:15:51	Leisler's bat	FP-1	14/05/2016	00:43:01	Leisler's bat	FP-1	14/05/2016	22:51:43	Soprano pipistrelle
FP-1	12/05/2016	22:46:10	Common pipistrell	FP-1	13/05/2016	22:19:14	Leisler's bat	FP-1	14/05/2016	00:43:19	Leisler's bat	FP-1	14/05/2016	22:56:33	Soprano pipistrelle
FP-1	12/05/2016	22:47:10	Common pipistrell	FP-1	13/05/2016	22:19:26	Leisler's bat	FP-1	14/05/2016	00:43:41	Leisler's bat	FP-1	14/05/2016	22:57:42	Soprano pipistrelle
FP-1	12/05/2016	23:09:47	Pipistrelle sp.	FP-1	13/05/2016	22:23:34	Leisler's bat	FP-1	14/05/2016	00:44:10	Leisler's bat	FP-1	14/05/2016	23:11:19	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	14/05/2016	23:11:47	Common pipistrell	FP-2	28/05/2016	04:37:05	Leisler's bat	FP-2	29/05/2016	04:35:12	Leisler's bat	FP-2	30/05/2016	02:30:27	Common pipistrelle
FP-1	14/05/2016	23:13:23	Common pipistrell	FP-2	28/05/2016	22:00:00	Leisler's bat	FP-2	29/05/2016	04:37:05	Leisler's bat	FP-2	30/05/2016	02:30:55	Common pipistrelle
FP-1	14/05/2016	23:13:45	Common pipistrell	FP-2	28/05/2016	22:13:25	Soprano pipistrelle	FP-2	29/05/2016	04:37:28	Leisler's bat	FP-2	30/05/2016	02:30:55	Leisler's bat
FP-1	14/05/2016	23:13:52	Common pipistrell	FP-2	28/05/2016	22:15:09	Leisler's bat	FP-2	29/05/2016	04:39:36	Leisler's bat	FP-2	30/05/2016	02:31:18	Common pipistrelle
FP-1	14/05/2016	23:32:51	Pipistrelle sp.	FP-2	28/05/2016	22:25:55	Leisler's bat	FP-2	29/05/2016	04:41:12	Leisler's bat	FP-2	30/05/2016	02:32:51	Common pipistrelle
FP-1	15/05/2016	00:04:49	Soprano pipistrelle	FP-2	28/05/2016	22:27:01	Leisler's bat	FP-2	29/05/2016	22:26:28	Soprano pipistrelle	FP-2	30/05/2016	02:33:17	Common pipistrelle
FP-1	15/05/2016	00:10:22	Soprano pipistrelle	FP-2	28/05/2016	22:27:13	Leisler's bat	FP-2	29/05/2016	22:27:24	Pipistrelle sp.	FP-2	30/05/2016	02:40:44	Common pipistrelle
FP-1	15/05/2016	00:13:57	Pipistrelle sp.	FP-2	28/05/2016	22:47:15	Pipistrelle sp.	FP-2	29/05/2016	22:28:52	Soprano pipistrelle	FP-2	30/05/2016	02:46:52	Common pipistrelle
FP-1	15/05/2016	00:57:49	Common pipistrell	FP-2	28/05/2016	22:59:06	Common pipistrell	FP-2	29/05/2016	22:40:23	Soprano pipistrelle	FP-2	30/05/2016	02:49:41	Common pipistrelle
FP-1	15/05/2016	00:57:49	Soprano pipistrelle	FP-2	28/05/2016	23:15:35	Pipistrelle sp.	FP-2	29/05/2016	22:43:28	Pipistrelle sp.	FP-2	30/05/2016	02:50:23	Common pipistrelle
FP-1	15/05/2016	01:05:27	Myotis sp.	FP-2	28/05/2016	23:30:12	Leisler's bat	FP-2	29/05/2016	23:16:58	Common pipistrell	FP-2	30/05/2016	02:51:33	Common pipistrelle
FP-1	15/05/2016	01:15:40	Common pipistrell	FP-2	28/05/2016	23:30:32	Leisler's bat	FP-2	29/05/2016	23:39:20	Pipistrelle sp.	FP-2	30/05/2016	02:52:03	Common pipistrelle
FP-1	15/05/2016	01:17:03	Soprano pipistrelle	FP-2	28/05/2016	23:48:02	Pipistrelle sp.	FP-2	29/05/2016	23:39:33	Leisler's bat	FP-2	30/05/2016	02:52:19	Pipistrelle sp.
FP-2	27/05/2016	22:19:07	Leisler's bat	FP-2	28/05/2016	23:51:24	Leisler's bat	FP-2	29/05/2016	23:43:54	Soprano pipistrelle	FP-2	30/05/2016	02:52:57	Pipistrelle sp.
FP-2	27/05/2016	22:21:56	Common pipistrell	FP-2	28/05/2016	23:51:58	Common pipistrell	FP-2	29/05/2016	23:51:49	Common pipistrell	FP-2	30/05/2016	02:53:31	Pipistrelle sp.
FP-2	27/05/2016	22:26:23	Leisler's bat	FP-2	29/05/2016	00:09:11	Soprano pipistrelle	FP-2	30/05/2016	00:05:03	Common pipistrell	FP-2	30/05/2016	02:54:03	Common pipistrelle
FP-2	27/05/2016	22:40:03	Common pipistrell	FP-2	29/05/2016	00:35:08	Leisler's bat	FP-2	30/05/2016	00:25:11	Leisler's bat	FP-2	30/05/2016	02:54:18	Common pipistrelle
FP-2	27/05/2016	22:44:32	Soprano pipistrelle	FP-2	29/05/2016	00:43:10	Common pipistrell	FP-2	30/05/2016	00:29:11	Soprano pipistrelle	FP-2	30/05/2016	02:54:51	Common pipistrelle
FP-2	27/05/2016	22:55:32	Soprano pipistrelle	FP-2	29/05/2016	00:43:21	Common pipistrell	FP-2	30/05/2016	00:44:07	Leisler's bat	FP-2	30/05/2016	02:54:58	Common pipistrelle
FP-2	27/05/2016	23:02:39	Common pipistrell	FP-2	29/05/2016	00:47:59	Common pipistrell	FP-2	30/05/2016	01:08:00	Leisler's bat	FP-2	30/05/2016	02:55:05	Pipistrelle sp.
FP-2	27/05/2016	23:03:35	Pipistrelle sp.	FP-2	29/05/2016	01:01:59	Pipistrelle sp.	FP-2	30/05/2016	01:23:49	Common pipistrell	FP-2	30/05/2016	02:55:25	Common pipistrelle
FP-2	27/05/2016	23:05:54	Pipistrelle sp.	FP-2	29/05/2016	01:03:35	Pipistrelle sp.	FP-2	30/05/2016	01:27:43	Common pipistrell	FP-2	30/05/2016	02:56:39	Pipistrelle sp.
FP-2	27/05/2016	23:29:31	Common pipistrell	FP-2	29/05/2016	01:04:48	Common pipistrell	FP-2	30/05/2016	01:28:52	Common pipistrell	FP-2	30/05/2016	02:57:50	Pipistrelle sp.
FP-2	28/05/2016	00:01:00	Common pipistrell	FP-2	29/05/2016	01:18:09	Common pipistrell	FP-2	30/05/2016	02:09:06	Common pipistrell	FP-2	30/05/2016	02:58:06	Common pipistrelle
FP-2	28/05/2016	00:12:29	Common pipistrell	FP-2	29/05/2016	01:38:54	Leisler's bat	FP-2	30/05/2016	02:10:46	Leisler's bat	FP-2	30/05/2016	02:59:32	Common pipistrelle
FP-2	28/05/2016	00:30:37	Leisler's bat	FP-2	29/05/2016	01:47:10	Common pipistrell	FP-2	30/05/2016	02:11:56	Common pipistrell	FP-2	30/05/2016	03:00:01	Common pipistrelle
FP-2	28/05/2016	00:49:29	Pipistrelle sp.	FP-2	29/05/2016	01:51:24	Common pipistrell	FP-2	30/05/2016	02:16:44	Pipistrelle sp.	FP-2	30/05/2016	03:00:24	Soprano pipistrelle
FP-2	28/05/2016	00:51:44	Leisler's bat	FP-2	29/05/2016	01:54:35	Common pipistrell	FP-2	30/05/2016	02:17:17	Common pipistrell	FP-2	30/05/2016	03:01:30	Common pipistrelle
FP-2	28/05/2016	01:05:05	Leisler's bat	FP-2	29/05/2016	02:11:36	Leisler's bat	FP-2	30/05/2016	02:17:43	Common pipistrell	FP-2	30/05/2016	03:01:55	Common pipistrelle
FP-2	28/05/2016	01:09:34	Leisler's bat	FP-2	29/05/2016	02:21:51	Leisler's bat	FP-2	30/05/2016	02:18:56	Common pipistrell	FP-2	30/05/2016	03:06:57	Common pipistrelle
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FP-2	28/05/2016	01:55:53	Common pipistrell	FP-2	29/05/2016	03:27:57	Myotis sp.	FP-2	30/05/2016	02:20:00	Leisler's bat	FP-2	30/05/2016	03:11:25	Common pipistrelle
FP-2	28/05/2016	02:15:08	Common pipistrell	FP-2	29/05/2016	03:38:16	Common pipistrell	FP-2	30/05/2016	02:21:52	Common pipistrell	FP-2	30/05/2016	03:12:14	Common pipistrelle
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FP-2	28/05/2016	02:18:04	Pipistrelle sp.	FP-2	29/05/2016	04:14:56	Soprano pipistrelle	FP-2	30/05/2016	02:23:02	Common pipistrell	FP-2	30/05/2016	03:14:47	Common pipistrelle
FP-2	28/05/2016	02:41:56	Common pipistrell	FP-2	29/05/2016	04:22:07	Common pipistrell	FP-2	30/05/2016	02:23:58	Common pipistrell	FP-2	30/05/2016	03:15:28	Common pipistrelle
FP-2	28/05/2016	02:55:20	Soprano pipistrelle	FP-2	29/05/2016	04:24:22	Leisler's bat	FP-2	30/05/2016	02:24:45	Common pipistrell	FP-2	30/05/2016	03:19:31	Common pipistrelle
FP-2	28/05/2016	03:08:40	Leisler's bat	FP-2	29/05/2016	04:24:37	Leisler's bat	FP-2	30/05/2016	02:25:14	Common pipistrell	FP-2	30/05/2016	03:26:39	Common pipistrelle
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FP-2	28/05/2016	03:41:30	Soprano pipistrelle	FP-2	29/05/2016	04:32:06	Leisler's bat	FP-2	30/05/2016	02:25:40	Myotis sp.	FP-2	30/05/2016	03:57:19	Common pipistrelle
FP-2	28/05/2016	04:28:54	Common pipistrell	FP-2	29/05/2016	04:34:43	Leisler's bat	FP-2	30/05/2016	02:26:35	Common pipistrell	FP-2	30/05/2016	04:04:07	Common pipistrelle
FP-2	28/05/2016	04:36:16	Leisler's bat	FP-2	29/05/2016	04:34:55	Leisler's bat	FP-2	30/05/2016	02:29:23	Common pipistrell	FP-2	30/05/2016	04:07:43	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	30/05/2016	04:08:26	Leisler's bat	FP-2	31/05/2016	00:48:37	Common pipistrell	FP-2	31/05/2016	01:16:26	Pipistrelle sp.	FP-2	31/05/2016	01:33:58	Common pipistrelle
FP-2	30/05/2016	04:13:15	Common pipistrell	FP-2	31/05/2016	00:49:26	Common pipistrell	FP-2	31/05/2016	01:16:33	Leisler's bat	FP-2	31/05/2016	01:34:32	Common pipistrelle
FP-2	30/05/2016	04:13:23	Soprano pipistrelle	FP-2	31/05/2016	00:49:36	Common pipistrell	FP-2	31/05/2016	01:16:52	Pipistrelle sp.	FP-2	31/05/2016	01:34:54	Common pipistrelle
FP-2	30/05/2016	04:15:31	Soprano pipistrelle	FP-2	31/05/2016	00:50:07	Common pipistrell	FP-2	31/05/2016	01:17:47	Common pipistrell	FP-2	31/05/2016	01:35:03	Common pipistrelle
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FP-2	30/05/2016	04:19:53	Leisler's bat	FP-2	31/05/2016	00:50:46	Common pipistrell	FP-2	31/05/2016	01:17:57	Common pipistrell	FP-2	31/05/2016	01:35:44	Common pipistrelle
FP-2	30/05/2016	04:22:08	Leisler's bat	FP-2	31/05/2016	00:51:41	Soprano pipistrelle	FP-2	31/05/2016	01:17:57	Leisler's bat	FP-2	31/05/2016	01:35:56	Common pipistrelle
FP-2	30/05/2016	04:23:27	Leisler's bat	FP-2	31/05/2016	00:52:12	Common pipistrell	FP-2	31/05/2016	01:18:15	Leisler's bat	FP-2	31/05/2016	01:36:06	Common pipistrelle
FP-2	30/05/2016	04:26:52	Leisler's bat	FP-2	31/05/2016	00:52:21	Common pipistrell	FP-2	31/05/2016	01:18:39	Common pipistrell	FP-2	31/05/2016	01:36:22	Common pipistrelle
FP-2	30/05/2016	04:28:06	Leisler's bat	FP-2	31/05/2016	00:52:30	Common pipistrell	FP-2	31/05/2016	01:18:54	Common pipistrell	FP-2	31/05/2016	01:36:50	Leisler's bat
FP-2	30/05/2016	22:42:58	Pipistrelle sp.	FP-2	31/05/2016	00:53:21	Common pipistrell	FP-2	31/05/2016	01:19:28	Common pipistrell	FP-2	31/05/2016	01:37:02	Pipistrelle sp.
FP-2	30/05/2016	22:54:38	Common pipistrell	FP-2	31/05/2016	00:53:59	Common pipistrell	FP-2	31/05/2016	01:19:40	Common pipistrell	FP-2	31/05/2016	01:37:29	Common pipistrelle
FP-2	30/05/2016	22:58:55	Soprano pipistrelle	FP-2	31/05/2016	00:54:10	Common pipistrell	FP-2	31/05/2016	01:19:50	Common pipistrell	FP-2	31/05/2016	01:37:40	Common pipistrelle
FP-2	30/05/2016	23:08:18	Common pipistrell	FP-2	31/05/2016	00:54:24	Common pipistrell	FP-2	31/05/2016	01:20:08	Common pipistrell	FP-2	31/05/2016	01:37:40	Leisler's bat
FP-2	30/05/2016	23:14:19	Common pipistrell	FP-2	31/05/2016	00:54:36	Common pipistrell	FP-2	31/05/2016	01:20:23	Pipistrelle sp.	FP-2	31/05/2016	01:38:31	Leisler's bat
FP-2	30/05/2016	23:26:47	Common pipistrell	FP-2	31/05/2016	00:54:53	Common pipistrell	FP-2	31/05/2016	01:20:42	Common pipistrell	FP-2	31/05/2016	01:38:50	Pipistrelle sp.
FP-2	30/05/2016	23:32:21	Common pipistrell	FP-2	31/05/2016	00:58:06	Common pipistrell	FP-2	31/05/2016	01:21:59	Common pipistrell	FP-2	31/05/2016	01:39:35	Pipistrelle sp.
FP-2	30/05/2016	23:40:30	Leisler's bat	FP-2	31/05/2016	00:58:06	Leisler's bat	FP-2	31/05/2016	01:22:31	Common pipistrell	FP-2	31/05/2016	01:40:21	Common pipistrelle
FP-2	30/05/2016	23:54:55	Common pipistrell	FP-2	31/05/2016	00:58:17	Common pipistrell	FP-2	31/05/2016	01:22:45	Common pipistrell	FP-2	31/05/2016	01:40:31	Common pipistrelle
FP-2	31/05/2016	00:13:18	Pipistrelle sp.	FP-2	31/05/2016	00:58:17	Leisler's bat	FP-2	31/05/2016	01:22:55	Common pipistrell	FP-2	31/05/2016	01:41:03	Leisler's bat
FP-2	31/05/2016	00:17:29	Common pipistrell	FP-2	31/05/2016	00:59:47	Common pipistrell	FP-2	31/05/2016	01:23:14	Common pipistrell	FP-2	31/05/2016	01:46:24	Common pipistrelle
FP-2	31/05/2016	00:18:54	Leisler's bat	FP-2	31/05/2016	01:00:24	Common pipistrell	FP-2	31/05/2016	01:23:25	Common pipistrell	FP-2	31/05/2016	01:46:36	Common pipistrelle
FP-2	31/05/2016	00:26:32	Common pipistrell	FP-2	31/05/2016	01:00:33	Common pipistrell	FP-2	31/05/2016	01:23:33	Common pipistrell	FP-2	31/05/2016	01:46:52	Common pipistrelle
FP-2	31/05/2016	00:32:31	Pipistrelle sp.	FP-2	31/05/2016	01:02:33	Common pipistrell	FP-2	31/05/2016	01:23:42	Common pipistrell	FP-2	31/05/2016	01:47:12	Pipistrelle sp.
FP-2	31/05/2016	00:35:07	Common pipistrell	FP-2	31/05/2016	01:02:43	Common pipistrell	FP-2	31/05/2016	01:24:10	Common pipistrell	FP-2	31/05/2016	01:47:29	Common pipistrelle
FP-2	31/05/2016	00:36:01	Common pipistrell	FP-2	31/05/2016	01:04:03	Common pipistrell	FP-2	31/05/2016	01:24:27	Common pipistrell	FP-2	31/05/2016	01:47:41	Common pipistrelle
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FP-2	31/05/2016	00:37:13	Common pipistrell	FP-2	31/05/2016	01:06:08	Common pipistrell	FP-2	31/05/2016	01:27:00	Common pipistrell	FP-2	31/05/2016	01:48:26	Common pipistrelle
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FP-2	31/05/2016	00:38:15	Common pipistrell	FP-2	31/05/2016	01:06:43	Common pipistrell	FP-2	31/05/2016	01:28:00	Pipistrelle sp.	FP-2	31/05/2016	01:49:20	Pipistrelle sp.
FP-2	31/05/2016	00:39:43	Common pipistrell	FP-2	31/05/2016	01:06:43	Leisler's bat	FP-2	31/05/2016	01:28:45	Common pipistrell	FP-2	31/05/2016	01:49:44	Common pipistrelle
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FP-2	31/05/2016	00:43:17	Common pipistrell	FP-2	31/05/2016	01:10:30	Common pipistrell	FP-2	31/05/2016	01:30:34	Common pipistrell	FP-2	31/05/2016	01:50:26	Common pipistrelle
FP-2	31/05/2016	00:44:13	Common pipistrell	FP-2	31/05/2016	01:10:40	Common pipistrell	FP-2	31/05/2016	01:31:12	Common pipistrell	FP-2	31/05/2016	01:50:49	Common pipistrelle
FP-2	31/05/2016	00:44:31	Common pipistrell	FP-2	31/05/2016	01:12:57	Common pipistrell	FP-2	31/05/2016	01:31:19	Common pipistrell	FP-2	31/05/2016	01:50:59	Common pipistrelle
FP-2	31/05/2016	00:45:16	Common pipistrell	FP-2	31/05/2016	01:14:06	Common pipistrell	FP-2	31/05/2016	01:31:33	Common pipistrell	FP-2	31/05/2016	01:51:15	Common pipistrelle
FP-2	31/05/2016	00:45:38	Common pipistrell	FP-2	31/05/2016	01:14:22	Common pipistrell	FP-2	31/05/2016	01:31:41	Common pipistrell	FP-2	31/05/2016	01:51:27	Common pipistrelle
FP-2	31/05/2016	00:45:48	Common pipistrell	FP-2	31/05/2016	01:14:28	Pipistrelle sp.	FP-2	31/05/2016	01:32:41	Common pipistrell	FP-2	31/05/2016	01:51:34	Common pipistrelle
FP-2	31/05/2016	00:46:09	Common pipistrell	FP-2	31/05/2016	01:14:40	Common pipistrell	FP-2	31/05/2016	01:32:52	Common pipistrell	FP-2	31/05/2016	01:51:44	Common pipistrelle
FP-2	31/05/2016	00:47:56	Common pipistrell	FP-2	31/05/2016	01:15:08	Common pipistrell	FP-2	31/05/2016	01:33:07	Common pipistrell	FP-2	31/05/2016	01:52:02	Common pipistrelle
FP-2	31/05/2016	00:48:14	Common pipistrell	FP-2	31/05/2016	01:15:57	Common pipistrell	FP-2	31/05/2016	01:33:26	Common pipistrell	FP-2	31/05/2016	01:52:22	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	31/05/2016	01:52:47	Common pipistrell	FP-2	31/05/2016	02:11:10	Common pipistrell	FP-2	31/05/2016	02:34:46	Pipistrelle sp.	FP-2	31/05/2016	03:05:42	Pipistrelle sp.
FP-2	31/05/2016	01:53:00	Common pipistrell	FP-2	31/05/2016	02:11:25	Common pipistrell	FP-2	31/05/2016	02:34:53	Pipistrelle sp.	FP-2	31/05/2016	03:06:18	Common pipistrelle
FP-2	31/05/2016	01:54:45	Common pipistrell	FP-2	31/05/2016	02:11:34	Common pipistrell	FP-2	31/05/2016	02:35:15	Pipistrelle sp.	FP-2	31/05/2016	03:09:12	Pipistrelle sp.
FP-2	31/05/2016	01:54:55	Common pipistrell	FP-2	31/05/2016	02:12:23	Common pipistrell	FP-2	31/05/2016	02:35:58	Pipistrelle sp.	FP-2	31/05/2016	03:11:52	Common pipistrelle
FP-2	31/05/2016	01:55:20	Common pipistrell	FP-2	31/05/2016	02:12:50	Common pipistrell	FP-2	31/05/2016	02:37:31	Leisler's bat	FP-2	31/05/2016	03:12:41	Common pipistrelle
FP-2	31/05/2016	01:55:47	Common pipistrell	FP-2	31/05/2016	02:13:11	Common pipistrell	FP-2	31/05/2016	02:37:45	Common pipistrell	FP-2	31/05/2016	03:15:38	Pipistrelle sp.
FP-2	31/05/2016	01:56:00	Common pipistrell	FP-2	31/05/2016	02:13:20	Common pipistrell	FP-2	31/05/2016	02:38:09	Pipistrelle sp.	FP-2	31/05/2016	03:16:06	Common pipistrelle
FP-2	31/05/2016	01:56:44	Common pipistrell	FP-2	31/05/2016	02:13:32	Common pipistrell	FP-2	31/05/2016	02:38:32	Pipistrelle sp.	FP-2	31/05/2016	03:16:15	Common pipistrelle
FP-2	31/05/2016	01:56:59	Common pipistrell	FP-2	31/05/2016	02:13:53	Common pipistrell	FP-2	31/05/2016	02:38:57	Pipistrelle sp.	FP-2	31/05/2016	03:16:47	Pipistrelle sp.
FP-2	31/05/2016	01:57:11	Common pipistrell	FP-2	31/05/2016	02:14:09	Common pipistrell	FP-2	31/05/2016	02:39:13	Pipistrelle sp.	FP-2	31/05/2016	03:17:31	Common pipistrelle
FP-2	31/05/2016	01:57:25	Common pipistrell	FP-2	31/05/2016	02:14:30	Common pipistrell	FP-2	31/05/2016	02:39:34	Pipistrelle sp.	FP-2	31/05/2016	03:19:54	Common pipistrelle
FP-2	31/05/2016	01:57:37	Common pipistrell	FP-2	31/05/2016	02:14:49	Pipistrelle sp.	FP-2	31/05/2016	02:40:00	Pipistrelle sp.	FP-2	31/05/2016	03:25:53	Soprano pipistrelle
FP-2	31/05/2016	01:58:28	Common pipistrell	FP-2	31/05/2016	02:15:03	Pipistrelle sp.	FP-2	31/05/2016	02:40:24	Pipistrelle sp.	FP-2	31/05/2016	03:30:51	Common pipistrelle
FP-2	31/05/2016	01:58:52	Common pipistrell	FP-2	31/05/2016	02:15:48	Pipistrelle sp.	FP-2	31/05/2016	02:40:43	Pipistrelle sp.	FP-2	31/05/2016	03:31:35	Common pipistrelle
FP-2	31/05/2016	01:59:09	Common pipistrell	FP-2	31/05/2016	02:16:24	Pipistrelle sp.	FP-2	31/05/2016	02:42:11	Pipistrelle sp.	FP-2	31/05/2016	03:37:05	Common pipistrelle
FP-2	31/05/2016	02:00:00	Common pipistrell	FP-2	31/05/2016	02:17:03	Pipistrelle sp.	FP-2	31/05/2016	02:42:54	Pipistrelle sp.	FP-2	31/05/2016	03:37:28	Common pipistrelle
FP-2	31/05/2016	02:01:14	Common pipistrell	FP-2	31/05/2016	02:18:34	Pipistrelle sp.	FP-2	31/05/2016	02:45:15	Pipistrelle sp.	FP-2	31/05/2016	03:50:37	Common pipistrelle
FP-2	31/05/2016	02:01:14	Leisler's bat	FP-2	31/05/2016	02:18:41	Pipistrelle sp.	FP-2	31/05/2016	02:47:11	Pipistrelle sp.	FP-2	31/05/2016	03:59:12	Leisler's bat
FP-2	31/05/2016	02:01:45	Pipistrelle sp.	FP-2	31/05/2016	02:18:57	Pipistrelle sp.	FP-2	31/05/2016	02:47:24	Pipistrelle sp.	FP-2	31/05/2016	22:36:46	Soprano pipistrelle
FP-2	31/05/2016	02:02:19	Common pipistrell	FP-2	31/05/2016	02:19:23	Pipistrelle sp.	FP-2	31/05/2016	02:47:34	Pipistrelle sp.	FP-2	31/05/2016	22:43:10	Common pipistrelle
FP-2	31/05/2016	02:02:52	Common pipistrell	FP-2	31/05/2016	02:22:08	Common pipistrell	FP-2	31/05/2016	02:47:45	Pipistrelle sp.	FP-2	31/05/2016	22:54:57	Soprano pipistrelle
FP-2	31/05/2016	02:03:08	Common pipistrell	FP-2	31/05/2016	02:22:18	Pipistrelle sp.	FP-2	31/05/2016	02:47:54	Pipistrelle sp.	FP-2	31/05/2016	22:55:14	Soprano pipistrelle
FP-2	31/05/2016	02:03:38	Common pipistrell	FP-2	31/05/2016	02:22:45	Pipistrelle sp.	FP-2	31/05/2016	02:49:31	Pipistrelle sp.	FP-2	31/05/2016	23:05:20	Common pipistrelle
FP-2	31/05/2016	02:03:59	Common pipistrell	FP-2	31/05/2016	02:22:57	Pipistrelle sp.	FP-2	31/05/2016	02:50:01	Pipistrelle sp.	FP-2	31/05/2016	23:08:08	Common pipistrelle
FP-2	31/05/2016	02:04:24	Common pipistrell	FP-2	31/05/2016	02:23:54	Pipistrelle sp.	FP-2	31/05/2016	02:50:11	Pipistrelle sp.	FP-2	31/05/2016	23:08:57	Leisler's bat
FP-2	31/05/2016	02:05:13	Common pipistrell	FP-2	31/05/2016	02:24:06	Pipistrelle sp.	FP-2	31/05/2016	02:50:47	Pipistrelle sp.	FP-2	31/05/2016	23:11:28	Common pipistrelle
FP-2	31/05/2016	02:05:23	Pipistrelle sp.	FP-2	31/05/2016	02:24:14	Pipistrelle sp.	FP-2	31/05/2016	02:51:10	Pipistrelle sp.	FP-2	31/05/2016	23:15:46	Common pipistrelle
FP-2	31/05/2016	02:05:30	Pipistrelle sp.	FP-2	31/05/2016	02:24:24	Soprano pipistrelle	FP-2	31/05/2016	02:51:20	Pipistrelle sp.	FP-2	31/05/2016	23:16:25	Common pipistrelle
FP-2	31/05/2016	02:05:46	Pipistrelle sp.	FP-2	31/05/2016	02:24:57	Soprano pipistrelle	FP-2	31/05/2016	02:52:51	Pipistrelle sp.	FP-2	31/05/2016	23:18:32	Common pipistrelle
FP-2	31/05/2016	02:06:26	Common pipistrell	FP-2	31/05/2016	02:25:23	Common pipistrell	FP-2	31/05/2016	02:53:21	Pipistrelle sp.	FP-2	31/05/2016	23:57:29	Common pipistrelle
FP-2	31/05/2016	02:06:45	Common pipistrell	FP-2	31/05/2016	02:25:54	Common pipistrell	FP-2	31/05/2016	02:53:49	Pipistrelle sp.	FP-2	31/05/2016	23:57:41	Common pipistrelle
FP-2	31/05/2016	02:06:57	Pipistrelle sp.	FP-2	31/05/2016	02:26:16	Common pipistrell	FP-2	31/05/2016	02:54:00	Pipistrelle sp.	FP-2	31/05/2016	23:58:06	Common pipistrelle
FP-2	31/05/2016	02:07:25	Common pipistrell	FP-2	31/05/2016	02:26:32	Pipistrelle sp.	FP-2	31/05/2016	02:54:09	Pipistrelle sp.	FP-2	31/05/2016	23:58:15	Common pipistrelle
FP-2	31/05/2016	02:07:34	Common pipistrell	FP-2	31/05/2016	02:26:42	Pipistrelle sp.	FP-2	31/05/2016	02:54:39	Pipistrelle sp.	FP-2	31/05/2016	23:58:34	Common pipistrelle
FP-2	31/05/2016	02:07:47	Common pipistrell	FP-2	31/05/2016	02:27:04	Pipistrelle sp.	FP-2	31/05/2016	02:55:17	Pipistrelle sp.	FP-2	31/05/2016	23:59:47	Common pipistrelle
FP-2	31/05/2016	02:08:02	Common pipistrell	FP-2	31/05/2016	02:27:23	Pipistrelle sp.	FP-2	31/05/2016	02:55:52	Pipistrelle sp.	FP-2	01/06/2016	00:00:35	Common pipistrelle
FP-2	31/05/2016	02:08:16	Common pipistrell	FP-2	31/05/2016	02:27:43	Pipistrelle sp.	FP-2	31/05/2016	02:56:42	Pipistrelle sp.	FP-2	01/06/2016	00:00:51	Common pipistrelle
FP-2	31/05/2016	02:08:23	Common pipistrell	FP-2	31/05/2016	02:28:09	Pipistrelle sp.	FP-2	31/05/2016	02:57:31	Common pipistrell	FP-2	01/06/2016	00:01:14	Common pipistrelle
FP-2	31/05/2016	02:08:47	Common pipistrell	FP-2	31/05/2016	02:28:32	Common pipistrell	FP-2	31/05/2016	02:58:02	Pipistrelle sp.	FP-2	01/06/2016	00:01:58	Common pipistrelle
FP-2	31/05/2016	02:09:03	Common pipistrell	FP-2	31/05/2016	02:28:52	Common pipistrell	FP-2	31/05/2016	02:58:51	Pipistrelle sp.	FP-2	01/06/2016	00:02:12	Common pipistrelle
FP-2	31/05/2016	02:09:42	Common pipistrell	FP-2	31/05/2016	02:31:45	Common pipistrell	FP-2	31/05/2016	02:59:16	Pipistrelle sp.	FP-2	01/06/2016	00:02:55	Common pipistrelle
FP-2	31/05/2016	02:10:21	Common pipistrell	FP-2	31/05/2016	02:32:20	Pipistrelle sp.	FP-2	31/05/2016	02:59:40	Pipistrelle sp.	FP-2	01/06/2016	00:03:52	Common pipistrelle
FP-2	31/05/2016	02:10:28	Common pipistrell	FP-2	31/05/2016	02:34:14	Common pipistrell	FP-2	31/05/2016	03:00:54	Pipistrelle sp.	FP-2	01/06/2016	00:07:28	Common pipistrelle
FP-2	31/05/2016	02:10:38	Common pipistrell	FP-2	31/05/2016	02:34:39	Common pipistrell	FP-2	31/05/2016	03:05:35	Pipistrelle sp.	FP-2	01/06/2016	00:09:29	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	01/06/2016	00:11:40	Common pipistrell	FP-2	01/06/2016	03:17:25	Common pipistrell	FP-2	01/06/2016	23:48:53	Soprano pipistrelle	FP-2	02/06/2016	00:46:35	Pipistrelle sp.
FP-2	01/06/2016	00:12:36	Common pipistrell	FP-2	01/06/2016	03:17:32	Common pipistrell	FP-2	01/06/2016	23:49:18	Common pipistrell	FP-2	02/06/2016	00:51:41	Pipistrelle sp.
FP-2	01/06/2016	00:14:00	Common pipistrell	FP-2	01/06/2016	03:26:22	Common pipistrell	FP-2	01/06/2016	23:49:36	Common pipistrell	FP-2	02/06/2016	00:56:02	Pipistrelle sp.
FP-2	01/06/2016	00:18:42	Common pipistrell	FP-2	01/06/2016	03:27:10	Common pipistrell	FP-2	01/06/2016	23:49:48	Pipistrelle sp.	FP-2	02/06/2016	00:56:13	Pipistrelle sp.
FP-2	01/06/2016	00:26:36	Pipistrelle sp.	FP-2	01/06/2016	03:28:35	Common pipistrell	FP-2	01/06/2016	23:50:16	Pipistrelle sp.	FP-2	02/06/2016	00:59:32	Leisler's bat
FP-2	01/06/2016	00:34:07	Common pipistrell	FP-2	01/06/2016	03:39:01	Common pipistrell	FP-2	01/06/2016	23:51:25	Pipistrelle sp.	FP-2	02/06/2016	01:01:05	Common pipistrelle
FP-2	01/06/2016	00:35:55	Pipistrelle sp.	FP-2	01/06/2016	22:18:26	Leisler's bat	FP-2	01/06/2016	23:51:49	Common pipistrell	FP-2	02/06/2016	01:01:36	Pipistrelle sp.
FP-2	01/06/2016	00:50:35	Pipistrelle sp.	FP-2	01/06/2016	22:18:44	Leisler's bat	FP-2	01/06/2016	23:52:19	Common pipistrell	FP-2	02/06/2016	01:02:23	Common pipistrelle
FP-2	01/06/2016	00:58:54	Common pipistrell	FP-2	01/06/2016	22:32:27	Leisler's bat	FP-2	01/06/2016	23:52:38	Common pipistrell	FP-2	02/06/2016	01:04:07	Pipistrelle sp.
FP-2	01/06/2016	01:02:55	Common pipistrell	FP-2	01/06/2016	22:35:32	Leisler's bat	FP-2	01/06/2016	23:54:32	Common pipistrell	FP-2	02/06/2016	01:04:19	Pipistrelle sp.
FP-2	01/06/2016	01:07:38	Common pipistrell	FP-2	01/06/2016	22:37:41	Leisler's bat	FP-2	01/06/2016	23:55:08	Pipistrelle sp.	FP-2	02/06/2016	01:04:42	Pipistrelle sp.
FP-2	01/06/2016	01:10:08	Common pipistrell	FP-2	01/06/2016	22:38:42	Leisler's bat	FP-2	01/06/2016	23:55:48	Pipistrelle sp.	FP-2	02/06/2016	01:05:16	Common pipistrelle
FP-2	01/06/2016	01:12:45	Common pipistrell	FP-2	01/06/2016	22:57:57	Common pipistrell	FP-2	01/06/2016	23:56:20	Pipistrelle sp.	FP-2	02/06/2016	01:05:28	Common pipistrelle
FP-2	01/06/2016	01:15:35	Common pipistrell	FP-2	01/06/2016	22:58:08	Pipistrelle sp.	FP-2	02/06/2016	00:01:18	Pipistrelle sp.	FP-2	02/06/2016	01:05:50	Common pipistrelle
FP-2	01/06/2016	01:26:56	Common pipistrell	FP-2	01/06/2016	22:58:26	Common pipistrell	FP-2	02/06/2016	00:05:33	Pipistrelle sp.	FP-2	02/06/2016	01:06:07	Common pipistrelle
FP-2	01/06/2016	01:29:48	Common pipistrell	FP-2	01/06/2016	23:03:02	Soprano pipistrelle	FP-2	02/06/2016	00:06:25	Pipistrelle sp.	FP-2	02/06/2016	01:06:30	Common pipistrelle
FP-2	01/06/2016	01:39:17	Common pipistrell	FP-2	01/06/2016	23:05:10	Common pipistrell	FP-2	02/06/2016	00:10:01	Pipistrelle sp.	FP-2	02/06/2016	01:07:11	Common pipistrelle
FP-2	01/06/2016	01:40:00	Pipistrelle sp.	FP-2	01/06/2016	23:05:30	Pipistrelle sp.	FP-2	02/06/2016	00:10:25	Leisler's bat	FP-2	02/06/2016	01:08:04	Common pipistrelle
FP-2	01/06/2016	01:41:23	Common pipistrell	FP-2	01/06/2016	23:16:15	Pipistrelle sp.	FP-2	02/06/2016	00:11:25	Pipistrelle sp.	FP-2	02/06/2016	01:08:26	Common pipistrelle
FP-2	01/06/2016	01:41:23	Myotis sp.	FP-2	01/06/2016	23:20:46	Common pipistrell	FP-2	02/06/2016	00:14:35	Pipistrelle sp.	FP-2	02/06/2016	01:11:45	Common pipistrelle
FP-2	01/06/2016	01:42:15	Common pipistrell	FP-2	01/06/2016	23:20:59	Pipistrelle sp.	FP-2	02/06/2016	00:16:32	Pipistrelle sp.	FP-2	02/06/2016	01:12:05	Common pipistrelle
FP-2	01/06/2016	01:42:41	Common pipistrell	FP-2	01/06/2016	23:21:15	Common pipistrell	FP-2	02/06/2016	00:17:40	Pipistrelle sp.	FP-2	02/06/2016	01:13:30	Common pipistrelle
FP-2	01/06/2016	01:43:09	Common pipistrell	FP-2	01/06/2016	23:25:07	Common pipistrell	FP-2	02/06/2016	00:17:48	Pipistrelle sp.	FP-2	02/06/2016	01:14:02	Common pipistrelle
FP-2	01/06/2016	01:43:49	Common pipistrell	FP-2	01/06/2016	23:25:17	Common pipistrell	FP-2	02/06/2016	00:23:09	Pipistrelle sp.	FP-2	02/06/2016	01:14:11	Common pipistrelle
FP-2	01/06/2016	01:44:29	Common pipistrell	FP-2	01/06/2016	23:25:35	Pipistrelle sp.	FP-2	02/06/2016	00:24:36	Pipistrelle sp.	FP-2	02/06/2016	01:14:51	Pipistrelle sp.
FP-2	01/06/2016	01:44:36	Common pipistrell	FP-2	01/06/2016	23:31:50	Common pipistrell	FP-2	02/06/2016	00:28:32	Pipistrelle sp.	FP-2	02/06/2016	01:15:28	Common pipistrelle
FP-2	01/06/2016	01:45:19	Common pipistrell	FP-2	01/06/2016	23:32:51	Soprano pipistrelle	FP-2	02/06/2016	00:28:52	Pipistrelle sp.	FP-2	02/06/2016	01:17:30	Pipistrelle sp.
FP-2	01/06/2016	01:45:39	Pipistrelle sp.	FP-2	01/06/2016	23:37:53	Common pipistrell	FP-2	02/06/2016	00:29:40	Pipistrelle sp.	FP-2	02/06/2016	01:27:13	Common pipistrelle
FP-2	01/06/2016	01:45:46	Common pipistrell	FP-2	01/06/2016	23:38:15	Soprano pipistrelle	FP-2	02/06/2016	00:29:48	Pipistrelle sp.	FP-2	02/06/2016	01:27:34	Pipistrelle sp.
FP-2	01/06/2016	01:46:32	Common pipistrell	FP-2	01/06/2016	23:39:02	Common pipistrell	FP-2	02/06/2016	00:29:58	Pipistrelle sp.	FP-2	02/06/2016	01:28:08	Pipistrelle sp.
FP-2	01/06/2016	01:47:36	Common pipistrell	FP-2	01/06/2016	23:40:10	Common pipistrell	FP-2	02/06/2016	00:30:10	Pipistrelle sp.	FP-2	02/06/2016	01:28:38	Common pipistrelle
FP-2	01/06/2016	01:48:02	Common pipistrell	FP-2	01/06/2016	23:40:37	Common pipistrell	FP-2	02/06/2016	00:32:02	Pipistrelle sp.	FP-2	02/06/2016	01:29:36	Pipistrelle sp.
FP-2	01/06/2016	01:48:20	Common pipistrell	FP-2	01/06/2016	23:40:59	Common pipistrell	FP-2	02/06/2016	00:32:13	Pipistrelle sp.	FP-2	02/06/2016	01:29:58	Common pipistrelle
FP-2	01/06/2016	01:48:41	Common pipistrell	FP-2	01/06/2016	23:41:27	Common pipistrell	FP-2	02/06/2016	00:41:48	Common pipistrell	FP-2	02/06/2016	01:30:10	Common pipistrelle
FP-2	01/06/2016	01:49:23	Common pipistrell	FP-2	01/06/2016	23:42:50	Common pipistrell	FP-2	02/06/2016	00:42:18	Common pipistrell	FP-2	02/06/2016	01:30:26	Common pipistrelle
FP-2	01/06/2016	01:49:37	Common pipistrell	FP-2	01/06/2016	23:43:07	Pipistrelle sp.	FP-2	02/06/2016	00:42:49	Common pipistrell	FP-2	02/06/2016	01:30:39	Pipistrelle sp.
FP-2	01/06/2016	01:51:13	Common pipistrell	FP-2	01/06/2016	23:44:50	Common pipistrell	FP-2	02/06/2016	00:43:19	Pipistrelle sp.	FP-2	02/06/2016	01:30:49	Common pipistrelle
FP-2	01/06/2016	01:51:32	Common pipistrell	FP-2	01/06/2016	23:45:00	Common pipistrell	FP-2	02/06/2016	00:43:29	Common pipistrell	FP-2	02/06/2016	01:31:07	Common pipistrelle
FP-2	01/06/2016	01:57:35	Common pipistrell	FP-2	01/06/2016	23:45:14	Common pipistrell	FP-2	02/06/2016	00:43:29	Leisler's bat	FP-2	02/06/2016	01:31:22	Common pipistrelle
FP-2	01/06/2016	01:58:18	Common pipistrell	FP-2	01/06/2016	23:45:22	Common pipistrell	FP-2	02/06/2016	00:44:34	Leisler's bat	FP-2	02/06/2016	01:31:30	Common pipistrelle
FP-2	01/06/2016	02:23:56	Leisler's bat	FP-2	01/06/2016	23:45:37	Common pipistrell	FP-2	02/06/2016	00:45:40	Common pipistrell	FP-2	02/06/2016	01:31:36	Common pipistrelle
FP-2	01/06/2016	02:24:08	Leisler's bat	FP-2	01/06/2016	23:45:56	Common pipistrell	FP-2	02/06/2016	00:45:47	Common pipistrell	FP-2	02/06/2016	01:31:54	Common pipistrelle
FP-2	01/06/2016	03:00:36	Leisler's bat	FP-2	01/06/2016	23:46:21	Pipistrelle sp.	FP-2	02/06/2016	00:46:06	Leisler's bat	FP-2	02/06/2016	01:32:26	Common pipistrelle
FP-2	01/06/2016	03:01:51	Common pipistrell	FP-2	01/06/2016	23:47:09	Common pipistrell	FP-2	02/06/2016	00:46:26	Common pipistrell	FP-2	02/06/2016	01:32:34	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	02/06/2016	01:32:45	Common pipistrell	FP-2	02/06/2016	01:48:51	Common pipistrell	FP-2	02/06/2016	02:08:51	Common pipistrell	FP-2	02/06/2016	02:22:17	Common pipistrelle
FP-2	02/06/2016	01:32:53	Pipistrelle sp.	FP-2	02/06/2016	01:50:25	Common pipistrell	FP-2	02/06/2016	02:08:58	Common pipistrell	FP-2	02/06/2016	02:22:28	Common pipistrelle
FP-2	02/06/2016	01:33:14	Common pipistrell	FP-2	02/06/2016	01:50:38	Common pipistrell	FP-2	02/06/2016	02:09:19	Common pipistrell	FP-2	02/06/2016	02:22:36	Common pipistrelle
FP-2	02/06/2016	01:33:27	Common pipistrell	FP-2	02/06/2016	01:51:26	Common pipistrell	FP-2	02/06/2016	02:09:39	Common pipistrell	FP-2	02/06/2016	02:22:46	Common pipistrelle
FP-2	02/06/2016	01:33:46	Common pipistrell	FP-2	02/06/2016	01:51:39	Common pipistrell	FP-2	02/06/2016	02:10:09	Common pipistrell	FP-2	02/06/2016	02:22:56	Common pipistrelle
FP-2	02/06/2016	01:33:59	Pipistrelle sp.	FP-2	02/06/2016	01:51:53	Common pipistrell	FP-2	02/06/2016	02:10:18	Common pipistrell	FP-2	02/06/2016	02:23:10	Common pipistrelle
FP-2	02/06/2016	01:34:08	Pipistrelle sp.	FP-2	02/06/2016	01:52:04	Common pipistrell	FP-2	02/06/2016	02:10:34	Common pipistrell	FP-2	02/06/2016	02:23:19	Common pipistrelle
FP-2	02/06/2016	01:34:38	Pipistrelle sp.	FP-2	02/06/2016	01:52:42	Common pipistrell	FP-2	02/06/2016	02:10:47	Common pipistrell	FP-2	02/06/2016	02:23:35	Common pipistrelle
FP-2	02/06/2016	01:34:48	Common pipistrell	FP-2	02/06/2016	01:52:57	Common pipistrell	FP-2	02/06/2016	02:10:59	Common pipistrell	FP-2	02/06/2016	02:23:45	Common pipistrelle
FP-2	02/06/2016	01:35:11	Common pipistrell	FP-2	02/06/2016	01:53:10	Common pipistrell	FP-2	02/06/2016	02:11:12	Common pipistrell	FP-2	02/06/2016	02:23:56	Common pipistrelle
FP-2	02/06/2016	01:35:18	Common pipistrell	FP-2	02/06/2016	01:53:20	Common pipistrell	FP-2	02/06/2016	02:11:30	Common pipistrell	FP-2	02/06/2016	02:24:40	Common pipistrelle
FP-2	02/06/2016	01:35:26	Common pipistrell	FP-2	02/06/2016	01:53:34	Common pipistrell	FP-2	02/06/2016	02:11:55	Common pipistrell	FP-2	02/06/2016	02:24:54	Pipistrelle sp.
FP-2	02/06/2016	01:35:38	Common pipistrell	FP-2	02/06/2016	01:54:07	Pipistrelle sp.	FP-2	02/06/2016	02:12:03	Common pipistrell	FP-2	02/06/2016	02:25:39	Leisler's bat
FP-2	02/06/2016	01:35:51	Common pipistrell	FP-2	02/06/2016	01:54:31	Common pipistrell	FP-2	02/06/2016	02:12:33	Pipistrelle sp.	FP-2	02/06/2016	02:25:39	Pipistrelle sp.
FP-2	02/06/2016	01:36:02	Common pipistrell	FP-2	02/06/2016	01:55:23	Pipistrelle sp.	FP-2	02/06/2016	02:13:07	Common pipistrell	FP-2	02/06/2016	02:25:47	Leisler's bat
FP-2	02/06/2016	01:36:12	Common pipistrell	FP-2	02/06/2016	01:55:40	Common pipistrell	FP-2	02/06/2016	02:13:18	Common pipistrell	FP-2	02/06/2016	02:26:10	Leisler's bat
FP-2	02/06/2016	01:36:12	Leisler's bat	FP-2	02/06/2016	01:55:50	Common pipistrell	FP-2	02/06/2016	02:14:12	Common pipistrell	FP-2	02/06/2016	02:26:25	Common pipistrelle
FP-2	02/06/2016	01:36:44	Pipistrelle sp.	FP-2	02/06/2016	01:56:01	Common pipistrell	FP-2	02/06/2016	02:14:38	Common pipistrell	FP-2	02/06/2016	02:26:40	Common pipistrelle
FP-2	02/06/2016	01:37:06	Common pipistrell	FP-2	02/06/2016	01:56:57	Pipistrelle sp.	FP-2	02/06/2016	02:14:49	Common pipistrell	FP-2	02/06/2016	02:26:40	Leisler's bat
FP-2	02/06/2016	01:38:01	Common pipistrell	FP-2	02/06/2016	01:57:06	Pipistrelle sp.	FP-2	02/06/2016	02:14:59	Common pipistrell	FP-2	02/06/2016	02:27:07	Leisler's bat
FP-2	02/06/2016	01:39:45	Common pipistrell	FP-2	02/06/2016	01:57:16	Pipistrelle sp.	FP-2	02/06/2016	02:15:41	Common pipistrell	FP-2	02/06/2016	02:27:07	Pipistrelle sp.
FP-2	02/06/2016	01:39:54	Common pipistrell	FP-2	02/06/2016	01:57:58	Pipistrelle sp.	FP-2	02/06/2016	02:15:59	Common pipistrell	FP-2	02/06/2016	02:27:19	Leisler's bat
FP-2	02/06/2016	01:40:19	Common pipistrell	FP-2	02/06/2016	01:58:10	Common pipistrell	FP-2	02/06/2016	02:16:20	Common pipistrell	FP-2	02/06/2016	02:27:48	Common pipistrelle
FP-2	02/06/2016	01:40:19	Leisler's bat	FP-2	02/06/2016	01:58:46	Common pipistrell	FP-2	02/06/2016	02:16:34	Common pipistrell	FP-2	02/06/2016	02:27:48	Leisler's bat
FP-2	02/06/2016	01:40:30	Common pipistrell	FP-2	02/06/2016	01:58:58	Pipistrelle sp.	FP-2	02/06/2016	02:16:42	Common pipistrell	FP-2	02/06/2016	02:28:29	Common pipistrelle
FP-2	02/06/2016	01:40:39	Common pipistrell	FP-2	02/06/2016	01:59:14	Common pipistrell	FP-2	02/06/2016	02:16:50	Common pipistrell	FP-2	02/06/2016	02:28:39	Leisler's bat
FP-2	02/06/2016	01:41:28	Pipistrelle sp.	FP-2	02/06/2016	01:59:34	Common pipistrell	FP-2	02/06/2016	02:17:01	Common pipistrell	FP-2	02/06/2016	02:28:57	Common pipistrelle
FP-2	02/06/2016	01:41:52	Common pipistrell	FP-2	02/06/2016	02:00:10	Pipistrelle sp.	FP-2	02/06/2016	02:17:11	Common pipistrell	FP-2	02/06/2016	02:29:04	Common pipistrelle
FP-2	02/06/2016	01:42:17	Common pipistrell	FP-2	02/06/2016	02:00:18	Pipistrelle sp.	FP-2	02/06/2016	02:17:21	Common pipistrell	FP-2	02/06/2016	02:29:14	Common pipistrelle
FP-2	02/06/2016	01:44:49	Common pipistrell	FP-2	02/06/2016	02:00:57	Common pipistrell	FP-2	02/06/2016	02:17:29	Common pipistrell	FP-2	02/06/2016	02:30:19	Common pipistrelle
FP-2	02/06/2016	01:45:33	Pipistrelle sp.	FP-2	02/06/2016	02:02:15	Pipistrelle sp.	FP-2	02/06/2016	02:17:41	Common pipistrell	FP-2	02/06/2016	02:30:27	Common pipistrelle
FP-2	02/06/2016	01:45:42	Common pipistrell	FP-2	02/06/2016	02:02:37	Pipistrelle sp.	FP-2	02/06/2016	02:18:03	Common pipistrell	FP-2	02/06/2016	02:30:38	Common pipistrelle
FP-2	02/06/2016	01:45:42	Leisler's bat	FP-2	02/06/2016	02:03:06	Common pipistrell	FP-2	02/06/2016	02:18:41	Common pipistrell	FP-2	02/06/2016	02:31:55	Leisler's bat
FP-2	02/06/2016	01:46:01	Pipistrelle sp.	FP-2	02/06/2016	02:03:22	Common pipistrell	FP-2	02/06/2016	02:19:03	Common pipistrell	FP-2	02/06/2016	02:32:12	Pipistrelle sp.
FP-2	02/06/2016	01:46:18	Common pipistrell	FP-2	02/06/2016	02:03:32	Common pipistrell	FP-2	02/06/2016	02:19:28	Common pipistrell	FP-2	02/06/2016	02:32:38	Common pipistrelle
FP-2	02/06/2016	01:46:25	Common pipistrell	FP-2	02/06/2016	02:04:02	Common pipistrell	FP-2	02/06/2016	02:19:42	Common pipistrell	FP-2	02/06/2016	02:33:21	Pipistrelle sp.
FP-2	02/06/2016	01:46:33	Common pipistrell	FP-2	02/06/2016	02:04:14	Common pipistrell	FP-2	02/06/2016	02:20:05	Common pipistrell	FP-2	02/06/2016	02:33:52	Common pipistrelle
FP-2	02/06/2016	01:46:46	Pipistrelle sp.	FP-2	02/06/2016	02:04:52	Common pipistrell	FP-2	02/06/2016	02:20:23	Common pipistrell	FP-2	02/06/2016	02:34:02	Common pipistrelle
FP-2	02/06/2016	01:47:02	Common pipistrell	FP-2	02/06/2016	02:05:16	Common pipistrell	FP-2	02/06/2016	02:20:49	Common pipistrell	FP-2	02/06/2016	02:34:30	Common pipistrelle
FP-2	02/06/2016	01:47:12	Pipistrelle sp.	FP-2	02/06/2016	02:05:38	Common pipistrell	FP-2	02/06/2016	02:21:33	Common pipistrell	FP-2	02/06/2016	02:34:40	Leisler's bat
FP-2	02/06/2016	01:47:38	Common pipistrell	FP-2	02/06/2016	02:06:21	Common pipistrell	FP-2	02/06/2016	02:21:42	Common pipistrell	FP-2	02/06/2016	02:34:49	Leisler's bat
FP-2	02/06/2016	01:47:54	Common pipistrell	FP-2	02/06/2016	02:08:13	Common pipistrell	FP-2	02/06/2016	02:21:49	Common pipistrell	FP-2	02/06/2016	02:34:59	Common pipistrelle
FP-2	02/06/2016	01:48:22	Common pipistrell	FP-2	02/06/2016	02:08:20	Common pipistrell	FP-2	02/06/2016	02:21:57	Common pipistrell	FP-2	02/06/2016	02:35:16	Common pipistrelle
FP-2	02/06/2016	01:48:43	Common pipistrell	FP-2	02/06/2016	02:08:29	Common pipistrell	FP-2	02/06/2016	02:22:05	Common pipistrell	FP-2	02/06/2016	02:35:44	Leisler's bat

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	02/06/2016	02:36:10	Leisler's bat	FP-2	02/06/2016	02:54:36	Pipistrelle sp.	FP-2	02/06/2016	03:28:16	Common pipistrelle	FP-2	03/06/2016	00:29:52	Common pipistrelle
FP-2	02/06/2016	02:37:03	Leisler's bat	FP-2	02/06/2016	02:54:44	Pipistrelle sp.	FP-2	02/06/2016	04:19:30	Leisler's bat	FP-2	03/06/2016	00:30:17	Common pipistrelle
FP-2	02/06/2016	02:38:20	Common pipistrelle	FP-2	02/06/2016	02:55:21	Common pipistrelle	FP-2	02/06/2016	22:24:22	Leisler's bat	FP-2	03/06/2016	00:31:12	Common pipistrelle
FP-2	02/06/2016	02:38:50	Common pipistrelle	FP-2	02/06/2016	02:56:03	Pipistrelle sp.	FP-2	02/06/2016	22:27:49	Leisler's bat	FP-2	03/06/2016	00:33:05	Common pipistrelle
FP-2	02/06/2016	02:39:47	Common pipistrelle	FP-2	02/06/2016	02:56:41	Pipistrelle sp.	FP-2	02/06/2016	22:28:41	Leisler's bat	FP-2	03/06/2016	00:33:29	Common pipistrelle
FP-2	02/06/2016	02:39:59	Common pipistrelle	FP-2	02/06/2016	02:56:55	Pipistrelle sp.	FP-2	02/06/2016	22:30:18	Soprano pipistrelle	FP-2	03/06/2016	00:33:40	Common pipistrelle
FP-2	02/06/2016	02:40:06	Common pipistrelle	FP-2	02/06/2016	02:57:03	Pipistrelle sp.	FP-2	02/06/2016	22:57:23	Common pipistrelle	FP-2	03/06/2016	00:34:10	Common pipistrelle
FP-2	02/06/2016	02:40:30	Pipistrelle sp.	FP-2	02/06/2016	02:57:22	Pipistrelle sp.	FP-2	02/06/2016	22:59:20	Pipistrelle sp.	FP-2	03/06/2016	00:36:47	Common pipistrelle
FP-2	02/06/2016	02:40:38	Pipistrelle sp.	FP-2	02/06/2016	02:58:12	Common pipistrelle	FP-2	02/06/2016	23:01:18	Common pipistrelle	FP-2	03/06/2016	00:37:38	Common pipistrelle
FP-2	02/06/2016	02:40:49	Pipistrelle sp.	FP-2	02/06/2016	02:58:22	Common pipistrelle	FP-2	02/06/2016	23:03:30	Common pipistrelle	FP-2	03/06/2016	00:48:01	Leisler's bat
FP-2	02/06/2016	02:41:16	Pipistrelle sp.	FP-2	02/06/2016	02:58:41	Common pipistrelle	FP-2	02/06/2016	23:07:48	Pipistrelle sp.	FP-2	03/06/2016	00:49:17	Myotis sp.
FP-2	02/06/2016	02:42:16	Common pipistrelle	FP-2	02/06/2016	02:59:08	Common pipistrelle	FP-2	02/06/2016	23:10:49	Leisler's bat	FP-2	03/06/2016	00:59:24	Common pipistrelle
FP-2	02/06/2016	02:42:42	Common pipistrelle	FP-2	02/06/2016	02:59:39	Common pipistrelle	FP-2	02/06/2016	23:14:45	Common pipistrelle	FP-2	03/06/2016	00:59:57	Common pipistrelle
FP-2	02/06/2016	02:43:02	Common pipistrelle	FP-2	02/06/2016	02:59:48	Common pipistrelle	FP-2	02/06/2016	23:15:47	Pipistrelle sp.	FP-2	03/06/2016	01:00:35	Common pipistrelle
FP-2	02/06/2016	02:43:19	Common pipistrelle	FP-2	02/06/2016	02:59:59	Common pipistrelle	FP-2	02/06/2016	23:16:40	Common pipistrelle	FP-2	03/06/2016	01:26:18	Common pipistrelle
FP-2	02/06/2016	02:43:41	Common pipistrelle	FP-2	02/06/2016	03:00:35	Pipistrelle sp.	FP-2	02/06/2016	23:23:44	Pipistrelle sp.	FP-2	03/06/2016	01:28:28	Common pipistrelle
FP-2	02/06/2016	02:44:11	Pipistrelle sp.	FP-2	02/06/2016	03:01:05	Common pipistrelle	FP-2	02/06/2016	23:24:13	Common pipistrelle	FP-2	03/06/2016	01:37:25	Common pipistrelle
FP-2	02/06/2016	02:45:42	Common pipistrelle	FP-2	02/06/2016	03:01:41	Common pipistrelle	FP-2	02/06/2016	23:37:07	Pipistrelle sp.	FP-2	03/06/2016	01:38:26	Common pipistrelle
FP-2	02/06/2016	02:46:33	Pipistrelle sp.	FP-2	02/06/2016	03:02:29	Common pipistrelle	FP-2	02/06/2016	23:39:28	Pipistrelle sp.	FP-2	03/06/2016	01:45:00	Soprano pipistrelle
FP-2	02/06/2016	02:47:24	Pipistrelle sp.	FP-2	02/06/2016	03:03:02	Common pipistrelle	FP-2	02/06/2016	23:50:01	Common pipistrelle	FP-2	03/06/2016	01:46:38	Common pipistrelle
FP-2	02/06/2016	02:47:49	Pipistrelle sp.	FP-2	02/06/2016	03:03:57	Common pipistrelle	FP-2	03/06/2016	00:05:20	Pipistrelle sp.	FP-2	03/06/2016	01:47:46	Common pipistrelle
FP-2	02/06/2016	02:48:03	Common pipistrelle	FP-2	02/06/2016	03:04:54	Common pipistrelle	FP-2	03/06/2016	00:10:11	Pipistrelle sp.	FP-2	03/06/2016	01:48:56	Common pipistrelle
FP-2	02/06/2016	02:48:20	Pipistrelle sp.	FP-2	02/06/2016	03:05:17	Pipistrelle sp.	FP-2	03/06/2016	00:11:27	Common pipistrelle	FP-2	03/06/2016	01:50:26	Common pipistrelle
FP-2	02/06/2016	02:48:40	Pipistrelle sp.	FP-2	02/06/2016	03:05:54	Pipistrelle sp.	FP-2	03/06/2016	00:17:59	Common pipistrelle	FP-2	03/06/2016	01:52:11	Common pipistrelle
FP-2	02/06/2016	02:49:02	Pipistrelle sp.	FP-2	02/06/2016	03:06:03	Common pipistrelle	FP-2	03/06/2016	00:18:11	Common pipistrelle	FP-2	03/06/2016	01:53:42	Common pipistrelle
FP-2	02/06/2016	02:49:14	Pipistrelle sp.	FP-2	02/06/2016	03:12:54	Pipistrelle sp.	FP-2	03/06/2016	00:18:25	Common pipistrelle	FP-2	03/06/2016	02:21:37	Common pipistrelle
FP-2	02/06/2016	02:49:31	Pipistrelle sp.	FP-2	02/06/2016	03:18:57	Pipistrelle sp.	FP-2	03/06/2016	00:18:41	Common pipistrelle	FP-2	03/06/2016	02:22:34	Common pipistrelle
FP-2	02/06/2016	02:49:38	Pipistrelle sp.	FP-2	02/06/2016	03:20:15	Common pipistrelle	FP-2	03/06/2016	00:19:07	Common pipistrelle	FP-2	03/06/2016	02:23:20	Common pipistrelle
FP-2	02/06/2016	02:49:50	Pipistrelle sp.	FP-2	02/06/2016	03:20:39	Common pipistrelle	FP-2	03/06/2016	00:20:44	Common pipistrelle	FP-2	03/06/2016	02:23:57	Common pipistrelle
FP-2	02/06/2016	02:50:16	Pipistrelle sp.	FP-2	02/06/2016	03:20:46	Common pipistrelle	FP-2	03/06/2016	00:20:52	Common pipistrelle	FP-2	03/06/2016	02:26:50	Common pipistrelle
FP-2	02/06/2016	02:50:41	Pipistrelle sp.	FP-2	02/06/2016	03:23:02	Common pipistrelle	FP-2	03/06/2016	00:21:33	Common pipistrelle	FP-2	03/06/2016	02:27:27	Common pipistrelle
FP-2	02/06/2016	02:50:50	Pipistrelle sp.	FP-2	02/06/2016	03:23:49	Common pipistrelle	FP-2	03/06/2016	00:21:43	Common pipistrelle	FP-2	03/06/2016	02:28:10	Common pipistrelle
FP-2	02/06/2016	02:51:07	Pipistrelle sp.	FP-2	02/06/2016	03:23:57	Common pipistrelle	FP-2	03/06/2016	00:22:04	Common pipistrelle	FP-2	03/06/2016	02:28:56	Common pipistrelle
FP-2	02/06/2016	02:51:21	Pipistrelle sp.	FP-2	02/06/2016	03:24:15	Common pipistrelle	FP-2	03/06/2016	00:22:44	Common pipistrelle	FP-2	03/06/2016	02:29:31	Common pipistrelle
FP-2	02/06/2016	02:51:40	Pipistrelle sp.	FP-2	02/06/2016	03:24:50	Common pipistrelle	FP-2	03/06/2016	00:24:54	Common pipistrelle	FP-2	03/06/2016	03:32:33	Common pipistrelle
FP-2	02/06/2016	02:51:48	Leisler's bat	FP-2	02/06/2016	03:25:48	Common pipistrelle	FP-2	03/06/2016	00:25:02	Common pipistrelle	FP-2	03/06/2016	22:36:39	Soprano pipistrelle
FP-2	02/06/2016	02:51:48	Pipistrelle sp.	FP-2	02/06/2016	03:26:03	Pipistrelle sp.	FP-2	03/06/2016	00:25:26	Common pipistrelle	FP-2	03/06/2016	22:56:12	Soprano pipistrelle
FP-2	02/06/2016	02:52:00	Common pipistrelle	FP-2	02/06/2016	03:26:29	Common pipistrelle	FP-2	03/06/2016	00:25:39	Common pipistrelle	FP-2	03/06/2016	23:11:46	Common pipistrelle
FP-2	02/06/2016	02:52:11	Common pipistrelle	FP-2	02/06/2016	03:26:45	Common pipistrelle	FP-2	03/06/2016	00:26:04	Common pipistrelle	FP-2	03/06/2016	23:33:50	Pipistrelle sp.
FP-2	02/06/2016	02:52:43	Pipistrelle sp.	FP-2	02/06/2016	03:26:53	Common pipistrelle	FP-2	03/06/2016	00:26:25	Common pipistrelle	FP-2	03/06/2016	23:37:35	Common pipistrelle
FP-2	02/06/2016	02:52:57	Pipistrelle sp.	FP-2	02/06/2016	03:27:10	Common pipistrelle	FP-2	03/06/2016	00:27:52	Common pipistrelle	FP-2	03/06/2016	23:37:47	Common pipistrelle
FP-2	02/06/2016	02:53:11	Pipistrelle sp.	FP-2	02/06/2016	03:27:24	Common pipistrelle	FP-2	03/06/2016	00:29:01	Common pipistrelle	FP-2	03/06/2016	23:38:22	Common pipistrelle
FP-2	02/06/2016	02:53:23	Pipistrelle sp.	FP-2	02/06/2016	03:27:41	Common pipistrelle	FP-2	03/06/2016	00:29:25	Common pipistrelle	FP-2	03/06/2016	23:45:52	Pipistrelle sp.
FP-2	02/06/2016	02:53:32	Pipistrelle sp.	FP-2	02/06/2016	03:27:56	Common pipistrelle	FP-2	03/06/2016	00:29:33	Common pipistrelle	FP-2	03/06/2016	23:47:03	Pipistrelle sp.

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	03/06/2016	23:47:10	Leisler's bat	FP-2	04/06/2016	01:57:40	Common pipistrell	FP-2	05/06/2016	03:14:49	Common pipistrell	FP-2	06/06/2016	01:04:07	Common pipistrelle
FP-2	03/06/2016	23:48:26	Common pipistrell	FP-2	04/06/2016	01:58:09	Common pipistrell	FP-2	05/06/2016	03:22:14	Common pipistrell	FP-2	06/06/2016	01:04:21	Common pipistrelle
FP-2	03/06/2016	23:48:36	Common pipistrell	FP-2	04/06/2016	01:58:43	Common pipistrell	FP-2	05/06/2016	03:23:49	Pipistrelle sp.	FP-2	06/06/2016	01:04:34	Common pipistrelle
FP-2	03/06/2016	23:48:45	Common pipistrell	FP-2	04/06/2016	01:59:27	Common pipistrell	FP-2	05/06/2016	03:34:23	Common pipistrell	FP-2	06/06/2016	01:04:55	Common pipistrelle
FP-2	03/06/2016	23:48:52	Common pipistrell	FP-2	04/06/2016	02:00:00	Common pipistrell	FP-2	05/06/2016	03:51:10	Common pipistrell	FP-2	06/06/2016	01:05:04	Common pipistrelle
FP-2	03/06/2016	23:49:35	Common pipistrell	FP-2	04/06/2016	02:01:40	Common pipistrell	FP-2	05/06/2016	03:53:21	Pipistrelle sp.	FP-2	06/06/2016	01:05:20	Common pipistrelle
FP-2	03/06/2016	23:50:55	Pipistrelle sp.	FP-2	04/06/2016	02:24:13	Common pipistrell	FP-2	05/06/2016	03:57:09	Common pipistrell	FP-2	06/06/2016	01:05:41	Common pipistrelle
FP-2	03/06/2016	23:52:03	Leisler's bat	FP-2	04/06/2016	02:36:09	Leisler's bat	FP-2	05/06/2016	04:11:18	Common pipistrell	FP-2	06/06/2016	01:06:11	Common pipistrelle
FP-2	03/06/2016	23:59:03	Common pipistrell	FP-2	04/06/2016	03:04:46	Common pipistrell	FP-2	05/06/2016	04:19:34	Soprano pipistrelle	FP-2	06/06/2016	01:06:20	Common pipistrelle
FP-2	04/06/2016	00:07:07	Common pipistrell	FP-2	04/06/2016	22:13:28	Leisler's bat	FP-2	05/06/2016	04:30:49	Leisler's bat	FP-2	06/06/2016	01:06:35	Common pipistrelle
FP-2	04/06/2016	00:07:36	Common pipistrell	FP-2	04/06/2016	22:59:07	Pipistrelle sp.	FP-2	05/06/2016	04:31:01	Leisler's bat	FP-2	06/06/2016	01:06:52	Common pipistrelle
FP-2	04/06/2016	00:07:44	Common pipistrell	FP-2	04/06/2016	23:29:44	Pipistrelle sp.	FP-2	05/06/2016	04:34:41	Leisler's bat	FP-2	06/06/2016	01:07:00	Common pipistrelle
FP-2	04/06/2016	00:07:51	Common pipistrell	FP-2	04/06/2016	23:36:59	Pipistrelle sp.	FP-2	05/06/2016	04:35:12	Leisler's bat	FP-2	06/06/2016	01:07:29	Common pipistrelle
FP-2	04/06/2016	00:08:11	Common pipistrell	FP-2	04/06/2016	23:38:28	Pipistrelle sp.	FP-2	05/06/2016	22:39:12	Soprano pipistrelle	FP-2	06/06/2016	01:07:38	Common pipistrelle
FP-2	04/06/2016	00:09:20	Common pipistrell	FP-2	04/06/2016	23:43:06	Leisler's bat	FP-2	05/06/2016	23:17:27	Common pipistrell	FP-2	06/06/2016	01:07:48	Common pipistrelle
FP-2	04/06/2016	00:09:32	Common pipistrell	FP-2	04/06/2016	23:43:15	Leisler's bat	FP-2	05/06/2016	23:17:34	Common pipistrell	FP-2	06/06/2016	01:08:11	Common pipistrelle
FP-2	04/06/2016	00:11:47	Common pipistrell	FP-2	04/06/2016	23:57:14	Common pipistrell	FP-2	05/06/2016	23:17:44	Common pipistrell	FP-2	06/06/2016	01:08:38	Common pipistrelle
FP-2	04/06/2016	00:11:59	Common pipistrell	FP-2	05/06/2016	00:24:53	Pipistrelle sp.	FP-2	05/06/2016	23:18:00	Common pipistrell	FP-2	06/06/2016	01:08:50	Common pipistrelle
FP-2	04/06/2016	00:13:26	Common pipistrell	FP-2	05/06/2016	00:25:55	Common pipistrell	FP-2	05/06/2016	23:20:47	Pipistrelle sp.	FP-2	06/06/2016	01:09:02	Common pipistrelle
FP-2	04/06/2016	00:13:39	Common pipistrell	FP-2	05/06/2016	00:28:10	Common pipistrell	FP-2	05/06/2016	23:24:36	Common pipistrell	FP-2	06/06/2016	01:09:28	Common pipistrelle
FP-2	04/06/2016	00:13:52	Common pipistrell	FP-2	05/06/2016	00:37:58	Common pipistrell	FP-2	05/06/2016	23:34:38	Common pipistrell	FP-2	06/06/2016	01:09:48	Common pipistrelle
FP-2	04/06/2016	00:14:44	Common pipistrell	FP-2	05/06/2016	00:45:02	Common pipistrell	FP-2	05/06/2016	23:41:40	Common pipistrell	FP-2	06/06/2016	01:10:05	Common pipistrelle
FP-2	04/06/2016	00:14:53	Common pipistrell	FP-2	05/06/2016	00:48:51	Common pipistrell	FP-2	05/06/2016	23:42:23	Common pipistrell	FP-2	06/06/2016	01:10:14	Common pipistrelle
FP-2	04/06/2016	00:15:13	Common pipistrell	FP-2	05/06/2016	00:56:10	Leisler's bat	FP-2	05/06/2016	23:45:20	Common pipistrell	FP-2	06/06/2016	01:11:02	Common pipistrelle
FP-2	04/06/2016	00:15:49	Common pipistrell	FP-2	05/06/2016	01:07:09	Common pipistrell	FP-2	05/06/2016	23:47:24	Soprano pipistrelle	FP-2	06/06/2016	01:11:11	Common pipistrelle
FP-2	04/06/2016	00:21:49	Common pipistrell	FP-2	05/06/2016	01:29:46	Common pipistrell	FP-2	05/06/2016	23:48:42	Common pipistrell	FP-2	06/06/2016	01:11:43	Common pipistrelle
FP-2	04/06/2016	00:23:14	Common pipistrell	FP-2	05/06/2016	01:30:04	Pipistrelle sp.	FP-2	05/06/2016	23:48:56	Common pipistrell	FP-2	06/06/2016	01:12:04	Common pipistrelle
FP-2	04/06/2016	00:26:38	Common pipistrell	FP-2	05/06/2016	01:30:39	Common pipistrell	FP-2	05/06/2016	23:49:04	Common pipistrell	FP-2	06/06/2016	01:12:12	Common pipistrelle
FP-2	04/06/2016	00:27:51	Soprano pipistrelle	FP-2	05/06/2016	01:33:16	Common pipistrell	FP-2	05/06/2016	23:52:09	Common pipistrell	FP-2	06/06/2016	01:12:24	Common pipistrelle
FP-2	04/06/2016	00:30:12	Leisler's bat	FP-2	05/06/2016	01:41:44	Pipistrelle sp.	FP-2	05/06/2016	23:54:46	Common pipistrell	FP-2	06/06/2016	01:13:13	Common pipistrelle
FP-2	04/06/2016	00:40:10	Common pipistrell	FP-2	05/06/2016	01:43:40	Pipistrelle sp.	FP-2	05/06/2016	23:59:08	Common pipistrell	FP-2	06/06/2016	01:13:30	Pipistrelle sp.
FP-2	04/06/2016	00:40:20	Common pipistrell	FP-2	05/06/2016	01:45:14	Common pipistrell	FP-2	06/06/2016	00:00:18	Common pipistrell	FP-2	06/06/2016	01:13:43	Common pipistrelle
FP-2	04/06/2016	00:42:04	Common pipistrell	FP-2	05/06/2016	02:01:10	Common pipistrell	FP-2	06/06/2016	00:01:21	Common pipistrell	FP-2	06/06/2016	01:13:55	Common pipistrelle
FP-2	04/06/2016	00:42:47	Common pipistrell	FP-2	05/06/2016	02:03:56	Common pipistrell	FP-2	06/06/2016	00:04:47	Common pipistrell	FP-2	06/06/2016	01:14:16	Common pipistrelle
FP-2	04/06/2016	00:43:43	Common pipistrell	FP-2	05/06/2016	02:04:52	Common pipistrell	FP-2	06/06/2016	00:07:17	Leisler's bat	FP-2	06/06/2016	01:14:27	Common pipistrelle
FP-2	04/06/2016	00:48:25	Leisler's bat	FP-2	05/06/2016	02:23:15	Soprano pipistrelle	FP-2	06/06/2016	00:12:45	Common pipistrell	FP-2	06/06/2016	01:14:51	Common pipistrelle
FP-2	04/06/2016	01:10:26	Common pipistrell	FP-2	05/06/2016	02:39:00	Common pipistrell	FP-2	06/06/2016	00:13:18	Common pipistrell	FP-2	06/06/2016	01:15:02	Common pipistrelle
FP-2	04/06/2016	01:11:32	Common pipistrell	FP-2	05/06/2016	02:40:00	Common pipistrell	FP-2	06/06/2016	00:16:31	Common pipistrell	FP-2	06/06/2016	01:15:11	Common pipistrelle
FP-2	04/06/2016	01:14:39	Leisler's bat	FP-2	05/06/2016	02:47:00	Common pipistrell	FP-2	06/06/2016	00:21:41	Common pipistrell	FP-2	06/06/2016	01:15:29	Common pipistrelle
FP-2	04/06/2016	01:23:51	Common pipistrell	FP-2	05/06/2016	02:50:45	Pipistrelle sp.	FP-2	06/06/2016	00:26:03	Soprano pipistrelle	FP-2	06/06/2016	01:15:50	Common pipistrelle
FP-2	04/06/2016	01:28:53	Soprano pipistrelle	FP-2	05/06/2016	02:54:55	Common pipistrell	FP-2	06/06/2016	00:31:43	Soprano pipistrelle	FP-2	06/06/2016	01:16:16	Common pipistrelle
FP-2	04/06/2016	01:30:10	Common pipistrell	FP-2	05/06/2016	03:01:56	Leisler's bat	FP-2	06/06/2016	00:50:42	Common pipistrell	FP-2	06/06/2016	01:16:28	Pipistrelle sp.
FP-2	04/06/2016	01:30:23	Common pipistrell	FP-2	05/06/2016	03:07:30	Pipistrelle sp.	FP-2	06/06/2016	01:03:51	Common pipistrell	FP-2	06/06/2016	01:17:11	Common pipistrelle
FP-2	04/06/2016	01:57:32	Common pipistrell	FP-2	05/06/2016	03:11:17	Common pipistrell	FP-2	06/06/2016	01:03:59	Common pipistrell	FP-2	06/06/2016	01:17:34	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	06/06/2016	01:17:45	Common pipistrell	FP-2	06/06/2016	01:32:01	Common pipistrell	FP-2	06/06/2016	01:46:59	Common pipistrell	FP-2	06/06/2016	02:03:36	Common pipistrelle
FP-2	06/06/2016	01:17:59	Common pipistrell	FP-2	06/06/2016	01:32:42	Common pipistrell	FP-2	06/06/2016	01:47:12	Common pipistrell	FP-2	06/06/2016	02:04:04	Common pipistrelle
FP-2	06/06/2016	01:18:08	Common pipistrell	FP-2	06/06/2016	01:32:52	Common pipistrell	FP-2	06/06/2016	01:47:22	Common pipistrell	FP-2	06/06/2016	02:04:25	Pipistrelle sp.
FP-2	06/06/2016	01:18:19	Pipistrelle sp.	FP-2	06/06/2016	01:32:52	Leisler's bat	FP-2	06/06/2016	01:47:33	Pipistrelle sp.	FP-2	06/06/2016	02:04:40	Common pipistrelle
FP-2	06/06/2016	01:18:29	Pipistrelle sp.	FP-2	06/06/2016	01:33:53	Common pipistrell	FP-2	06/06/2016	01:47:51	Common pipistrell	FP-2	06/06/2016	02:05:02	Common pipistrelle
FP-2	06/06/2016	01:18:46	Common pipistrell	FP-2	06/06/2016	01:34:08	Common pipistrell	FP-2	06/06/2016	01:48:06	Common pipistrell	FP-2	06/06/2016	02:05:21	Common pipistrelle
FP-2	06/06/2016	01:19:13	Common pipistrell	FP-2	06/06/2016	01:34:17	Common pipistrell	FP-2	06/06/2016	01:48:18	Common pipistrell	FP-2	06/06/2016	02:05:42	Pipistrelle sp.
FP-2	06/06/2016	01:19:25	Common pipistrell	FP-2	06/06/2016	01:34:36	Common pipistrell	FP-2	06/06/2016	01:48:37	Common pipistrell	FP-2	06/06/2016	02:06:22	Pipistrelle sp.
FP-2	06/06/2016	01:19:39	Common pipistrell	FP-2	06/06/2016	01:35:12	Common pipistrell	FP-2	06/06/2016	01:48:50	Common pipistrell	FP-2	06/06/2016	02:06:36	Common pipistrelle
FP-2	06/06/2016	01:20:07	Common pipistrell	FP-2	06/06/2016	01:35:36	Common pipistrell	FP-2	06/06/2016	01:49:16	Pipistrelle sp.	FP-2	06/06/2016	02:07:27	Pipistrelle sp.
FP-2	06/06/2016	01:20:16	Common pipistrell	FP-2	06/06/2016	01:36:04	Common pipistrell	FP-2	06/06/2016	01:49:24	Common pipistrell	FP-2	06/06/2016	02:07:47	Pipistrelle sp.
FP-2	06/06/2016	01:20:51	Pipistrelle sp.	FP-2	06/06/2016	01:36:12	Common pipistrell	FP-2	06/06/2016	01:49:45	Common pipistrell	FP-2	06/06/2016	02:08:06	Common pipistrelle
FP-2	06/06/2016	01:21:36	Common pipistrell	FP-2	06/06/2016	01:36:45	Common pipistrell	FP-2	06/06/2016	01:49:54	Common pipistrell	FP-2	06/06/2016	02:08:38	Pipistrelle sp.
FP-2	06/06/2016	01:22:11	Common pipistrell	FP-2	06/06/2016	01:36:56	Common pipistrell	FP-2	06/06/2016	01:50:06	Common pipistrell	FP-2	06/06/2016	02:09:45	Myotis sp.
FP-2	06/06/2016	01:22:21	Common pipistrell	FP-2	06/06/2016	01:37:14	Common pipistrell	FP-2	06/06/2016	01:50:38	Common pipistrell	FP-2	06/06/2016	02:25:19	Common pipistrelle
FP-2	06/06/2016	01:22:35	Common pipistrell	FP-2	06/06/2016	01:37:40	Common pipistrell	FP-2	06/06/2016	01:51:09	Common pipistrell	FP-2	06/06/2016	02:25:58	Pipistrelle sp.
FP-2	06/06/2016	01:22:45	Common pipistrell	FP-2	06/06/2016	01:37:51	Common pipistrell	FP-2	06/06/2016	01:51:18	Common pipistrell	FP-2	06/06/2016	02:30:13	Pipistrelle sp.
FP-2	06/06/2016	01:22:55	Common pipistrell	FP-2	06/06/2016	01:38:38	Common pipistrell	FP-2	06/06/2016	01:51:36	Pipistrelle sp.	FP-2	06/06/2016	02:34:20	Pipistrelle sp.
FP-2	06/06/2016	01:23:42	Common pipistrell	FP-2	06/06/2016	01:39:01	Common pipistrell	FP-2	06/06/2016	01:52:01	Pipistrelle sp.	FP-2	06/06/2016	02:36:06	Pipistrelle sp.
FP-2	06/06/2016	01:24:03	Common pipistrell	FP-2	06/06/2016	01:39:35	Pipistrelle sp.	FP-2	06/06/2016	01:52:34	Common pipistrell	FP-2	06/06/2016	02:48:56	Common pipistrelle
FP-2	06/06/2016	01:24:22	Common pipistrell	FP-2	06/06/2016	01:39:42	Pipistrelle sp.	FP-2	06/06/2016	01:53:00	Pipistrelle sp.	FP-2	06/06/2016	02:51:48	Common pipistrelle
FP-2	06/06/2016	01:24:46	Common pipistrell	FP-2	06/06/2016	01:39:50	Common pipistrell	FP-2	06/06/2016	01:53:57	Common pipistrell	FP-2	06/06/2016	03:09:56	Pipistrelle sp.
FP-2	06/06/2016	01:24:55	Common pipistrell	FP-2	06/06/2016	01:40:24	Common pipistrell	FP-2	06/06/2016	01:54:05	Common pipistrell	FP-2	06/06/2016	03:11:51	Common pipistrelle
FP-2	06/06/2016	01:25:02	Common pipistrell	FP-2	06/06/2016	01:40:42	Common pipistrell	FP-2	06/06/2016	01:54:16	Common pipistrell	FP-2	06/06/2016	03:19:24	Common pipistrelle
FP-2	06/06/2016	01:25:44	Common pipistrell	FP-2	06/06/2016	01:41:01	Common pipistrell	FP-2	06/06/2016	01:54:53	Pipistrelle sp.	FP-2	06/06/2016	03:33:16	Common pipistrelle
FP-2	06/06/2016	01:25:52	Common pipistrell	FP-2	06/06/2016	01:41:33	Common pipistrell	FP-2	06/06/2016	01:55:15	Pipistrelle sp.	FP-2	06/06/2016	03:38:52	Myotis sp.
FP-2	06/06/2016	01:26:08	Common pipistrell	FP-2	06/06/2016	01:41:54	Common pipistrell	FP-2	06/06/2016	01:55:51	Pipistrelle sp.	FP-2	06/06/2016	04:15:32	Common pipistrelle
FP-2	06/06/2016	01:26:32	Common pipistrell	FP-2	06/06/2016	01:42:05	Pipistrelle sp.	FP-2	06/06/2016	01:56:13	Soprano pipistrelle	FP-2	06/06/2016	04:31:34	Leisler's bat
FP-2	06/06/2016	01:26:45	Common pipistrell	FP-2	06/06/2016	01:42:26	Common pipistrell	FP-2	06/06/2016	01:56:25	Pipistrelle sp.	FP-2	06/06/2016	23:04:22	Leisler's bat
FP-2	06/06/2016	01:27:00	Common pipistrell	FP-2	06/06/2016	01:42:45	Common pipistrell	FP-2	06/06/2016	01:56:32	Common pipistrell	FP-2	06/06/2016	23:09:56	Common pipistrelle
FP-2	06/06/2016	01:27:23	Common pipistrell	FP-2	06/06/2016	01:42:54	Common pipistrell	FP-2	06/06/2016	01:56:45	Pipistrelle sp.	FP-2	06/06/2016	23:21:38	Common pipistrelle
FP-2	06/06/2016	01:27:37	Common pipistrell	FP-2	06/06/2016	01:43:09	Common pipistrell	FP-2	06/06/2016	01:57:00	Common pipistrell	FP-2	06/06/2016	23:21:45	Common pipistrelle
FP-2	06/06/2016	01:27:49	Common pipistrell	FP-2	06/06/2016	01:43:23	Common pipistrell	FP-2	06/06/2016	01:57:16	Pipistrelle sp.	FP-2	06/06/2016	23:33:12	Common pipistrelle
FP-2	06/06/2016	01:28:14	Common pipistrell	FP-2	06/06/2016	01:44:05	Common pipistrell	FP-2	06/06/2016	01:57:23	Pipistrelle sp.	FP-2	06/06/2016	23:34:17	Common pipistrelle
FP-2	06/06/2016	01:28:27	Common pipistrell	FP-2	06/06/2016	01:44:28	Common pipistrell	FP-2	06/06/2016	01:57:31	Pipistrelle sp.	FP-2	06/06/2016	23:34:35	Common pipistrelle
FP-2	06/06/2016	01:28:53	Common pipistrell	FP-2	06/06/2016	01:44:46	Common pipistrell	FP-2	06/06/2016	01:57:51	Pipistrelle sp.	FP-2	06/06/2016	23:34:48	Common pipistrelle
FP-2	06/06/2016	01:29:04	Common pipistrell	FP-2	06/06/2016	01:44:57	Common pipistrell	FP-2	06/06/2016	01:58:01	Common pipistrell	FP-2	06/06/2016	23:34:57	Common pipistrelle
FP-2	06/06/2016	01:29:25	Common pipistrell	FP-2	06/06/2016	01:45:13	Common pipistrell	FP-2	06/06/2016	01:58:10	Pipistrelle sp.	FP-2	06/06/2016	23:35:11	Common pipistrelle
FP-2	06/06/2016	01:29:35	Common pipistrell	FP-2	06/06/2016	01:45:26	Common pipistrell	FP-2	06/06/2016	01:58:30	Pipistrelle sp.	FP-2	06/06/2016	23:35:30	Common pipistrelle
FP-2	06/06/2016	01:30:00	Common pipistrell	FP-2	06/06/2016	01:45:37	Common pipistrell	FP-2	06/06/2016	01:58:49	Common pipistrell	FP-2	06/06/2016	23:35:52	Common pipistrelle
FP-2	06/06/2016	01:30:52	Common pipistrell	FP-2	06/06/2016	01:45:53	Common pipistrell	FP-2	06/06/2016	01:59:10	Pipistrelle sp.	FP-2	06/06/2016	23:36:04	Common pipistrelle
FP-2	06/06/2016	01:31:02	Common pipistrell	FP-2	06/06/2016	01:46:28	Common pipistrell	FP-2	06/06/2016	01:59:19	Common pipistrell	FP-2	06/06/2016	23:36:14	Common pipistrelle
FP-2	06/06/2016	01:31:17	Common pipistrell	FP-2	06/06/2016	01:46:42	Pipistrelle sp.	FP-2	06/06/2016	02:00:35	Common pipistrell	FP-2	06/06/2016	23:36:22	Common pipistrelle
FP-2	06/06/2016	01:31:52	Common pipistrell	FP-2	06/06/2016	01:46:51	Pipistrelle sp.	FP-2	06/06/2016	02:03:21	Common pipistrell	FP-2	06/06/2016	23:36:35	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	06/06/2016	23:36:50	Common pipistrelle	FP-2	07/06/2016	02:28:21	Common pipistrelle	FP-2	07/06/2016	02:40:55	Common pipistrelle	FP-2	07/06/2016	02:58:53	Common pipistrelle
FP-2	06/06/2016	23:37:00	Common pipistrelle	FP-2	07/06/2016	02:28:35	Common pipistrelle	FP-2	07/06/2016	02:41:55	Common pipistrelle	FP-2	07/06/2016	02:59:50	Common pipistrelle
FP-2	06/06/2016	23:37:25	Common pipistrelle	FP-2	07/06/2016	02:29:10	Common pipistrelle	FP-2	07/06/2016	02:42:15	Common pipistrelle	FP-2	07/06/2016	03:00:14	Common pipistrelle
FP-2	06/06/2016	23:37:35	Common pipistrelle	FP-2	07/06/2016	02:29:31	Common pipistrelle	FP-2	07/06/2016	02:42:28	Common pipistrelle	FP-2	07/06/2016	03:00:34	Common pipistrelle
FP-2	06/06/2016	23:37:54	Common pipistrelle	FP-2	07/06/2016	02:29:43	Common pipistrelle	FP-2	07/06/2016	02:42:41	Common pipistrelle	FP-2	07/06/2016	03:01:07	Common pipistrelle
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FP-2	06/06/2016	23:43:43	Common pipistrelle	FP-2	07/06/2016	02:30:44	Common pipistrelle	FP-2	07/06/2016	02:43:14	Common pipistrelle	FP-2	07/06/2016	03:01:54	Common pipistrelle
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FP-2	07/06/2016	00:31:44	Leisler's bat	FP-2	07/06/2016	02:32:40	Common pipistrelle	FP-2	07/06/2016	02:45:25	Common pipistrelle	FP-2	07/06/2016	03:05:38	Pipistrelle sp.
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FP-2	07/06/2016	01:01:35	Common pipistrelle	FP-2	07/06/2016	02:36:27	Common pipistrelle	FP-2	07/06/2016	02:48:12	Common pipistrelle	FP-2	07/06/2016	03:10:10	Common pipistrelle
FP-2	07/06/2016	01:09:57	Common pipistrelle	FP-2	07/06/2016	02:36:37	Common pipistrelle	FP-2	07/06/2016	02:48:32	Common pipistrelle	FP-2	07/06/2016	03:10:51	Common pipistrelle
FP-2	07/06/2016	01:11:27	Pipistrelle sp.	FP-2	07/06/2016	02:36:56	Common pipistrelle	FP-2	07/06/2016	02:48:52	Common pipistrelle	FP-2	07/06/2016	03:11:44	Common pipistrelle
FP-2	07/06/2016	01:27:26	Pipistrelle sp.	FP-2	07/06/2016	02:37:15	Common pipistrelle	FP-2	07/06/2016	02:49:05	Common pipistrelle	FP-2	07/06/2016	03:13:21	Common pipistrelle
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FP-2	07/06/2016	02:26:33	Common pipistrelle	FP-2	07/06/2016	02:39:28	Common pipistrelle	FP-2	07/06/2016	02:53:50	Common pipistrelle	FP-2	07/06/2016	03:16:01	Common pipistrelle
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FP-2	07/06/2016	02:27:03	Common pipistrelle	FP-2	07/06/2016	02:40:06	Common pipistrelle	FP-2	07/06/2016	02:56:08	Common pipistrelle	FP-2	07/06/2016	03:16:48	Common pipistrelle
FP-2	07/06/2016	02:27:20	Common pipistrelle	FP-2	07/06/2016	02:40:21	Common pipistrelle	FP-2	07/06/2016	02:56:32	Common pipistrelle	FP-2	07/06/2016	03:17:01	Common pipistrelle
FP-2	07/06/2016	02:27:54	Common pipistrelle	FP-2	07/06/2016	02:40:34	Common pipistrelle	FP-2	07/06/2016	02:57:34	Common pipistrelle	FP-2	07/06/2016	03:17:19	Common pipistrelle
FP-2	07/06/2016	02:28:09	Common pipistrelle	FP-2	07/06/2016	02:40:44	Common pipistrelle	FP-2	07/06/2016	02:58:30	Common pipistrelle	FP-2	07/06/2016	03:17:32	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-2	07/06/2016	03:18:10	Common pipistrell	FP-2	07/06/2016	03:33:06	Common pipistrell	FP-2	08/06/2016	01:02:18	Common pipistrell	FP-2	08/06/2016	01:42:45	Common pipistrelle
FP-2	07/06/2016	03:18:28	Common pipistrell	FP-2	07/06/2016	03:33:24	Pipistrelle sp.	FP-2	08/06/2016	01:02:36	Common pipistrell	FP-2	08/06/2016	01:43:42	Common pipistrelle
FP-2	07/06/2016	03:18:40	Common pipistrell	FP-2	07/06/2016	03:35:05	Common pipistrell	FP-2	08/06/2016	01:03:08	Common pipistrell	FP-2	08/06/2016	01:46:11	Pipistrelle sp.
FP-2	07/06/2016	03:19:14	Common pipistrell	FP-2	07/06/2016	03:43:02	Common pipistrell	FP-2	08/06/2016	01:03:19	Common pipistrell	FP-2	08/06/2016	01:49:37	Common pipistrelle
FP-2	07/06/2016	03:20:03	Common pipistrell	FP-2	07/06/2016	04:22:47	Soprano pipistrelle	FP-2	08/06/2016	01:03:37	Common pipistrell	FP-2	08/06/2016	01:50:01	Pipistrelle sp.
FP-2	07/06/2016	03:20:16	Common pipistrell	FP-2	07/06/2016	22:33:00	Common pipistrell	FP-2	08/06/2016	01:03:45	Pipistrelle sp.	FP-2	08/06/2016	01:50:26	Common pipistrelle
FP-2	07/06/2016	03:20:28	Common pipistrell	FP-2	07/06/2016	22:33:30	Common pipistrell	FP-2	08/06/2016	01:03:52	Common pipistrell	FP-2	08/06/2016	01:50:38	Common pipistrelle
FP-2	07/06/2016	03:20:46	Common pipistrell	FP-2	07/06/2016	23:09:35	Pipistrelle sp.	FP-2	08/06/2016	01:04:31	Common pipistrell	FP-2	08/06/2016	01:51:09	Common pipistrelle
FP-2	07/06/2016	03:21:01	Common pipistrell	FP-2	07/06/2016	23:13:40	Common pipistrell	FP-2	08/06/2016	01:05:29	Common pipistrell	FP-2	08/06/2016	01:51:37	Common pipistrelle
FP-2	07/06/2016	03:21:14	Common pipistrell	FP-2	07/06/2016	23:20:55	Common pipistrell	FP-2	08/06/2016	01:05:57	Common pipistrell	FP-2	08/06/2016	01:51:51	Common pipistrelle
FP-2	07/06/2016	03:21:51	Common pipistrell	FP-2	07/06/2016	23:21:11	Common pipistrell	FP-2	08/06/2016	01:06:04	Common pipistrell	FP-2	08/06/2016	01:52:05	Common pipistrelle
FP-2	07/06/2016	03:22:01	Common pipistrell	FP-2	07/06/2016	23:23:12	Leisler's bat	FP-2	08/06/2016	01:16:32	Pipistrelle sp.	FP-2	08/06/2016	01:52:19	Common pipistrelle
FP-2	07/06/2016	03:22:33	Common pipistrell	FP-2	07/06/2016	23:56:50	Common pipistrell	FP-2	08/06/2016	01:26:02	Common pipistrell	FP-2	08/06/2016	01:52:36	Common pipistrelle
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FP-2	07/06/2016	03:23:00	Common pipistrell	FP-2	08/06/2016	00:00:10	Common pipistrell	FP-2	08/06/2016	01:27:52	Common pipistrell	FP-2	08/06/2016	01:53:08	Common pipistrelle
FP-2	07/06/2016	03:23:32	Common pipistrell	FP-2	08/06/2016	00:04:49	Common pipistrell	FP-2	08/06/2016	01:28:25	Pipistrelle sp.	FP-2	08/06/2016	01:53:17	Common pipistrelle
FP-2	07/06/2016	03:23:44	Common pipistrell	FP-2	08/06/2016	00:07:33	Pipistrelle sp.	FP-2	08/06/2016	01:28:43	Common pipistrell	FP-2	08/06/2016	01:53:39	Common pipistrelle
FP-2	07/06/2016	03:24:10	Common pipistrell	FP-2	08/06/2016	00:11:22	Common pipistrell	FP-2	08/06/2016	01:29:17	Common pipistrell	FP-2	08/06/2016	01:53:50	Common pipistrelle
FP-2	07/06/2016	03:24:27	Common pipistrell	FP-2	08/06/2016	00:12:05	Pipistrelle sp.	FP-2	08/06/2016	01:29:30	Common pipistrell	FP-2	08/06/2016	01:54:58	Common pipistrelle
FP-2	07/06/2016	03:24:41	Common pipistrell	FP-2	08/06/2016	00:13:53	Pipistrelle sp.	FP-2	08/06/2016	01:29:45	Common pipistrell	FP-2	08/06/2016	01:55:16	Common pipistrelle
FP-2	07/06/2016	03:24:52	Common pipistrell	FP-2	08/06/2016	00:16:53	Myotis sp.	FP-2	08/06/2016	01:33:35	Common pipistrell	FP-2	08/06/2016	01:55:34	Common pipistrelle
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FP-2	07/06/2016	03:25:42	Common pipistrell	FP-2	08/06/2016	00:24:36	Common pipistrell	FP-2	08/06/2016	01:34:55	Common pipistrell	FP-2	08/06/2016	01:56:28	Common pipistrelle
FP-2	07/06/2016	03:25:51	Leisler's bat	FP-2	08/06/2016	00:26:38	Pipistrelle sp.	FP-2	08/06/2016	01:35:04	Common pipistrell	FP-2	08/06/2016	01:57:07	Common pipistrelle
FP-2	07/06/2016	03:26:24	Common pipistrell	FP-2	08/06/2016	00:34:48	Leisler's bat	FP-2	08/06/2016	01:35:04	Leisler's bat	FP-2	08/06/2016	01:57:45	Common pipistrelle
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FP-2	07/06/2016	03:28:22	Common pipistrell	FP-2	08/06/2016	00:45:15	Pipistrelle sp.	FP-2	08/06/2016	01:36:07	Common pipistrell	FP-2	08/06/2016	02:07:31	Pipistrelle sp.
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FP-2	07/06/2016	03:30:06	Common pipistrell	FP-2	08/06/2016	00:55:25	Common pipistrell	FP-2	08/06/2016	01:37:42	Common pipistrell	FP-2	08/06/2016	02:22:06	Common pipistrelle
FP-2	07/06/2016	03:30:15	Common pipistrell	FP-2	08/06/2016	00:55:42	Common pipistrell	FP-2	08/06/2016	01:37:57	Common pipistrell	FP-2	08/06/2016	02:22:24	Common pipistrelle
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FP-2	07/06/2016	03:31:02	Common pipistrell	FP-2	08/06/2016	00:56:28	Common pipistrell	FP-2	08/06/2016	01:38:23	Common pipistrell	FP-2	08/06/2016	02:23:19	Common pipistrelle
FP-2	07/06/2016	03:31:22	Common pipistrell	FP-2	08/06/2016	00:57:54	Common pipistrell	FP-2	08/06/2016	01:39:30	Common pipistrell	FP-2	08/06/2016	02:23:43	Common pipistrelle
FP-2	07/06/2016	03:31:51	Common pipistrell	FP-2	08/06/2016	00:59:35	Common pipistrell	FP-2	08/06/2016	01:40:10	Common pipistrell	FP-2	08/06/2016	02:23:56	Common pipistrelle
FP-2	07/06/2016	03:32:10	Common pipistrell	FP-2	08/06/2016	01:00:27	Common pipistrell	FP-2	08/06/2016	01:41:25	Common pipistrell	FP-2	08/06/2016	02:24:15	Common pipistrelle
FP-2	07/06/2016	03:32:28	Common pipistrell	FP-2	08/06/2016	01:01:50	Common pipistrell	FP-2	08/06/2016	01:42:01	Common pipistrell	FP-2	08/06/2016	02:24:23	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-2	08/06/2016	02:25:46	Common pipistrell	FP-2	08/06/2016	03:17:09	Leisler's bat	FP-2	09/06/2016	01:55:12	Common pipistrell	FP-2	10/06/2016	01:43:15	Common pipistrelle
FP-2	08/06/2016	02:25:59	Common pipistrell	FP-2	08/06/2016	03:17:32	Common pipistrell	FP-2	09/06/2016	02:35:54	Common pipistrell	FP-2	10/06/2016	01:43:47	Common pipistrelle
FP-2	08/06/2016	02:26:16	Common pipistrell	FP-2	08/06/2016	03:17:50	Common pipistrell	FP-2	09/06/2016	03:06:32	Myotis sp.	FP-2	10/06/2016	01:44:02	Common pipistrelle
FP-2	08/06/2016	02:26:25	Common pipistrell	FP-2	08/06/2016	03:17:59	Common pipistrell	FP-2	09/06/2016	03:07:44	Common pipistrell	FP-2	10/06/2016	01:44:19	Common pipistrelle
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FP-2	08/06/2016	02:27:03	Common pipistrell	FP-2	08/06/2016	03:18:19	Common pipistrell	FP-2	09/06/2016	03:14:03	Soprano pipistrelle	FP-2	10/06/2016	01:44:53	Common pipistrelle
FP-2	08/06/2016	02:27:17	Common pipistrell	FP-2	08/06/2016	03:21:14	Common pipistrell	FP-2	09/06/2016	03:22:10	Leisler's bat	FP-2	10/06/2016	01:45:07	Common pipistrelle
FP-2	08/06/2016	02:27:35	Common pipistrell	FP-2	08/06/2016	03:26:10	Common pipistrell	FP-2	09/06/2016	03:31:37	Leisler's bat	FP-2	10/06/2016	01:46:06	Common pipistrelle
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FP-2	08/06/2016	03:06:07	Leisler's bat	FP-2	09/06/2016	01:53:02	Common pipistrell	FP-2	10/06/2016	01:42:28	Common pipistrell	FP-2	10/06/2016	02:04:14	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-2	10/06/2016	02:04:55	Common pipistrell	FP-2	10/06/2016	02:29:42	Common pipistrell	FP-2	10/06/2016	02:59:21	Common pipistrell	FP-2	10/06/2016	03:42:31	Common pipistrelle
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FP-2	10/06/2016	02:05:49	Common pipistrell	FP-2	10/06/2016	02:30:32	Common pipistrell	FP-2	10/06/2016	02:59:48	Common pipistrell	FP-2	10/06/2016	03:43:14	Common pipistrelle
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FP-2	10/06/2016	02:29:11	Common pipistrell	FP-2	10/06/2016	02:58:42	Common pipistrell	FP-2	10/06/2016	03:15:57	Common pipistrell	FP-2	10/06/2016	23:48:53	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	10/06/2016	23:49:06	Common pipistrell	FP-2	11/06/2016	00:35:05	Common pipistrell	FP-2	11/06/2016	00:45:58	Common pipistrell	FP-2	11/06/2016	01:07:27	Common pipistrelle
FP-2	10/06/2016	23:49:16	Common pipistrell	FP-2	11/06/2016	00:35:28	Common pipistrell	FP-2	11/06/2016	00:46:16	Common pipistrell	FP-2	11/06/2016	01:07:40	Common pipistrelle
FP-2	10/06/2016	23:49:24	Common pipistrell	FP-2	11/06/2016	00:35:37	Common pipistrell	FP-2	11/06/2016	00:51:10	Leisler's bat	FP-2	11/06/2016	01:08:08	Common pipistrelle
FP-2	10/06/2016	23:50:04	Common pipistrell	FP-2	11/06/2016	00:35:49	Common pipistrell	FP-2	11/06/2016	00:53:21	Common pipistrell	FP-2	11/06/2016	01:08:53	Common pipistrelle
FP-2	10/06/2016	23:50:51	Common pipistrell	FP-2	11/06/2016	00:36:09	Common pipistrell	FP-2	11/06/2016	00:53:47	Common pipistrell	FP-2	11/06/2016	01:09:03	Common pipistrelle
FP-2	10/06/2016	23:58:42	Common pipistrell	FP-2	11/06/2016	00:36:19	Common pipistrell	FP-2	11/06/2016	00:54:23	Common pipistrell	FP-2	11/06/2016	01:09:13	Common pipistrelle
FP-2	11/06/2016	00:21:33	Common pipistrell	FP-2	11/06/2016	00:36:32	Common pipistrell	FP-2	11/06/2016	00:54:35	Common pipistrell	FP-2	11/06/2016	01:10:04	Common pipistrelle
FP-2	11/06/2016	00:21:49	Common pipistrell	FP-2	11/06/2016	00:37:18	Common pipistrell	FP-2	11/06/2016	00:54:42	Common pipistrell	FP-2	11/06/2016	01:10:33	Common pipistrelle
FP-2	11/06/2016	00:22:06	Common pipistrell	FP-2	11/06/2016	00:37:35	Common pipistrell	FP-2	11/06/2016	00:54:56	Common pipistrell	FP-2	11/06/2016	01:10:47	Common pipistrelle
FP-2	11/06/2016	00:22:28	Common pipistrell	FP-2	11/06/2016	00:37:51	Common pipistrell	FP-2	11/06/2016	00:55:52	Common pipistrell	FP-2	11/06/2016	01:11:13	Common pipistrelle
FP-2	11/06/2016	00:22:46	Common pipistrell	FP-2	11/06/2016	00:38:02	Common pipistrell	FP-2	11/06/2016	00:56:44	Common pipistrell	FP-2	11/06/2016	01:11:26	Common pipistrelle
FP-2	11/06/2016	00:23:04	Common pipistrell	FP-2	11/06/2016	00:38:12	Common pipistrell	FP-2	11/06/2016	00:56:55	Common pipistrell	FP-2	11/06/2016	01:11:40	Common pipistrelle
FP-2	11/06/2016	00:23:16	Common pipistrell	FP-2	11/06/2016	00:38:28	Common pipistrell	FP-2	11/06/2016	00:57:05	Common pipistrell	FP-2	11/06/2016	01:11:54	Common pipistrelle
FP-2	11/06/2016	00:23:38	Common pipistrell	FP-2	11/06/2016	00:38:37	Common pipistrell	FP-2	11/06/2016	00:57:32	Common pipistrell	FP-2	11/06/2016	01:12:14	Common pipistrelle
FP-2	11/06/2016	00:24:06	Common pipistrell	FP-2	11/06/2016	00:38:51	Common pipistrell	FP-2	11/06/2016	00:57:46	Common pipistrell	FP-2	11/06/2016	01:14:21	Common pipistrelle
FP-2	11/06/2016	00:24:19	Common pipistrell	FP-2	11/06/2016	00:39:02	Common pipistrell	FP-2	11/06/2016	00:57:58	Common pipistrell	FP-2	11/06/2016	01:14:35	Common pipistrelle
FP-2	11/06/2016	00:24:45	Common pipistrell	FP-2	11/06/2016	00:39:36	Common pipistrell	FP-2	11/06/2016	00:58:12	Common pipistrell	FP-2	11/06/2016	01:15:00	Common pipistrelle
FP-2	11/06/2016	00:26:18	Common pipistrell	FP-2	11/06/2016	00:39:48	Common pipistrell	FP-2	11/06/2016	00:58:43	Common pipistrell	FP-2	11/06/2016	01:15:13	Common pipistrelle
FP-2	11/06/2016	00:27:02	Common pipistrell	FP-2	11/06/2016	00:39:57	Common pipistrell	FP-2	11/06/2016	00:59:01	Common pipistrell	FP-2	11/06/2016	01:15:22	Common pipistrelle
FP-2	11/06/2016	00:27:13	Common pipistrell	FP-2	11/06/2016	00:40:05	Common pipistrell	FP-2	11/06/2016	00:59:12	Common pipistrell	FP-2	11/06/2016	01:15:55	Common pipistrelle
FP-2	11/06/2016	00:27:30	Common pipistrell	FP-2	11/06/2016	00:40:18	Common pipistrell	FP-2	11/06/2016	00:59:27	Common pipistrell	FP-2	11/06/2016	01:16:07	Common pipistrelle
FP-2	11/06/2016	00:27:39	Common pipistrell	FP-2	11/06/2016	00:40:36	Common pipistrell	FP-2	11/06/2016	00:59:42	Common pipistrell	FP-2	11/06/2016	01:16:39	Common pipistrelle
FP-2	11/06/2016	00:27:50	Common pipistrell	FP-2	11/06/2016	00:40:53	Common pipistrell	FP-2	11/06/2016	01:00:12	Common pipistrell	FP-2	11/06/2016	01:16:52	Common pipistrelle
FP-2	11/06/2016	00:27:58	Common pipistrell	FP-2	11/06/2016	00:41:06	Common pipistrell	FP-2	11/06/2016	01:00:31	Common pipistrell	FP-2	11/06/2016	01:17:56	Common pipistrelle
FP-2	11/06/2016	00:28:13	Common pipistrell	FP-2	11/06/2016	00:41:28	Common pipistrell	FP-2	11/06/2016	01:00:45	Common pipistrell	FP-2	11/06/2016	01:18:15	Common pipistrelle
FP-2	11/06/2016	00:28:25	Common pipistrell	FP-2	11/06/2016	00:41:49	Common pipistrell	FP-2	11/06/2016	01:00:57	Common pipistrell	FP-2	11/06/2016	01:18:56	Common pipistrelle
FP-2	11/06/2016	00:28:47	Common pipistrell	FP-2	11/06/2016	00:41:58	Common pipistrell	FP-2	11/06/2016	01:01:16	Common pipistrell	FP-2	11/06/2016	01:19:42	Common pipistrelle
FP-2	11/06/2016	00:28:59	Common pipistrell	FP-2	11/06/2016	00:42:07	Common pipistrell	FP-2	11/06/2016	01:01:32	Common pipistrell	FP-2	11/06/2016	01:20:08	Common pipistrelle
FP-2	11/06/2016	00:29:14	Common pipistrell	FP-2	11/06/2016	00:42:16	Common pipistrell	FP-2	11/06/2016	01:01:41	Common pipistrell	FP-2	11/06/2016	01:20:19	Common pipistrelle
FP-2	11/06/2016	00:29:21	Common pipistrell	FP-2	11/06/2016	00:42:25	Common pipistrell	FP-2	11/06/2016	01:01:51	Common pipistrell	FP-2	11/06/2016	01:20:54	Common pipistrelle
FP-2	11/06/2016	00:29:50	Common pipistrell	FP-2	11/06/2016	00:42:39	Common pipistrell	FP-2	11/06/2016	01:02:06	Common pipistrell	FP-2	11/06/2016	01:21:12	Common pipistrelle
FP-2	11/06/2016	00:30:01	Common pipistrell	FP-2	11/06/2016	00:42:52	Common pipistrell	FP-2	11/06/2016	01:02:20	Common pipistrell	FP-2	11/06/2016	01:21:22	Common pipistrelle
FP-2	11/06/2016	00:30:11	Common pipistrell	FP-2	11/06/2016	00:43:02	Common pipistrell	FP-2	11/06/2016	01:02:39	Common pipistrell	FP-2	11/06/2016	01:21:33	Common pipistrelle
FP-2	11/06/2016	00:30:22	Common pipistrell	FP-2	11/06/2016	00:43:36	Common pipistrell	FP-2	11/06/2016	01:02:52	Common pipistrell	FP-2	11/06/2016	01:21:42	Common pipistrelle
FP-2	11/06/2016	00:30:46	Common pipistrell	FP-2	11/06/2016	00:43:48	Common pipistrell	FP-2	11/06/2016	01:03:20	Common pipistrell	FP-2	11/06/2016	01:21:55	Common pipistrelle
FP-2	11/06/2016	00:30:58	Common pipistrell	FP-2	11/06/2016	00:44:03	Common pipistrell	FP-2	11/06/2016	01:03:31	Common pipistrell	FP-2	11/06/2016	01:22:09	Common pipistrelle
FP-2	11/06/2016	00:31:59	Common pipistrell	FP-2	11/06/2016	00:44:10	Common pipistrell	FP-2	11/06/2016	01:03:57	Common pipistrell	FP-2	11/06/2016	01:22:25	Common pipistrelle
FP-2	11/06/2016	00:32:33	Common pipistrell	FP-2	11/06/2016	00:44:20	Common pipistrell	FP-2	11/06/2016	01:04:13	Common pipistrell	FP-2	11/06/2016	01:23:00	Common pipistrelle
FP-2	11/06/2016	00:32:45	Common pipistrell	FP-2	11/06/2016	00:44:36	Common pipistrell	FP-2	11/06/2016	01:04:52	Common pipistrell	FP-2	11/06/2016	01:23:14	Common pipistrelle
FP-2	11/06/2016	00:33:18	Common pipistrell	FP-2	11/06/2016	00:44:45	Common pipistrell	FP-2	11/06/2016	01:05:05	Common pipistrell	FP-2	11/06/2016	01:23:56	Common pipistrelle
FP-2	11/06/2016	00:33:30	Common pipistrell	FP-2	11/06/2016	00:44:55	Common pipistrell	FP-2	11/06/2016	01:06:09	Common pipistrell	FP-2	11/06/2016	01:24:08	Common pipistrelle
FP-2	11/06/2016	00:33:58	Common pipistrell	FP-2	11/06/2016	00:45:05	Common pipistrell	FP-2	11/06/2016	01:06:16	Common pipistrell	FP-2	11/06/2016	01:24:45	Common pipistrelle
FP-2	11/06/2016	00:34:10	Common pipistrell	FP-2	11/06/2016	00:45:20	Common pipistrell	FP-2	11/06/2016	01:06:44	Common pipistrell	FP-2	11/06/2016	01:24:56	Common pipistrelle
FP-2	11/06/2016	00:34:54	Common pipistrell	FP-2	11/06/2016	00:45:40	Common pipistrell	FP-2	11/06/2016	01:06:56	Common pipistrell	FP-2	11/06/2016	01:27:29	Myotis sp.

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	11/06/2016	01:33:10	Myotis sp.	FP-2	11/06/2016	23:44:07	Common pipistrell	FP-2	12/06/2016	00:02:47	Common pipistrell	FP-2	12/06/2016	02:06:06	Common pipistrelle
FP-2	11/06/2016	01:44:50	Common pipistrell	FP-2	11/06/2016	23:44:15	Common pipistrell	FP-2	12/06/2016	00:03:00	Common pipistrell	FP-2	12/06/2016	02:17:37	Common pipistrelle
FP-2	11/06/2016	03:33:27	Common pipistrell	FP-2	11/06/2016	23:44:58	Common pipistrell	FP-2	12/06/2016	00:03:32	Common pipistrell	FP-2	12/06/2016	02:22:39	Common pipistrelle
FP-2	11/06/2016	03:39:54	Common pipistrell	FP-2	11/06/2016	23:45:08	Common pipistrell	FP-2	12/06/2016	00:03:39	Common pipistrell	FP-2	12/06/2016	02:24:08	Common pipistrelle
FP-2	11/06/2016	03:44:36	Common pipistrell	FP-2	11/06/2016	23:45:18	Common pipistrell	FP-2	12/06/2016	00:03:48	Common pipistrell	FP-2	12/06/2016	02:24:16	Common pipistrelle
FP-2	11/06/2016	04:02:51	Common pipistrell	FP-2	11/06/2016	23:45:30	Common pipistrell	FP-2	12/06/2016	00:04:05	Common pipistrell	FP-2	12/06/2016	02:24:39	Common pipistrelle
FP-2	11/06/2016	04:08:49	Soprano pipistrelle	FP-2	11/06/2016	23:45:45	Common pipistrell	FP-2	12/06/2016	00:04:37	Common pipistrell	FP-2	12/06/2016	02:25:14	Common pipistrelle
FP-2	11/06/2016	04:13:07	Leisler's bat	FP-2	11/06/2016	23:45:53	Common pipistrell	FP-2	12/06/2016	00:05:25	Common pipistrell	FP-2	12/06/2016	02:25:32	Common pipistrelle
FP-2	11/06/2016	23:24:34	Common pipistrell	FP-2	11/06/2016	23:46:22	Common pipistrell	FP-2	12/06/2016	00:06:27	Common pipistrell	FP-2	12/06/2016	02:26:41	Common pipistrelle
FP-2	11/06/2016	23:25:19	Common pipistrell	FP-2	11/06/2016	23:46:35	Common pipistrell	FP-2	12/06/2016	00:06:38	Common pipistrell	FP-2	12/06/2016	02:26:59	Common pipistrelle
FP-2	11/06/2016	23:25:45	Common pipistrell	FP-2	11/06/2016	23:46:46	Common pipistrell	FP-2	12/06/2016	00:07:09	Common pipistrell	FP-2	12/06/2016	02:27:25	Common pipistrelle
FP-2	11/06/2016	23:25:55	Common pipistrell	FP-2	11/06/2016	23:47:01	Common pipistrell	FP-2	12/06/2016	00:07:26	Common pipistrell	FP-2	12/06/2016	02:59:11	Common pipistrelle
FP-2	11/06/2016	23:26:37	Common pipistrell	FP-2	11/06/2016	23:47:24	Common pipistrell	FP-2	12/06/2016	00:07:34	Common pipistrell	FP-2	12/06/2016	03:42:38	Common pipistrelle
FP-2	11/06/2016	23:26:48	Common pipistrell	FP-2	11/06/2016	23:47:40	Common pipistrell	FP-2	12/06/2016	00:08:51	Common pipistrell	FP-2	12/06/2016	03:48:25	Common pipistrelle
FP-2	11/06/2016	23:27:37	Common pipistrell	FP-2	11/06/2016	23:48:08	Common pipistrell	FP-2	12/06/2016	00:08:58	Common pipistrell	FP-2	12/06/2016	04:13:55	Common pipistrelle
FP-2	11/06/2016	23:27:47	Common pipistrell	FP-2	11/06/2016	23:48:17	Common pipistrell	FP-2	12/06/2016	00:09:33	Common pipistrell	FP-2	12/06/2016	22:28:32	Leisler's bat
FP-2	11/06/2016	23:28:02	Common pipistrell	FP-2	11/06/2016	23:48:25	Common pipistrell	FP-2	12/06/2016	00:19:34	Common pipistrell	FP-2	12/06/2016	22:46:37	Common pipistrelle
FP-2	11/06/2016	23:28:16	Common pipistrell	FP-2	11/06/2016	23:48:34	Common pipistrell	FP-2	12/06/2016	00:19:54	Common pipistrell	FP-2	12/06/2016	23:08:32	Common pipistrelle
FP-2	11/06/2016	23:28:33	Common pipistrell	FP-2	11/06/2016	23:48:48	Common pipistrell	FP-2	12/06/2016	00:20:30	Common pipistrell	FP-2	12/06/2016	23:12:03	Leisler's bat
FP-2	11/06/2016	23:29:40	Common pipistrell	FP-2	11/06/2016	23:49:00	Common pipistrell	FP-2	12/06/2016	00:25:50	Common pipistrell	FP-2	12/06/2016	23:20:31	Soprano pipistrelle
FP-2	11/06/2016	23:30:01	Common pipistrell	FP-2	11/06/2016	23:49:13	Common pipistrell	FP-2	12/06/2016	00:47:20	Brown Long-eared	FP-2	12/06/2016	23:26:46	Common pipistrelle
FP-2	11/06/2016	23:30:41	Common pipistrell	FP-2	11/06/2016	23:51:15	Common pipistrell	FP-2	12/06/2016	00:56:55	Common pipistrell	FP-2	12/06/2016	23:42:36	Common pipistrelle
FP-2	11/06/2016	23:30:54	Common pipistrell	FP-2	11/06/2016	23:51:35	Common pipistrell	FP-2	12/06/2016	00:57:13	Common pipistrell	FP-2	12/06/2016	23:58:07	Common pipistrelle
FP-2	11/06/2016	23:31:55	Common pipistrell	FP-2	11/06/2016	23:51:46	Common pipistrell	FP-2	12/06/2016	01:04:20	Common pipistrell	FP-2	13/06/2016	00:09:25	Common pipistrelle
FP-2	11/06/2016	23:32:04	Common pipistrell	FP-2	11/06/2016	23:52:00	Common pipistrell	FP-2	12/06/2016	01:04:53	Common pipistrell	FP-2	13/06/2016	00:26:23	Common pipistrelle
FP-2	11/06/2016	23:32:31	Common pipistrell	FP-2	11/06/2016	23:52:27	Common pipistrell	FP-2	12/06/2016	01:05:04	Common pipistrell	FP-2	13/06/2016	00:30:31	Common pipistrelle
FP-2	11/06/2016	23:32:39	Common pipistrell	FP-2	11/06/2016	23:52:35	Common pipistrell	FP-2	12/06/2016	01:05:12	Common pipistrell	FP-2	13/06/2016	00:44:10	Common pipistrelle
FP-2	11/06/2016	23:32:53	Common pipistrell	FP-2	11/06/2016	23:52:46	Common pipistrell	FP-2	12/06/2016	01:06:13	Common pipistrell	FP-2	13/06/2016	02:36:55	Common pipistrelle
FP-2	11/06/2016	23:33:04	Common pipistrell	FP-2	11/06/2016	23:53:00	Common pipistrell	FP-2	12/06/2016	01:07:25	Common pipistrell	FP-2	13/06/2016	02:37:05	Common pipistrelle
FP-2	11/06/2016	23:33:32	Common pipistrell	FP-2	11/06/2016	23:53:14	Common pipistrell	FP-2	12/06/2016	01:07:40	Common pipistrell	FP-2	13/06/2016	02:37:18	Common pipistrelle
FP-2	11/06/2016	23:33:42	Common pipistrell	FP-2	11/06/2016	23:53:38	Common pipistrell	FP-2	12/06/2016	01:07:54	Common pipistrell	FP-2	13/06/2016	04:27:28	Leisler's bat
FP-2	11/06/2016	23:33:55	Common pipistrell	FP-2	11/06/2016	23:53:53	Common pipistrell	FP-2	12/06/2016	01:08:13	Common pipistrell	FP-2	13/06/2016	22:36:56	Common pipistrelle
FP-2	11/06/2016	23:34:14	Common pipistrell	FP-2	11/06/2016	23:54:08	Common pipistrell	FP-2	12/06/2016	01:22:13	Common pipistrell	FP-2	13/06/2016	23:11:51	Common pipistrelle
FP-2	11/06/2016	23:34:44	Common pipistrell	FP-2	11/06/2016	23:54:18	Common pipistrell	FP-2	12/06/2016	01:22:23	Common pipistrell	FP-2	13/06/2016	23:20:59	Common pipistrelle
FP-2	11/06/2016	23:35:18	Common pipistrell	FP-2	11/06/2016	23:54:27	Common pipistrell	FP-2	12/06/2016	01:22:34	Common pipistrell	FP-2	13/06/2016	23:31:14	Pipistrelle sp.
FP-2	11/06/2016	23:35:33	Common pipistrell	FP-2	11/06/2016	23:54:35	Common pipistrell	FP-2	12/06/2016	01:22:45	Common pipistrell	FP-2	13/06/2016	23:53:01	Common pipistrelle
FP-2	11/06/2016	23:35:45	Common pipistrell	FP-2	12/06/2016	00:00:23	Common pipistrell	FP-2	12/06/2016	01:23:01	Common pipistrell	FP-2	13/06/2016	23:59:46	Leisler's bat
FP-2	11/06/2016	23:36:02	Common pipistrell	FP-2	12/06/2016	00:00:50	Common pipistrell	FP-2	12/06/2016	01:23:09	Common pipistrell	FP-2	14/06/2016	00:04:38	Common pipistrelle
FP-2	11/06/2016	23:37:01	Common pipistrell	FP-2	12/06/2016	00:01:02	Common pipistrell	FP-2	12/06/2016	02:03:04	Common pipistrell	FP-2	14/06/2016	00:33:08	Common pipistrelle
FP-2	11/06/2016	23:37:08	Common pipistrell	FP-2	12/06/2016	00:01:11	Common pipistrell	FP-2	12/06/2016	02:03:23	Common pipistrell	FP-2	14/06/2016	00:33:49	Common pipistrelle
FP-2	11/06/2016	23:38:17	Myotis sp.	FP-2	12/06/2016	00:01:21	Common pipistrell	FP-2	12/06/2016	02:04:44	Common pipistrell	FP-2	14/06/2016	00:34:44	Common pipistrelle
FP-2	11/06/2016	23:43:30	Common pipistrell	FP-2	12/06/2016	00:01:35	Common pipistrell	FP-2	12/06/2016	02:05:24	Common pipistrell	FP-2	14/06/2016	00:34:56	Common pipistrelle
FP-2	11/06/2016	23:43:49	Common pipistrell	FP-2	12/06/2016	00:01:46	Common pipistrell	FP-2	12/06/2016	02:05:45	Common pipistrell	FP-2	14/06/2016	01:04:00	Common pipistrelle
FP-2	11/06/2016	23:43:59	Common pipistrell	FP-2	12/06/2016	00:02:02	Common pipistrell	FP-2	12/06/2016	02:05:51	Common pipistrell	FP-2	14/06/2016	01:04:10	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	14/06/2016	01:04:31	Common pipistrell	FP-2	15/06/2016	23:13:28	Common pipistrell	FP-2	16/06/2016	00:44:43	Common pipistrell	FP-2	16/06/2016	03:44:49	Common pipistrelle
FP-2	14/06/2016	01:05:31	Common pipistrell	FP-2	15/06/2016	23:14:15	Common pipistrell	FP-2	16/06/2016	00:44:43	Leisler's bat	FP-2	16/06/2016	03:45:15	Common pipistrelle
FP-2	14/06/2016	01:19:00	Common pipistrell	FP-2	15/06/2016	23:14:57	Common pipistrell	FP-2	16/06/2016	00:45:24	Common pipistrell	FP-2	16/06/2016	03:45:51	Common pipistrelle
FP-2	14/06/2016	01:21:36	Common pipistrell	FP-2	15/06/2016	23:15:38	Common pipistrell	FP-2	16/06/2016	00:45:24	Leisler's bat	FP-2	16/06/2016	03:46:39	Common pipistrelle
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FP-2	17/06/2016	03:17:58	Common pipistrell	FP-4	31/07/2016	23:58:03	Pipistrelle sp.				

Bat Survey Report

Proposed Wind Farm Development at Cloncreen & Adjacent Townlands, Co. Offaly

McCarthy
Keville
O'Sullivan

Planning & Environmental Consultants

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1 INTRODUCTION

McCarthy Keville O'Sullivan (MKO) was commissioned by Bord na Móna Powergen Ltd to prepare an Environmental Impact Statement (EIS) for a proposed wind farm at Cloncreen, Co. Offaly. This report contains all information specifically relating to the assessment of potential impacts on bats, and will be included as an Appendix to the EIS. Other ecological impact assessments are available Chapter 5: Flora & Fauna of the main EIS.

A bat survey plan was devised in accordance with best practice and bat surveys were completed by MKO ecologists between April and August, 2016. Surveys in 2016 required a combination of methods which included roost surveys, manual transects and fixed point monitoring.

The aim of these surveys was to:

- determine to what extent bats are using the proposed development site
- identify the species present
- locate any roosts, foraging areas and commuting routes

In addition to bat survey work completed in 2016, reference was made to previous bat survey work. INIS Environmental Consultants and Malachy Walsh and Partners carried out bat surveys at the site in 2013 and 2015 respectively. All available bat data was used to assess how the proposed development may impact on bat populations. Where potential adverse impacts were identified, mitigation measures are provided to offset these impacts.

1.1 Statement of Authority

All bat surveys undertaken in 2016 were conducted by MKO ecologists; Pat Roberts (BSc, MCIEEM), John Hynes (BSc, MSc) and Laoise Kelly (BSc). All MKO staff have relevant academic qualifications and are competent experts in undertaking bat surveys to this level.

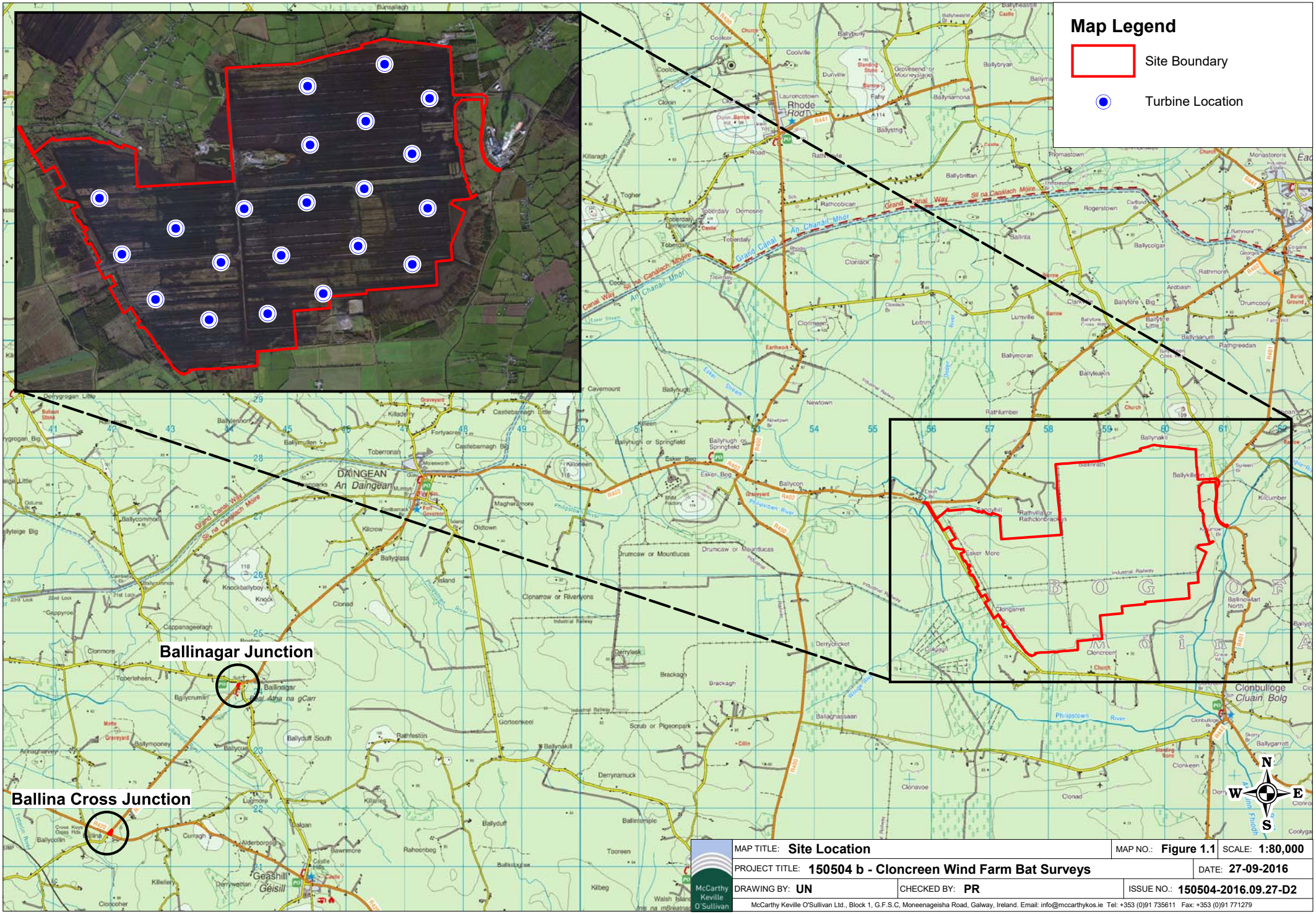
All bat survey results were compiled and assessed by Úna Nealon (BSc, PhD). Úna's primary expertise lies in bat ecology, particularly in relation to wind farm EIA. Building on her previous consultancy experience, she completed her PhD with the Centre for Irish Bat Research, examining the impacts of wind farms on Irish bat species. Her unique background leaves her ideally suited to undertake scope development for wind energy bat surveys, including the practical application of bat survey guidelines at Irish wind energy sites. She is also practiced in bat survey methods at potential development sites using multiple techniques. Furthermore, she is skilled in bat impact assessment and the design of mitigation measures where she applies scientific and technical knowledge to produce practical solutions.

Previous bat survey work also informed this impact assessment. INIS Environmental Consultants and Malachy Walsh and Partners carried out bat surveys at the site in 2013 and 2015 respectively. These ecological consultants have significant experience in undertaking survey work of this kind.

1.2 Study Area

The proposed wind farm is located at Cloncreen bog in Co. Offaly, approximately 4.5 kilometres southwest of Edenderry at its nearest point. The villages of Clonbullogue and Rhode are located approximately 2.0 kilometres southeast and 7.0 kilometres northwest of the site respectively (Figure 1.1).

The proposed wind energy development will encompass 21 No. wind turbines up to a maximum tip height of 170 metres and all associated ancillary works. In accordance with best practice, the Study Area was defined by the developable area and included a 200m buffer (Hundt, 2012).



MAP TITLE: **Site Location**		MAP NO.: **Figure 1.1**	SCALE: **1:80,000**
PROJECT TITLE: **150504 b - Cloncreen Wind Farm Bat Surveys**			DATE: **27-09-2016**
DRAWING BY: **UN**	CHECKED BY: **PR**	ISSUE NO.: **150504-2016.09.27-D2**	

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2 BACKGROUND

2.1 Introduction

Wind energy provides a clean, sustainable alternative to fossil fuels in generating electricity. However, wind energy development can impact wildlife, directly through mortality and indirectly through disturbance and habitat loss. Bat fatalities have been reported at wind energy facilities around the world, raising concern about the cumulative impacts of such developments on bat populations (Arnett et al. 2016). To date, no bat mortality studies at Irish wind farms have been published. However, evidence available from the UK estimates bat fatalities at 0 – 5.25 bats per turbine per month (Mathews et al. 2016).

Investigative research in North America and mainland Europe have revealed the mechanisms for bat mortality at wind turbines. Bat fatalities result from direct collision with moving turbine blades (Horn et al. 2008, Cryan et al. 2014) and barotrauma (Baerwald et al. 2008), i.e. internal injuries caused by air pressure changes. Why bats fly in the vicinity of wind turbines remains unclear, with several behavioural and environmental factors proposed, e.g. habitat associations, weather conditions, species ecology, etc. Any spatial, temporal or behavioural factors that may put bats at greater risk were fully considered in the design of bat surveys at the proposed wind farm at Cloncreen and in the analyses of all survey results.

2.2 Policy

All Irish bats are protected under European legislation, namely the Habitats Directive (92/43/EEC). All Irish species are listed under Annex IV of the Directive, requiring strict protection. The Lesser horseshoe bat (*Rhinolophus hipposideros*) is further listed under Annex II of the Directive, requiring the designation of conservation areas for the species. Under this Directive, Ireland is obliged to maintain the favourable conservation status of Annex-listed species. This Directive has been transposed into Irish law through the European Communities (Birds and Natural Habitats) Regulations 2011.

In addition, Irish species are further protected by national legislation (Wildlife Acts 1976-2012). Under these legislation, it is an offence to intentionally disturb, injure or kill a bat or disturb its roost. Any work at a roost site must be carried out with the support of the National Parks and Wildlife Service.

The National Parks and Wildlife Service (NPWS) monitors the conservation status of European protected habitats and species and reports their findings to the European Commission every 6 years. The most recent report for the Republic of Ireland was submitted in 2013. Table 2.1 summarises the current conservation status of Irish bat species and identified threats to Irish bat populations.

Table 2.1: Irish Bat Species Conservation Status and Threats

Bat Species	Conservation Status	Principal Threats
Common pipistrelle *Pipistrellus pipistrellus*	Favourable	▪ Urbanised areas (e.g. light pollution) ▪ Bridge/viaduct repairs ▪ Pesticides usage ▪ Removal of hedges, scrub, forestry ▪ Water pollution ▪ Other pollution and human impacts (e.g. renovation of dwellings with roosts) ▪ Infillings of ditches, dykes, ponds, pools and marshes ▪ Management of aquatic and bank vegetation for drainage purposes ▪ Abandonment of pastoral systems ▪ Spieleology and vandalism ▪ Communication routes: roads - forestry management
Soprano pipistrelle *Pipistrellus pygmaeus*	Favourable	
Nathusius' pipistrelle *Pipistrellus nathusii*	Favourable	
Leisler's bat *Nyctalus leisleri*	Favourable	
Daubenton's bat *Myotis daubentoni*	Favourable	
Natterer's bat *Myotis nattereri*	Favourable	
Whiskered bat *Myotis mystacinus*	Favourable	
Brown long-eared bat *Plecotus auritus*	Favourable	
Lesser horseshoe *Rhinolophus hipposideros*	Favourable	

2.3 Guidance

In response to growing concerns regarding the impact of wind energy developments on bats, a number of guidelines have been produced in Europe, the UK and Ireland. These guidelines aid in designing bat surveys at potential wind energy sites, assessing risk and developing mitigation and compensation strategies to minimise negative impacts. The various guidelines differ in their level of technical detail and reference to published research findings. It is important that every assessment considers the scale of any likely impacts and takes a proportionate approach, with reference to all published advice and guidelines.

2.3.1 EUROBATS

At a European level, the Advisory Committee to the EUROBATS Agreement, to which Ireland is a signatory, have produced *Guidelines for Consideration of Bats in Wind Farm Projects* which outlines an approach for assessing the potential impacts of wind turbines on bats during planning, construction and operation phases (Rodrigues, 2015). However, these guidelines are based on continental scenarios and include more diverse species and behaviours than those typical of Ireland. As such, EUROBATS guidance may recommend a level of survey that may prove inappropriate in Irish scenarios. Nevertheless, the guidance is evidence-based and provides a useful European context, within which Member States are encouraged to produce specific national guidance, focusing on local circumstances.

2.3.2 Bat Conservation Trust (BCT)

The second edition of the BCT's *Bat Survey Good Practice Guidelines* (Hundt, 2012) includes a chapter on survey methodologies for assessing the potential impacts of wind turbines on bats. The document provides technical guidance for consultants carrying out impact assessments. However, the recommendations are not based on any research findings specific to the UK.

A third edition to the guidelines, published in early 2016, removed the chapter on surveying wind turbine developments. New wind farm guidance is being drafted in

partnership with relevant organisations and with regard to recent research findings in the UK. This new guidance is due for publication later in 2016. Until this new guidance is published, the chapter in the 2nd edition is still applicable.

2.3.3 Bat Conservation Ireland (BCI)

BCI produced *Wind Turbine/Wind Farm Development Bat Survey Guidelines* (BCI, 2012a). This document provides advice to practitioners and decision makers in Ireland on necessary qualifications for surveyors, health and safety considerations, pre-construction and post-construction survey methodologies and information to be included in a report. In the absence of Irish research, these guidelines provide generalised methodology rather than detailed technical advice.

2.3.4 Other Useful Publications

Prior to the publication of the BCT guidelines, *Natural England's Bat and Onshore Wind Turbines: Interim Guidance* provided a pragmatic interpretation of the EUROBATS recommendations, as applied to onshore wind energy facilities in the UK (Natural England, 2014). In addition, the Chartered Institute of Ecology and Environmental Management (CIEEM) publishes advice on best practice as well as updates on the current state of knowledge in the *Technical Guidance Series* and in the quarterly publication *In Practice*.

In addition to specific wind farm guidance documents, other sources on bat survey, assessment and mitigation were consulted. Conservatively, these included

- Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn) (Collins, 2016)
- The Bat Worker's Manual, 3rd Edition (Mitchell-Jones and McLeish, 2004).
- Ecological and Behavioral Methods for the Study of Bats, 2nd Edition (Kunz and Parsons, 2009).
- Irish Bats in the 21st Century (Roche et al., 2014)
- British Bat Calls: A guide to species identification (Russ, 2012)
- Handbook of Biodiversity Methods: Survey, Evaluation and Monitoring (Hill, 2005)
- The Lesser Horseshoe Bat: Conservation Handbook (Schofield, 2008).
- Bats and Appropriate Assessment Guidelines, Version 1 (BCI, 2012b)
- Bat Mitigation Guidelines (Mitchell-Jones, 2004).
- Bat Mitigation Guidelines for Ireland. (Kelleher and Marnell, 2006)
- Bat Conservation: Global evidence for the effects of interventions (Berthinussen et al., 2014)
- Best practice guidelines for the conservation of bats in the planning of national road schemes (NRA, 2006a)
- Guidelines for the treatment of bats during the construction of national road schemes (NRA, 2006b)
- Bat Survey – Specific Requirements for Wind Farm Proposals (Northern Ireland Environment Agency, 2011)

2.4 Irish Species at Risk

Ireland has nine resident bat species, comprising more than half of Ireland's native terrestrial mammals (Montgomery et al., 2014). This is considerably less than the 53 bat species found in mainland Europe (Rodrigues, 2015) and 17 in Great Britain (Hundt, 2012). At present, there are no available data on bat activity or fatality at Irish wind farms.

Species at high risk of collision share several morphological and ecological similarities. Species at high risk tend to be open-air foragers with long narrow wings and use high-intensity, narrow-band echolocation calls (Schuster, 2015). This pattern is consistent in North America, Europe and Australia.

Guidance provided by Natural England (2014) utilised this information to provide a collision risk assessment for British bat species. Table 2.2 summarises the results of this risk assessment with respect to species that occur in Ireland. Four species are identified as high or medium risk. They are Common pipistrelle (*Pipistrellus pipistrellus*), Soprano pipistrelle (*Pipistrellus pygmaeus*), Nathusius pipistrelle (*Pipistrellus nathusii*) and Leisler's bat (*Nyctalus leisleri*). These four species have also displayed significant mortality at wind energy facilities in mainland Europe (EUROBATS, 2016).

Table 2.2: Collision Risk Level for Irish Bat Species (Natural England, 2014)

Low Risk	Medium Risk	High Risk
Myotis species	Common pipistrelle	Leisler's bat
Brown long-eared bats	Soprano pipistrelle	Nathusius pipistrelle
Lesser horseshoe bats		

3 SURVEY METHODS

3.1 Consultation

A consultation exercise was undertaken as part of the EIS for the proposed development. A Scoping Document, comprising a description of the site, proposed development and the EIS scope, was circulated to consultees in September 2015. In addition, a description of the final proposed turbine layout was circulated in April 2016. As part of this exercise, prominent Irish conservation groups were contacted and Bat Conservation Ireland (BCI) was specifically invited to comment on the potential of the proposed development to impact on bats. No response had been received from BCI at the time of preparing this report. See Section 5.1 of this report for further details on scoping responses in relation to bats.

3.2 Desktop Study

A desktop review of published and unpublished material was undertaken to inform all subsequent field studies and impact assessment. The aim of the desktop review was to identify the presence of species of interest or designated sites within the Study Area and surrounding region.

3.2.1 Bat Survey Reports

Previous bat survey reports were reviewed as part of the desktop study. Bord na Móna previously commissioned two bat surveys, within the Ballydermot/ Timahoe and Derrygreenagh Bog Groups. The Study Area lies within the Derrygreenagh Bog Group.

A baseline bat survey was carried out by INIS Environmental Consultants in 2013. No formal bat surveys had been undertaken in the area prior to this study and the aim was to establish indicative levels of bat activity for the area. Surveyors employed a combination of walked and driven transects, passive monitoring and roost surveys to examine bat activity across both Bog Groups and determine bat habitat use within 33 individual bogs, including Cloncreen Bog. The relevant extracts from the INIS Environmental report in relation to the Cloncreen site are provided in Annex 1 of this report.

A second year of baseline bat surveys was undertaken at the Cloncreen Bog site in 2015 by Malachy Walsh and Partners. Here, surveyors used a combination of activity surveys, passive surveys, roost inspections and emergence surveys within and adjacent to the site. The goal was to provide insight on local bat populations, including species composition, level of activity and bat habitat use. In addition, this study included activity surveys at height and surveys of all potential roost sites. The Malachy Walsh and Partners report is provided in Annex 2.

3.2.2 National Bat Database of Ireland

The National Bat Database of Ireland holds records of bat observations received and maintained by BCI. These records include results of national monitoring schemes, roost records as well as ad-hoc observations. A data request was submitted to BCI to search the National Bat Database of Ireland for bat presence and roost records within a 10 km radius of the Study Area.

In addition, the following BCI monitoring reports were reviewed:

- All Ireland Daubenton's Bat Waterway Monitoring Scheme 2006-2011. Irish Wildlife Manuals, No. 61 (Aughney et al., 2012)
- Car-based bat monitoring in Ireland 2003-2011. Irish Wildlife Manuals, No. 60. (Roche et al., 2012)
- Brown long-eared bat roost monitoring scheme for the Republic of Ireland: synthesis report 2007-2010. Irish Wildlife Manuals, No.56. (Aughney et al., 2011)
- BATLAS 2020 Pilot Project Report (Abbott et al., 2015)
- Irish Bat Monitoring Schemes. BATLAS Republic of Ireland Report for 2008-2009 (Carden et al., 2010)
- An investigation of the impact of development projects on bat populations: Comparing pre- and post-development bat faunas (Aughney, 2008)
- Lesser Horseshoe bat: population trends and status of its roosting resource. Irish Wildlife Manuals, No 85 (Roche et al., 2015)

3.2.3 Designated Sites

The National Parks and Wildlife Service (NPWS) map viewer and website provides information on rare and protected species, sites designated for nature conservation and their conservation objectives. A search was undertaken of sites, specifically designated for the conservation of bats, within a 15 km radius of the Study Area. This included European designated sites, i.e. SACs, and nationally designated sites, i.e. NHAs and pNHAs.

3.2.4 Habitat and Landscape

Ordnance survey maps (OSI 1:5,000 and 1: 50,000) and aerial imagery (ortho-based maps) were reviewed to identify any habitats and features likely to be used by bats. Maps and images of the Study Area and general landscape were examined for suitable foraging or commuting habitats including woodlands and forestry, hedgerows, treelines and watercourses. In addition, any potential roost sites, such as buildings and bridges, were noted for further investigation.

Furthermore, the Geological Survey Ireland (GSI) online mapping tool and UBSS Cave Database for the Republic of Ireland were consulted for any indication of suitable subterranean bat sites, such as caves.

3.3 Study Site Assessment

The likely impact of a proposed development on bats is related to the size of the development, the extent, the quality of the habitat and the availability of buildings or other features that may support roosting bats. The scale of impacts is likely to increase in relation to the number and quality of such features. The BCT guidelines provide recommendations for assessing site characteristics and determining the minimum level of survey effort required (Hundt, 2012). All BCT assessment criteria are provided in Annex 3 to this Appendix.

In relation to the Cloncreen Wind Farm site, desk study and scoping results were reviewed with BCT advice and the Study Area was conservatively assigned a *Medium* value. Table 3.1 details the assessment of site features with relation to all BCT assessment criteria.

Table 3.1: Assessment of Required Survey Effort (as determined from Hundt, 2012)

Item	Assessment of Site	Assessment of Survey Effort
Quality of habitat, number of features likely to contribute to potential mortality rates	Small number of low potential roost features	Low
	Low quality foraging habitat that could be used by low numbers of foraging bats	Low
	Site is connected to the wider landscape by linear features such as scrub tree lines and streams	Medium
Species likely to use the site	Low number of medium and single high risk species	Medium
Importance of roost to species likely to use site, which may be affected	Local, Parish	Low
Overall assessment of required survey effort		**Medium**

3.4 2016 Field Survey

3.4.1 Survey Design

The aim of surveying bats at wind energy sites is to identify and assess the potential impacts on local, and hence national, bat populations (BCI, 2012a). To do this, surveys must compile the following information (Hundt, 2012):

- Bat species assemblages on site, noting high, medium and low risk groups
- Relative frequency of site use by different species throughout the active season
- Spatial and temporal distribution of activity for different species
- Nature of activity for different species where possible, e.g. foraging, commuting, roosting

BCT guidelines provide recommendations on minimum survey standards. The Study Area was assigned a *Medium* effort value (Table 3.1). For a medium effort value site, roost surveys are recommended within 200 m of the developable area, including an assessment of roosting potential, an inspection of all potential roost sites and activity surveys of roosts of high/medium risk species and roosts of district importance and above. For manual surveys, transect routes should be representative of all habitats and turbine locations. The guidelines recommend a minimum survey effort of one visit per transect per month between April and October. For fixed point surveys, detectors should be deployed in sufficient numbers so as to represent the extent of the site and the range of habitats present. At least 5 consecutive nights recording per detector per month is recommended. A description of minimum survey standards for all risk levels is included in Annex 4 and further detail is available in the BCT guidelines (Collins 2016, Hundt 2012).

3.4.2 Habitat Assessment

Multi-disciplinary ecological surveys were carried out on the 28th and 29th April and 10th June 2016. These surveys comprised a walkover of the Study Area, recording habitat

types. Habitats were assessed for their suitability to support bats according to Collins (2016), which provides a grading protocol for roosting habitats and for commuting and foraging areas. Suitability categories, divided into *High*, *Moderate*, *Low* and *Negligible*, are described fully in Annex 5.

The results of the desktop study, walkover survey and site assessment were used to determine any outstanding bat survey requirements. In accordance with best practice, a combination of manual activity surveys, fixed point activity surveys and roost surveys were scheduled for the 2016 activity season. The resulting data were combined with previous survey efforts, as reported by INIS Environmental Consultants and Malachy Walsh and Partners to provide a full impact assessment using roost surveys as well as spatial and temporal bat activity data, gathered at ground level and at height, over multiple years.

3.4.3 Roost Surveys

Structures and trees within the Study Area were assessed for their suitability for roosting bats (see Annex 5 for criteria in assessing roosting habitats). Any potential roost sites identified, during the walkover survey were subject to a preliminary roost assessment. This comprised a detailed inspection of the exterior and interior (if accessible) to look for evidence of bat use, including live and dead specimens, droppings, feeding remains, urine splashes, fur oil staining and noises. Trees were examined for the presence of rot holes, hazard beams, cracks and splits, partially detached bark, knot holes, gaps between overlapping branches and any other potential tree roost features identified by Andrews (2013). The aim of this study was to determine the presence of bats and the need for further survey work or mitigation.

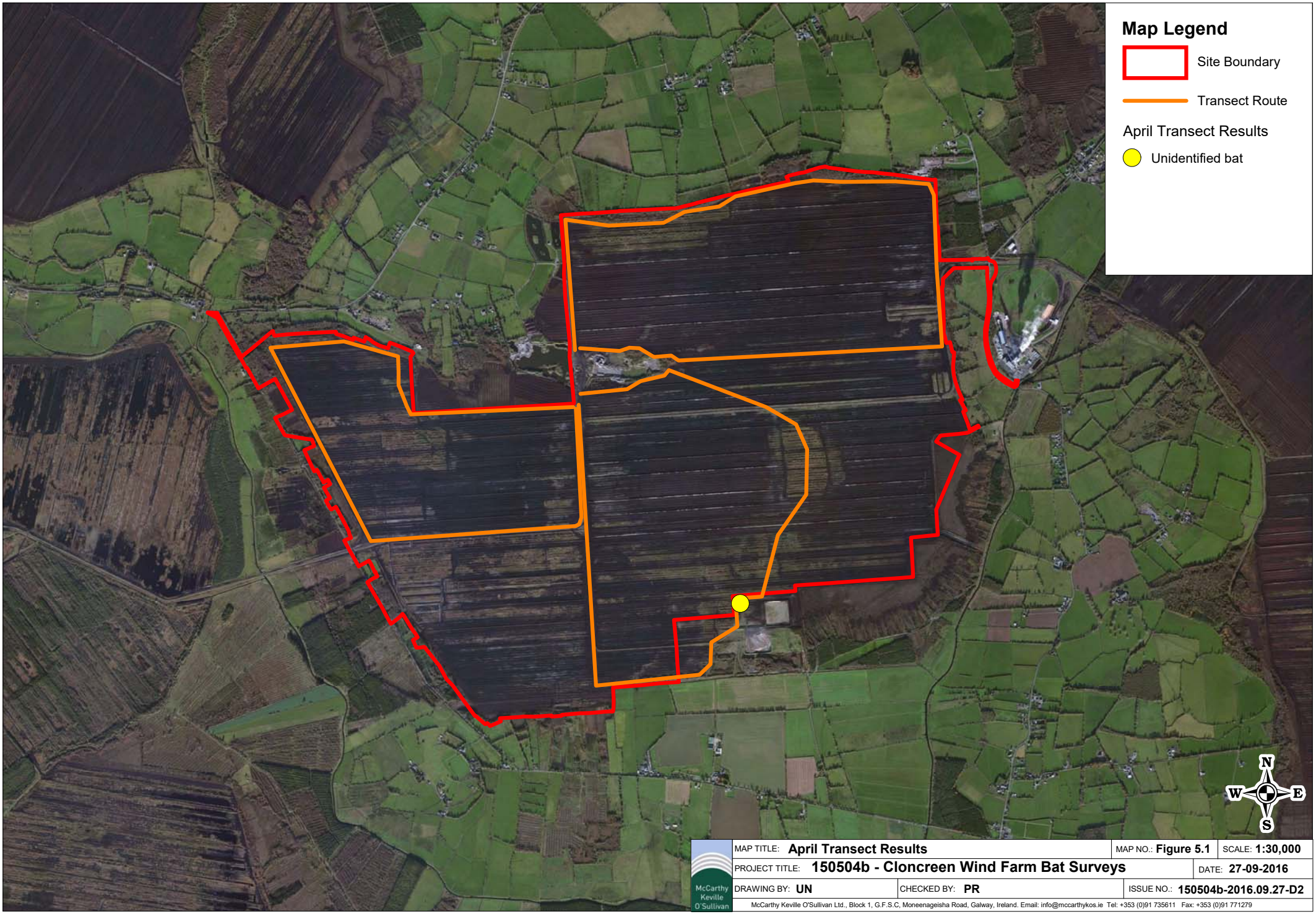
3.4.4 Manual Transects

Manual activity surveys comprised walked transects at dusk and at dawn. The aim of these surveys was to identify bat species using the site and gather any information on bat behaviour and important features used by bats. A series of transect routes, covering the extent of the Study Area and the main habitat features, were prepared with reference to desktop and walkover survey results. Minor deviations to set transect routes occurred depending on site conditions on individual survey nights (Figures 5.1 – 5.5).

During each manual survey, transects were divided between two survey teams and walked separately, recording bats in real time. Surveyors were equipped with an active full spectrum bat detector, the Echo Meter EM3+ (Wildlife Acoustics, Maynard, MA, USA), and a heterodyne bat detector, the D200 Ultrasound Detector (Pettersson Elektronik AB, Uppsala, Sweden). Where possible, species identification was made in the field and any other relevant information was also noted, e.g. numbers, behavior, features used, etc. All bat echolocation was recorded for subsequent analysis to confirm species identifications (see Section 3.4.6).

Dusk surveys commenced 30 minutes before sunset and were completed within 3 hours after sunset. Dawn surveys commenced 1.5-2 hours before sunrise and were completed within 30 minutes after sunrise. The order of transects as well as the start and finish points were alternated between survey nights across the season, to allow for varying emergence times of different bat species.

In total, 5 survey nights, each comprising a dusk and a dawn survey, were completed between April and August 2016. Survey effort is described in full in Section 3.4.7.



MAP TITLE: **April Transect Results**		MAP NO.: **Figure 5.1**	SCALE: **1:30,000**
PROJECT TITLE: **150504b - Cloncreen Wind Farm Bat Surveys**			DATE: **27-09-2016**
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MAP TITLE: **May Transect Results**		MAP NO.: **Figure 5.2**	SCALE: **1:30,000**
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MAP TITLE: **June Transect Results**		MAP NO.: **Figure 5.3**	SCALE: **1:30,000**
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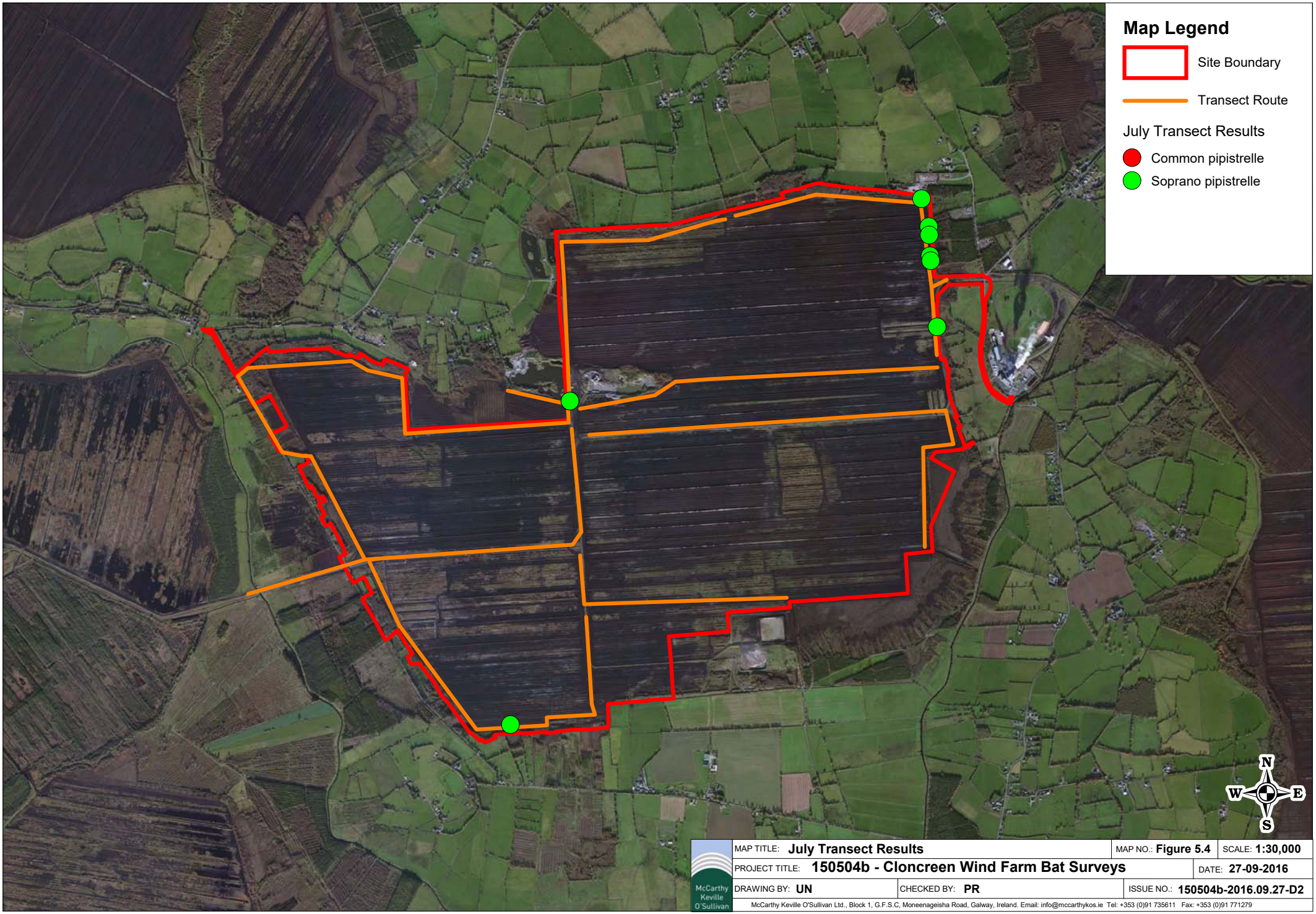

MAP TITLE: **July Transect Results**		MAP NO.: **Figure 5.4**	SCALE: **1:30,000**
PROJECT TITLE: **150504b - Cloncreen Wind Farm Bat Surveys**			DATE: **27-09-2016**
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MAP TITLE: **August Transect Results**		MAP NO.: **Figure 5.5**	SCALE: **1:30,000**
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3.4.5 Fixed Point Surveys

Manual bat activity surveys provide a snapshot of activity across a site. In order to determine temporal variations in bat activity, automated bat detector systems were used to record activity in fixed locations over prolonged periods of time. The aim of fixed point surveys in 2016 were to identify bat fidelity to particular foraging areas and commuting routes and to allow comparison of temporal variation between open and edge habitats within the Study Area.

Automated bat detectors, the Song Meter SM3BAT (Wildlife Acoustics, Maynard, MA, USA) were used in fixed point surveys. Each detector was equipped with one SMM-U1 ultrasonic microphone (Wildlife Acoustics, Maynard, MA, USA. Detectors were deployed on four occasions, covering at least 5 consecutive nights in April, May, June, July and August 2016.

Locations of fixed point detectors were selected to represent favourable bat habitats as well as turbine locations (Figure 3.1). A single detector was deployed in April, in a favourable piece of edge habitat. In May, paired detectors were installed, one within the same favourable piece of edge habitat and one in a typical turbine location habitat, less favourable open cutover bog. The detectors were deployed for the same period of time, allowing direct comparisons. During the July deployment, one detector was set up at another turbine location habitat, in open bog scrub habitat. The locations of fixed point detectors are displayed in Figure 3.1 and are described in Table 3.2.

Table 3.2: Description of fixed point locations

ID	Survey Period	Grid Reference	Habitat Type
FP-1	28th April – 15th May 2016	258540, 224888	Bog woodland edge, adjacent to cutover bog.
FP-2	27th May – 15th June 2016	258540, 224888	Bog woodland edge, adjacent to cutover bog.
FP-3	27th May – 15th June 2016	258546, 226257	Open cutover bog
FP-4	28th July – 7th August 2016	257625, 225812	Cutover bog & scrub, adjacent to railway tracks

Recording schedules were set using the SM3 Configuration Utility (Wildlife Acoustics, Maynard, MA, USA). Settings used were those recommended by the manufacturer for bats, with minor adjustments in gain settings and band pass filters to reduce background noise when recording. All detectors were set to record from sunset to sunrise. The SM3BAT automatically adjusts sunset and sunrise times using the Solar Calculation Method when provided with GPS coordinates.

3.4.6 Bat Call Analysis

All recordings, collected during manual and fixed point surveys, were made in full spectrum, retaining all amplitude and harmonic information from the original signal for subsequent analysis, and were stored in WAV format. Recordings were later analysed using bat call analysis software, Kaleidoscope Converter and Viewer, v.3.1.7 (Wildlife Acoustics, Maynard, MA, USA). The acoustic scrubbing feature was used to filter false triggers, e.g. wind, rain, etc. All files were split to a maximum 15 s duration and were manually reviewed, using established call parameters, to identify individual species. In addition, any information on bat behavior contained within echolocation calls, e.g. social calls, feeding buzzes, were noted.

MAP TITLE: **Fixed Point Survey Locations**		MAP NO.: **Figure 3.1**	SCALE: **1:30,000**
PROJECT TITLE: **150504b - Cloncreen Bat Surveys**			DATE: **27-09-2016**
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A genus or species was identified from the overall shape of the call and measurements of start frequency, end frequency, frequency of maximum energy, call duration and inter-pulse interval (Russ, 2012). Pipistrelle bats, i.e. species within the genus *Pipistrellus,* were separated by peak frequency as described by Russ (2012). Calls with peak frequencies between 50 – 52 kHz were not identified to species level and were labelled 'Pipistrelle sp.'. Identification of bat species within the genus *Myotis* from echolocation alone is imprecise and all records were identified as 'Myotis sp.'.

Individual bats of the same species cannot be distinguished by their echolocation alone. Thus, 'bat passes' was used as a measure of activity (Collins, 2016). For the purposes of this study, a bat pass is defined as a recording of an individual species/species group's echolocation containing at least two echolocation pulses and of maximum 15s duration. All bat passes recorded in the course of this study follow this criteria, allowing comparison.

3.4.7 Survey Effort 2016

Manual transects were undertaken in April, May, June, July and August 2016. Table 3.3 describes survey effort with regard to manual transects, including the total number of hours spent manually surveying. Figures 5.1-5.5 show the transect routes undertaken each month.

Table 3.3: Summary of Manual Transects Survey Effort in 2016

Date	Surveyor	Type	Sunset/Sunrise (hh:mm)	Start-Finish (hh:mm)	No. hours (hh:mm)
28th/29th April 2016	Pat Roberts	Dusk	20:53	20:30-23:30	03:00
		Dawn	05:56	04:30-06:00	01:30
26th/27th May 2016	John Hynes	Dusk	21:39	21:10-00:20	03:10
		Dawn	05:11	03:45-05:15	01:30
	Laoise Kelly	Dusk	21:39	21:10-00:20	03:10
		Dawn	05:11	03:45-05:15	01:30
30th June/1st July 2016	John Hynes	Dusk	21:59	21:28-23:40	02:12
		Dawn	05:06	02:50-05:00	02:10
28th/29th July 2016	John Hynes	Dusk	21:29	21:00-23:45	02:45
		Dawn	05:41	04:05-05:40	01:35
	Laoise Kelly	Dusk	21:29	21:00-23:35	02:35
		Dawn	05:41	04:00-05:40	01:40
23rd/24th August 2016	John Hynes	Dusk	20:37	20:10-23:10	03:00
		Dawn	06:25	05:00-06:35	01:35
	Laoise Kelly	Dusk	20:37	20:10-23:10	03:00
		Dawn	06:25	05:00-06:35	01:35
Total Survey Time (hh:mm)					**35:57**

Fixed point detectors were deployed in April, May, June and July 2016. Table 3.4 outlines survey effort with regard to fixed point surveys, including total number of nights surveyed and total number of hours surveyed (accounting for varying sunset and sunrise times). Figure 3.1 presents the locations of fixed point detectors.

Table 3.4: Summary of Fixed Point Surveys in 2016

Location	Survey Period	Recording	Grid Ref.	No. Night	No. hours (hh:mm)
FP-1	28th April – 15th May 2016	Sunset-Sunrise	258540, 224888	18	152:31
FP-2	27th May – 15th June 2016	Sunset-Sunrise	258540, 224888	20	142:33
FP-3	27th May – 15th June 2016	Sunset-Sunrise	258546, 226257	20	142:33
FP-4	28th July – 7th August 2016	Sunset-Sunrise	257625, 225812	11	92:49
Total Survey Time				**69**	**530:26**

4 SURVEY LIMITATIONS

Survey design and effort was created in accordance with the most current best practice guidelines for surveying bats and wind farms (Hundt, 2012). The survey design was continually assessed to determine its appropriateness to the bat species diversity and level of activity encountered at the proposed site. Surveys repeatedly recorded low species diversity and low levels of activity. Therefore, the initial proposed survey design was maintained. The surveys carried out in 2016, when combined with previous bat survey results from 2013 and 2015, are considered more than sufficient to meet guideline standards.

The bat activity season lasts from April to September/October each year (Hundt, 2012). INIS Environmental Consultants carried out 3 bat surveys at Cloncreen Bog between June and September 2013. In addition, Malachy Walsh and Partners carried out 3 manual transect surveys in June, August and September 2015 as well as fixed point monitoring at 3 locations in July and September 2015. In 2016, MKO ecologists carried out transect surveys and fixed point monitoring monthly between April and August 2016. Data from 2013, 2015 and 2016 cover all aspects of the main bat activity period and therefore, no seasonal limitations have been identified.

No survey of hibernating bats was undertaken in 2016. However, no sites with hibernation potential were identified during the desktop and walkover surveys. In addition, previous survey work carried out by Malachy Walsh and Partners included winter roost surveys in November and December 2015. Surveyors found no evidence of hibernating bats.

No passive surveying at height was undertaken in 2016. However, in 2015, Malachy Walsh and Partners recorded bat activity at the top of the Cloncreen Met Mast for 55 nights and recorded just a single bat pass.

In general, manual transects were undertaken in optimal survey conditions i.e. no heavy rain or strong winds with dusk temperatures above 7 ˚C (BCI, 2012a). The April survey was an exception, with temperature at dusk recorded as 5 ˚C. However, a review of weather data held by Met Éireann for the nearest synoptic station at Mullingar, revealed temperatures throughout April 2015 were cool (average daily temperatures: 6.5 ˚C) compared to temperatures recorded in May – August (average daily temperatures: 11.7 – 14.9 ˚C) (www.met.ie). Therefore, the April survey is considered representative of site conditions that month.

Detection distances vary between species and method employed. For example, Leisler's bat has a much larger detection distance of 80 m compared to 25 m for Pipistrelle species (Barataud and Tupinier, 2012). This may lead to an overestimation of Leisler's activity when compared to pipistrelles. In addition, automatic detectors have a larger detection distance than manual detectors.

The analysis of bat data is subject to experience. All survey data collected in 2016 were analysed by one MKO ecologist, Úna Nealon (BSc, PhD), with extensive experience in bat call analyses. Species were identified according to Russ (2012). Where reliable identifications were not possible, bat calls were identified to genus level and not to species level. Criteria for species identification are described fully in Section 3.4.6.

5 SURVEY RESULTS

5.1 Consultation

A scoping and consultation exercise was undertaken as part of EIA. These results are described fully in the main EIS. However, the following recommendations were made, specifically in relation to bats, by the Department of Arts, Heritage and the Gaeltacht:

- Bat roosts may be present in trees, buildings and bridges. Bat roosts can only be destroyed under licence under the Wildlife Acts and a derogation under the Habitats Regulations, and such a licence would only be given if suitable mitigation measures were implemented. Where so-called bat friendly lighting is proposed as mitigation, it should be proven to work as mitigation.
- A bat survey will be required.
- EIS should identify any pre and post-construction monitoring which should be carried out. The applicant should not use any proposed post-construction monitoring as mitigation to supplement inadequate information in the assessment. Post-construction monitoring should include bird and bat strikes/fatalities including the impact on any such results of the removal of carcasses by scavengers. Monitoring results should be made available to the competent Authority and copied to this Department. A plan of action needs to be agreed at planning stage with the Planning Authority if the results in future show a significant mortality of birds and/or bat species.

BCI were invited to comment on the proposed development and potential impacts on bats. However, no response was received.

5.2 Desktop Study

5.2.1 Bat Survey Reports

INIS Environmental Consultants' Report

A baseline bat survey was carried out by INIS Environmental Consultants in 2013. No formal bat surveys had been undertaken in the area prior to this study and the aim was to establish indicative levels of bat activity within the Ballydermot/ Timahoe and Derrygreenagh Bog Groups and determine bat habitat use within 33 individual bogs, including Cloncreen Bog.

Three bat surveys were carried out at Cloncreen Bog between June and September 2013. These each comprised 5 transects, covering 6 km. These were designed to survey all available habitats, including open peat, scrub vegetation and well developed hedgerows.

Surveyors employed a combination of methods including:

- Walked transects using handheld heterodyne bat detectors (Batbox Duet)
- Fixed point recording using static bat detectors (Anabat SD1)
- Roost surveys within Bord na Móna land parcels and adjoining habitats

In total, 8 bat contacts were recorded. These included Common pipistrelle (n=5), Whiskered bat (n=2) and Leisler's bat (n=1). These results accounted for 1.3% of all bat records recorded across both Bog Groups. All bats were recorded along hedgerows at the north-western side of the site. One Common pipistrelle was found commuting and all other bat were recorded as foraging.

No bat roosts were identified within the site. However, one significant roost of Soprano pipistrelles was identified in a private dwelling near Clonsast bog, 2.5 km from Cloncreen Bog. The relevant extracts from the INIS Environmental report are provided as Annex 1 to this report.

Malachy Walsh and Partners' Report
Bat surveys were conducted by Malachy Walsh and Partners' between March and November 2015. Three forms of survey were implemented, including:

- Walked and driven transects (using an AnaBat detector).
- Automated bat surveys - at ground level and at height (using an SMZC detector)
- Roost surveys (daytime visual search and bat activity surveys within the Study Area)

On 3 nights in June, August and September 2015, 8 transects were completed at dusk, with a combined length of 11.40 km. Transects were designed to sample all available habitats within the Study Area. Species recorded included Soprano pipistrelle (n=27), Common pipistrelle (n=20), Leisler's bat (n=7) and Natterer's bat (n=1). In general, bat activity was considered low, confined to foraging and commuting along the vegetated fringes of the site.

Fifteen nights of automated bat surveys were undertaken at ground level. This included 5 consecutive nights at one location in July 2015 and at a further 2 locations in September 2015. Overall, Common pipistrelles were most frequently encountered, followed by Soprano pipistrelle, Leisler's bat and Natterer's bat. In general, bat activity was greatest early on survey nights (from approximately one hour after sunset), with little activity during the middle of the night and becoming active again before dawn. The level of bat activity was regarded as low, despite favourable conditions.

Fifty-five nights of automated bat surveys were carried out at height, from the top of the Cloncreen Met Mast. During this time period, just one bat contact was recorded, a single Leisler's bat. This level of activity was assessed as extremely low, particularly with regard to survey effort and favourable conditions.

Structures and trees within the Cloncreen Bog site and adjacent lands were assessed for roost potential across 12 dates between June and December 2015. In summary, no bat roosts were identified within the Cloncreen Bog site. Trees within the site were considered unsuitable to support roosting bats.

Outside the site boundary, two bat roosts in buildings and one in a bridge were identified. The BnM Workshop/Factory (Grid Ref: 253823, 226027) is located approx. 2.8 km from the site, where 9 bats were recorded during emergence surveys. In addition, a total of 8 bats were recorded during emergence surveys at a disused building, approx. 5.3 km away next to Rhode Bridge (Grid Ref: 253463, 231604). These bat roosts in buildings showed some potential as maternity or hibernation sites. Finally, the bat roost in Masonry Bridge (Grid Ref: 252588, 231184) lies approx. 5.5 km from Cloncreen Bog. Surveyors found a single bat and considered the bridge a temporary roost.

Overall, the vegetated linear banks that cut through the bog site showed the greatest use by foraging and commuting bats, albeit in low numbers. Bat activity decreased in the open cutover bogland habitat at the site. The Malachy Walsh and Partners report is presented in Annex 2.

5.2.2 National Bat Database of Ireland

A request was submitted to Bat Conservation Ireland to search the National Bat Database of Ireland for records of bat activity and roosts within a 10 km radius of the Study Area. A number of records have been recorded within 10 km of the proposed works. These included roosts (n=5), transects (n=5) and ad-hoc observations (n=11). The results of the database search are provided in Table 5.1.

Table 5.1: BCI data within 10km radius of Study Area

Survey Type	Location	Species	Survey	Designation
Roost	Carbury, Clonsat; Co. Kildare	**Roost type**: Unknown **Species** Brown Long-eared Bat (Droppings)	A survey for bat roosts in Church of Ireland Churches	Annex IV
	Disused Church Rahan, Edenderry Co Kildare	**Roost type**: Unknown **Species** Unidentified Bat (Droppings)	EIA survey – (Scott Cawley)	Annex IV
	Jonestown House, Edenderry, Co Offaly	**Roost type**: Unknown **Species** Unidentified Bat	Buildings At Risk Grant, The Heritage Council	Annex IV
	Morrissey Residence. Rhode, Co. Offaly	**Roost type**: Unknown **Species** Soprano Pipistrelle species	Bats in Houses Project	Annex IV
	Richard and Sarah Tyrell, Coolcor Carbury, Co. Kildare	**Roost type**: Unknown **Species** Brown Long-eared Bat (Droppings)	EIS Survey	Annex IV
Transect	5 No. Transects consisting of multiple individual surveys	Daubenton's Bat, Leisler's Bat, Soprano Pipistrelle, Common Pipistrelle, Unidentified bat	BCI Car Based Bat Monitoring Scheme, All Ireland Daubenton's Bat Waterway Survey	Annex IV
Other Observation	11 No. observation from multiple surveys	Daubenton's Bat, Leisler's Bat, Soprano Pipistrelle, Common Pipistrelle, Unidentified Pipistrelle, Natterer's Bat, Brown Long-eared Bat	BATLAS 2010	Annex IV

5.2.3 Designated Sites

Within Ireland, the Lesser horseshoe bat is the only bat species requiring the designation of Special Areas of Conservation (SACs) and the Study Area is situated more than 15 km outside the known range of this species. Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) may be designated for any bat species. A search of NHAs and pNHAs within a 15 km radius of the Study Area found no sites designated for the conservation of bats.

5.2.4 Habitat and Landscape

A review of mapping, photography and previous survey reports provided insight into the habitats and landscape features present at the proposed development site. In summary, the Study Area is dominated by cutover raised bog, with patches of scrub and is bordered by treelines and hedgerows. There are no rivers, streams or large watercourses within the Study Area. A bat habitat assessment is described in Section 5.3.1 and a full assessment of flora and habitats is included in the main EIS.

A search of the USBSS Cave Database for the Republic of Ireland found one cave in Co. Offaly. Mount Briscoe Cave is located approximately 10 km from the Study Area. Attributes of this cave include recreation, geology, archaeology, palaeo-environment and folklore. However, it has no known ecological significance. This includes no known use by bats. A review of the GSI online mapper did not indicate any suitable subterranean sites within the Study Area.

5.3 Field Survey 2016

5.3.1 Habitat Assessment

The Study Area is dominated by cutover raised bog and is typical of a milled peat bog. It is bordered by linear hedgerows and treelines and scrub vegetation occurs in small patches throughout. There are no rivers or large watercourses within the Study Area. However, there is a small stream along the northern boundary and standing water is present in drains and low-lying areas of cutaway and peat production bog. Drains flow into silt ponds surrounding the site. In addition, there is a rail network to facilitate the movement of milled peat, a former gravel pit, a telecommunications mast and meteorological mast, and a small building used as a 'Tea Centre'. Habitats are fully described in Chatper 5: Flora and Fauna, of the EIS.

Results from the desktop review and walkover surveys were used to assess habitats for their suitability to support foraging and commuting bats, and roosting bats, according to Collins (2016). Suitability categories, divided into *High*, *Moderate, Low* and *Negligible*, are described fully in Annex 5.

With regard to foraging and commuting bats, areas of scrub as well as vegetated drains and borders of the bog, were classified as *Low* suitability, i.e. habitat that could be used by small numbers of commuting or foraging bats. Cutover raised bog habitats which dominate the Study Area were considered *Negligible* suitability, i.e. negligible habitat features on site likely to be used by commuting or foraging bats.

With regard to roosting bats, habitats within the Study Area showed little potential to support roosting bats. The 'Tea Centre' building and several areas of woodland were subjected to preliminary roost assessments, described in the following Section 5.3.2.

5.3.2 Roost Surveys

One building within the site, the 'Tea Centre' (Grid Ref: 258224, 226887), was subject to a preliminary roost assessment (Collins, 2016). The exterior was inspected from ground level, with the aid of binoculars. The search included the ground, accessible windowsills, window panes, walls, eaves, slates, gutters, soffits, fascias, downspouts, lead flashing and the ridge beam. During inspections, surveyors searched for potential access points, roosting locations and any evidence of bats, including live and dead specimens, droppings, feeding remains, urine splashes, fur oil staining and noises. The 'Tea Centre' showed no evidence of bats and no potential access points. A previous bat emergence survey, carried out by Malachy Walsh and Partners in 2015, found no bats

entering or exiting the building. Therefore, this structure was assigned a *Negligible* suitability value for roosting potential (Annex 5).

The proposed development requires the removal of a number of semi mature ornamental trees including ornamental Maple (*Acer* sp.), Ash (*Fraxinus excelsior*), Elm (*Elmus* sp.) and Birch (*Betula* sp.) along the proposed transport route at Ballinagar (Grid Ref: 244160, 224130). In addition, tree removal is required along the local road L1003 at the proposed western entrance of the site, including semi-mature Ash (*Fraxinus excelsior*) and Birch (*Betula pubescens*). Trees were examined for evidence of bats and for the presence of suitable roosting features, including rot holes, hazard beams, cracks and splits, partially detached bark, knot holes, gaps between overlapping branches and any other potential tree roost features identified by Andrews (2013). All trees examined lacked suitable features likely to be used by bats and were assigned a *Negligible* value in relation to their suitability to support roosting bats (Annex 5).

5.3.3 Manual Transects

In total, 5 dusk and 5 dawn surveys, covering 35.95 hours were completed between April and August 2016. Table 5.2 presents weather conditions recorded during manual transects. In general, conditions were favourable for bat survey (see Section 4 for further details).

Table 5.2: Bat Survey Weather Data

Date	Type	Time	Temp.	Rain	Wind	Cloud
28th April 2016	Dusk	20:30	5˚C	Dry	Moderate breeze	Clear (0%)
29th April 2016	Dawn	04:30	2 ˚C	Dry	Moderate breeze	Clear (0%)
26th May 2016	Dusk	21:10	11 ˚C	Dry	Light breeze	Overcast (100%)
27th May 2016	Dawn	03:45	10 ˚C	Dry	Light breeze	Clearing (50%)
30th June 2016	Dusk	21:28	13 ˚C	Dry*	Moderate breeze	Overcast (85%)
01st July 2016	Dawn	02:50	9 ˚C	Dry	Light breeze	Clear (2%)
28th July 2016	Dusk	21:00	17 ˚C	Misty	Strong breeze	Overcast (100%)
29th July 2016	Dawn	04:05	14.5 ˚C	Drizzle	Light breeze	Overcast (100%)
23rd August 2016	Dusk	20:10	16.5 ˚C	Dry	Calm	Cloudy (85%)
24th August 2016	Dawn	05:00	11 ˚C	Misty	Calm	Overcast (100%)

*Survey abandoned at 23:40 when heavy rain started

In total, 72 bat passes were recorded during manual transect surveys in 2016. Common pipistrelle was encountered most frequently, followed by Soprano pipistrelle. Unidentified Pipistrelle species, Leisler's bat, Brown Long-eared bat and unidentified bat species were recorded less frequently. Table 5.3 presents manual transect results for individual bat species per survey night. Detailed manual transect results are available in Annex 6.

Table 5.3: Manual transect results per survey night, shown as total bat passes

ID	28/29 April 2016	26/27 May 2016	30 June/ 1 July 2016	28/29 July 2016	23/24 August 2016	Total
Common pipistrelle	0	31	6	1	6	44
Soprano pipistrelle	0	0	2	9	4	15
Pipistrelle sp.	0	3	0	0	1	4
Leisler's bat	0	5	0	0	1	6
Brown Long-eared	0	1	0	0	0	1
Unidentified bat	1	0	0	0	1	2
Total	**1**	**40**	**0**	**10**	**13**	**72**

Figures 5.1 – 5.5 present the spatial distribution of bat activity across all surveys. On all survey nights, bat activity was largely confined to foraging and commuting behaviour along the vegetated fringes bordering the bog, with only occasional bat passes recorded on transects bisecting the open bog. Bat activity on bog transects included Common pipistrelle and Leisler's bat during the May survey and Common pipistrelle, Soprano pipistrelle and Leisler's bat during the August survey. There is no apparent reason for differences in habitat use between survey nights but is most likely due to subtle differences in weather conditions.

In addition, survey results were calculated as total bat passes per hour (bpph) to account for any bias in survey effort between survey nights (Table 3.3). Table 5.4 presents these results for individual species per survey night.

Common pipistrelle was encountered most frequently, followed by Soprano pipistrelle. All other bat species were recorded less frequently (Figure 5.6). However, species composition and level of activity was not uniform over all survey nights and very high levels of Common pipistrelle activity can be attributed to the manual survey conducted in May (Figure 5.7).

Table 5.4: Manual transect results per survey night, calculated as bat passes per survey hour (bpph)

ID	28/29 April 2016	26/27 May 2016	30 June/ 1 July 2016	28/29 July 2016	23/24 August 2016
No. hour (h)	4.5	9.33	4.37	8.58	9.17
Common pipistrelle	0	3.32	1.37	0.12	0.65
Soprano pipistrelle	0	0	0.46	1.05	0.44
Pipistrelle sp.	0	0.32	0	0	0.11
Leisler's bat	0	0.54	0	0	0.11
Brown long-eared	0	0.11	0	0	0
Unidentified bat	0.22	0	0	0	0.11
Total	0.22	4.29	1.83	1.17	1.42

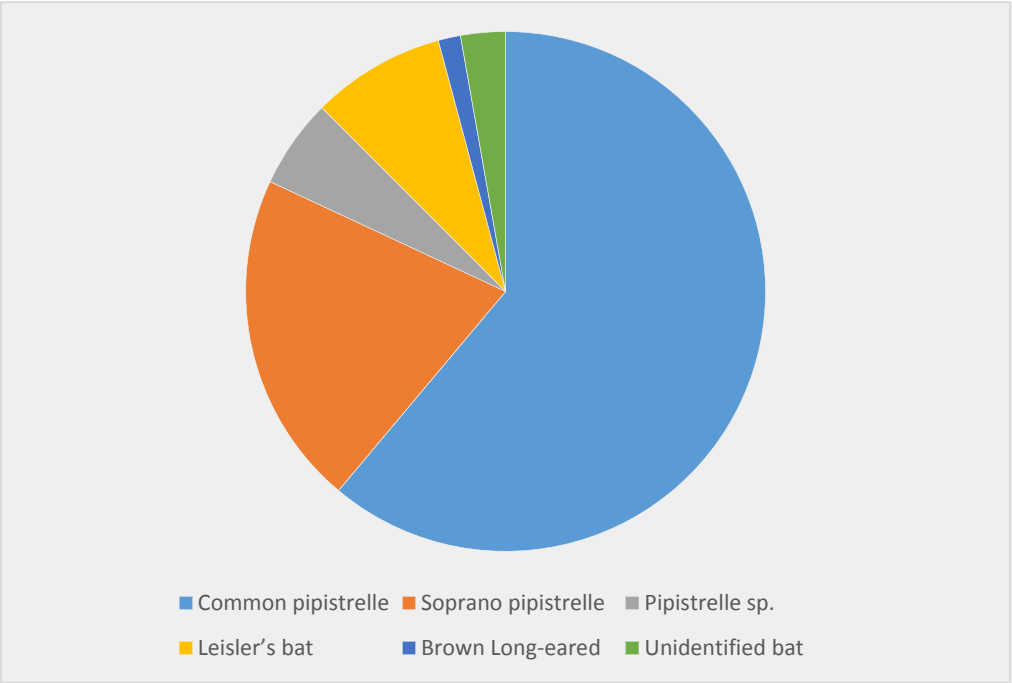

Figure 5.6: Manual transect results: Species composition (total bat passes)

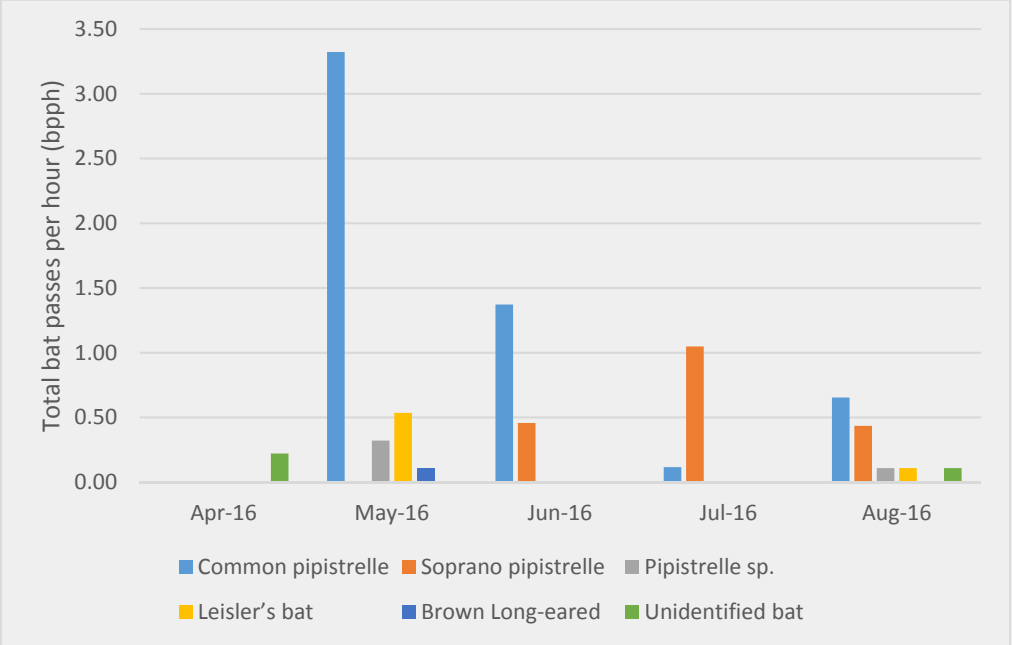

Figure 5.7: Manual transect results: Species composition per survey night (bpph)

5.3.4 Fixed Point Surveys

In total, 6,263 bat passes were recorded during 69 nights of fixed point monitoring in 2016. Most of this activity was attributed to Common pipistrelle, followed by Soprano pipistrelle. Unidentified pipistrelles and Leisler's bat were recorded less frequently and Myotis sp. and Brown Long-eared bat recorded only rarely (Table 5.5 and Figure 5.8). All individual bat records arising from fixed point monitoring are appended to this report as Annex 7.

Table 5.5: Fixed point survey results per location, shown as total bat passes

ID	FP-1	FP-2	FP-3	FP-4	Total
Common pipistrelle	1907	2095	0	20	4022
Soprano pipistrelle	1045	55	0	6	1106
Pipistrelle sp.	327	330	0	5	662
Leisler's bat	242	205	0	1	448
Myotis sp.	12	12	0	0	24
Brown Long-eared bat	0	1	0	0	1
Total	**3533**	**2698**	**0**	**32**	**6263**

Bat activity was calculated as total bat passes per hour (bpph) to account for survey effort bias, resulting from varying night lengths throughout the survey season (Table 3.4). Table 5.6 presents these results for each fixed point location. Bat activity was greatest at the edge habitat surveyed during deployments in April (FP-1) and May (FP-2) and was extremely low in the open cutover bog habitats installed in May (FP-3) and July (FP-4) (Figure 5.9). Two deployments at the same location (FP-1) and (FP-2) show a high fidelity to edge habitats for foraging and commuting. In addition, paired deployments at edge (FP-2) and bog habitats (FP-3) over the same time period show a preference for edge habitat with no bats recorded in the open bog, where wind turbines will be situated.

Table 5.6: Fixed point survey results per location, calculated as total bat passes per survey hour

ID	FP-1	FP-2	FP-3	FP-4
No. hours	152.52	142.55	142.55	92.82
Common pipistrelle	12.5	14.7	0	0.22
Soprano pipistrelle	6.85	0.39	0	0.06
Pipistrelle sp.	2.14	2.31	0	0.05
Leisler's bat	1.59	1.44	0	0.01
Myotis sp.	0.08	0.08	0	0
Brown Long-eared bat	0	0.01	0	0
Total	**23.16**	**18.93**	**0**	**0.34**

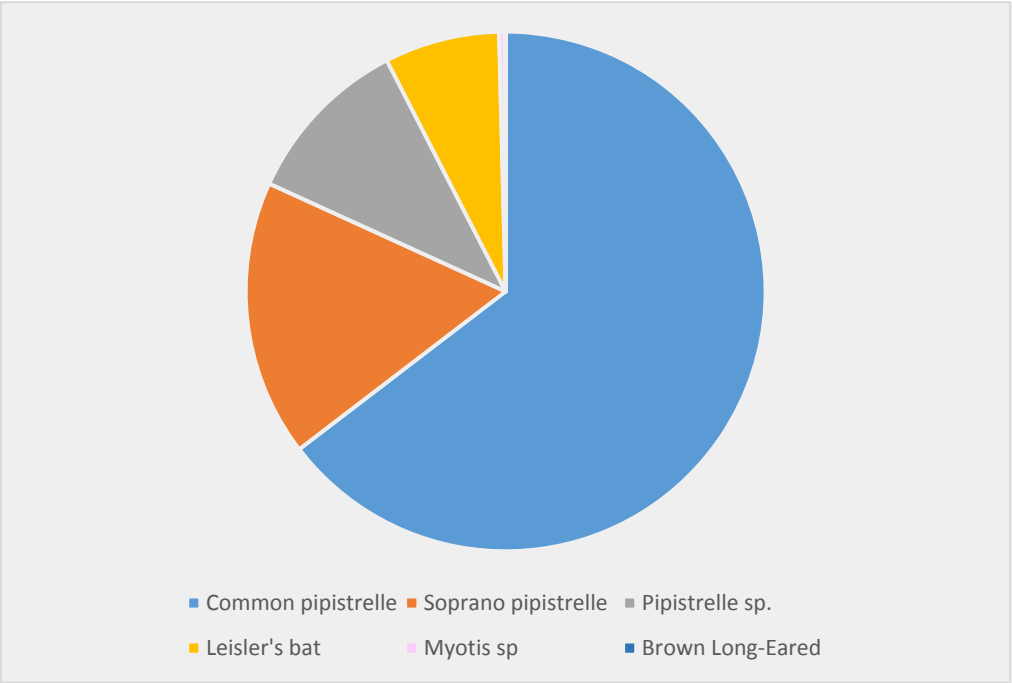

Figure 5.8: Fixed point survey results: Species composition (total bat passes)

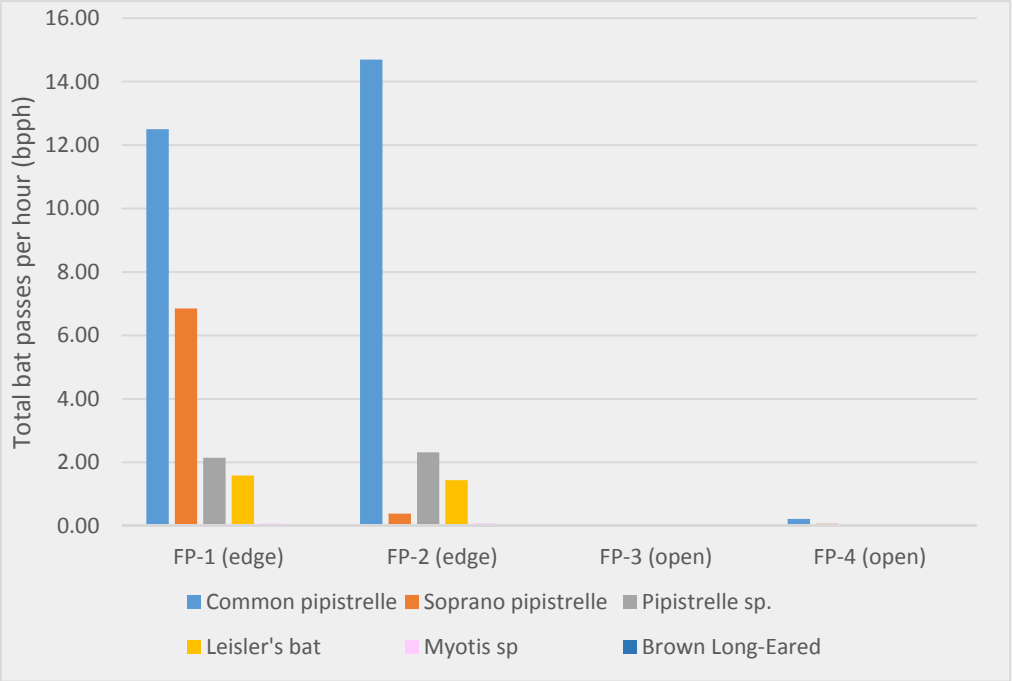

Figure 5.9: Fixed point survey results: Species composition per location (bpph)

6 EVALUATION AND IMPACT ASSESSMENT

6.1 Summary of Results

In 2013, INIS Environmental Consultants carried out 3 bat surveys comprising manual transects. In addition, surveyors screened for any potential roost sites within and adjacent to Cloncreen Bog. In 2015, Malachy Walsh and Partners completed 3 nights of manual transects and 15 nights of fixed point monitoring at 3 locations. In addition, 55 nights of fixed point monitoring at height was undertaken. Furthermore, surveyors carried out roost inspections and emergence surveys at all potential roost sites within and adjacent to the Study Area. In 2016, MKO ecologists carried out a habitat assessment and preliminary roost inspections within the Study Area. In addition, 5 nights of manual transects and 69 nights of fixed point monitoring at 3 locations was also carried out.

Linear woodland habitats and patches of scrub were classified as *Low* suitability for foraging and commuting bats., while cutover raised bog habitats were assessed as *Negligible* suitability (Annex 5). In general, all manual transects in 2013, 2015 and 2016, found bat activity was low and largely confined to the vegetated fringes of the bog. Fixed point monitoring confirmed a high fidelity to these areas with extremely low levels of activity recorded in open areas, where wind turbines will be sited. In addition, surveys at height recorded just a single Leisler's bat contact, despite substantial survey effort and favourable conditions.

Overall, Common pipistrelle, and to a lesser extent Soprano pipistrelle and Pipistrelle sp., were recorded most frequently during manual transects and fixed point monitoring at Cloncreen Bog. These species are frequently recorded as fatalities in mainland Europe (EUROBATS 2016) and estimated collision risk is medium (Table 2.2). These species are the most common and widespread in Ireland (Roche et al. 2014) and Irish populations are considered robust. Therefore, it would take large numbers of fatalities to seriously threaten the Irish population. In addition, as previously stated, these species were recorded in low numbers in the open sections of the site where the turbines are proposed.

Leisler's bat, was less frequently recorded at Cloncreen Bog. This species has shown large numbers of fatalities in mainland Europe (EUROBATS 2016) and is considered a high risk species (Table 2.2). Leisler's bat is widespread and common in Ireland (Roche 2014). However, the Irish population is considered of international importance due its limited distribution elsewhere (Marnell 2009). Again, this species was recorded in extremely low numbers in areas where wind turbines will be sites.

Brown long-eared bat and *Myotis* species were only occasionally recorded and are considered at low risk of collision (Table 2.2).

No roosts within the Study Area were identified by ecologists from INIS Environmental Consultants, Malachy Walsh and Partners or from McCarthy Keville O'Sullivan. In addition, habitats on site were assessed as having *Negligible* roosting potential (Annex 5).

Outside the Study Area, consultation with BCI identified 5 roost sites within a 10 km radius. In addition, four roost sites were identified by INIS Envorponmental Consultants and Malachy Walsh and Partners, within 6 km of the Study Area. The closest was found

2.5 km away. Three roosts of pipistrelle bats were found in buildings and one temporary roost for Daubenton's bat was found in a bridge.

6.2 Assessment of Collision Risk

The main impact associated with the operation phase of the proposed wind farm is injury or death to bats through direct collision or from the effects of barotrauma. At Cloncreen Bog, species at high, medium and low risk of collision were recorded. However, following a full and comprehensive survey over a number of seasons, activity levels were shown to be very low and were largely concentrated away from proposed turbine locations. Surveying at height found just a single bat pass across 55 nights of surveying.

Therefore, it is concluded that bats will only occasionally cross the open bog habitats where turbines will be sited. When they do, they tend not to fly at heights that place them at risk of collision. Therefore, the risk of bat collision is unlikely and a negative impact will not be significant.

6.3 Loss of Habitat

No roost sites were identified within the Study Area. In addition, structures and trees examined within the Study Area showed negligible roosting potential. Four roost sites were identified in structures outside the Study Area. These roost sites are not scheduled to be demolished or developed during construction of the proposed development. Therefore, given the position of these roosts, more than 2.5 km from the developable area, no significant effects on roosting bats are anticipated.

Other habitats identified within the Study Area have limited value for bats. The loss of cutaway bog will have negligible impacts on local bat populations while the loss of scrub and treeline habitats will only marginally reduce foraging and commuting opportunities. Given the abundance of more favourable habitats in the wider area and the small extent of their loss within the Study Area, their loss is not considered significant.

6.4 Disturbance

Bats may be disturbed by noise, vibrations or lighting, particularly during construction activities during the summer months. This may lead to temporary avoidance of the area during turbine erection and construction of access roads. However, it is expected that this effect would be short-term and would not extend beyond the construction phase. In addition, given that no roosts have been identified within the Study Area and the closest identified roost is 2.5 km away from the developable area, any impacts are not considered significant.

7 RECOMMENDATIONS

As previously outlined, the proposed wind farm at Cloncreen Bog is not assessed to lead to any ecologically significant impacts on bats. On a precautionary basis, only standard mitigation recommendations for potential operational effects on bats are therefore recommended.

7.1 Derogation Licence

It is illegal to damage or destroy a bat roost in Ireland. However, no roosts in trees, buildings or other structures were identified within the developable area. Therefore, there is no requirement for a derogation licence. However, should a bat roost be discovered once work has commenced e.g. during tree felling, work will cease immediately and advice sought from the NPWS.

7.2 Habitat Management

Habitats within the Study Area have limited value for bats at present. However, wind farm construction creates linear features and spaces around each turbine, which may provide favourable conditions for flying insects and foraging bats. It is recommended to avoid any planting around wind turbines or along access tracks leading to turbines, that may create suitable shelter for foraging bats or "funnel" commuting bats towards wind turbines. Any habitat management or enhancement programmes should, at a minimum, observe buffer distances recommended by Natural England (2014):

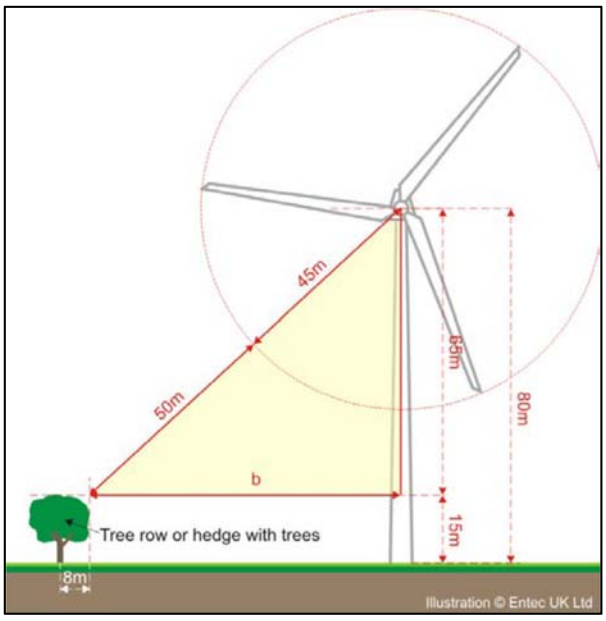

Figure 8.1: Calculation of buffer distances (from Natural England, 2014)

> *"To minimise risk to bat populations our advice is to maintain a 50 m buffer around any feature (trees, hedges) into which no part of the turbine intrudes. This means the edge of the rotor-swept area needs to be at least 50 m from the nearest part of the habitat feature. Therefore, 50m should be the minimum stand-off distance from blade tip to the nearest feature.*
>
> *It is incorrect to measure 50 m from the turbine base to habitat feature at ground level as this would bring the blade tips very close to the canopy of a tall hedgerow tree and potentially put bat populations at risk. Instead, it is*

necessary to calculate the distance between the edge of the feature and the centre of the tower (b) using the formula:

$$b = \sqrt{(50 + bl)^2 - (hh - fh)^2}$$

where: bl = blade length, hh = hub height , fh = feature height (all in metres). For the example above, b = 69.3 m" (Figure 8.1).

7.3 Post-construction Monitoring and Fatality Searches

In line with the consultation response received from the Department of Arts, Heritage and the Gaeltacht, post-construction fatality searches will be carried out during the operational phase of the development. Bat corpse searches can be conducted in conjunction with any bird corpse searches and will follow methods outlined by Rodrigues et al. (2015).

In accordance with best practice guidelines, a minimum of three years post-construction monitoring is recommended (BCI 2012a, Rodrigues et al. 2015). Due to the limited bat potential found at Cloncreen Bog during pre-construction surveys, monitoring the entire activity period is not considered necessary. Late summer and autumn has been previously identified as the highest collision risk period for bats (Mathews et al. 2016). Therefore, searches should be undertaken at monthly intervals between the end of July and the end of September in Years 1, 2 and 3 of the lifetime of the wind farm.

Bat corpses, due to their small size and dark colouring, are exceptionally difficult to detect in the field. Therefore, trained sniffer dogs should be employed in fatality searches. In keeping with consultation responses and best practice guidance, all fatality estimates must incorporate searcher efficiency and scavenger removal trials, specific to the site, as well as the impact of search plot size (BCI 2012a, Hundt 2012, Rodrigues 2015).

In accordance with best practice, post-construction activity surveys are recommended to be carried out in conjunction with fatality searches (BCI 2012a, Hundt 2012, Rodrigues 2015). A dusk and a dawn survey should be carried out on the night preceeding any bat fatality search. Activity surveys should comprise walked transects representative of all turbine locations and habitat features. The aim of post-construction activity surveys is to assess any changes in bat activity and habitat use on site and to provide context to fatality search results.

Results from post-construction monitoring, fatality searches and efficiency trials must be compiled each year and reported to the NPWS, and copied to the Department of Arts, Heritage and the Gaeltacht (as per consultation recommendations). If a significant negative impact on bats is observed, a plan of action must be determined with the NPWS without delay.

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Annex 1

Extract from INIS Environmental Consultants Bat Survey Report 2013

Bord na Mona Energy Ltd

Energy Hub Project

Baseline Bat Survey 2013

10th January 2013

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1. INTRODUCTION

Bord na Mona Plc and specifically Bord na Mona Energy Ltd have completed a high level feasibility study examining the potential for developing a large area of cutaway peat land and other adjacent areas as a single interconnected large scale wind farm. The energy generated by the development will be sent through one or two proposed interconnectors across the Irish Sea into the UK.

In order to inform the proposed development, a set of targeted baseline environmental surveys are required and have now been initiated. As part of these baseline environmental surveys, Bord na Mona (BnM) commissioned INIS Environmental Consultants Ltd to complete a baseline assessment of bat populations at two bog groups in the Midlands, namely Derrygreenagh and Ballydermot/Timahoe Bog Groups. These bog groups have never been surveyed for bats before and as such no background information exists on bat populations in these areas. The survey had to be designed taking many varied different site specifics into account most notably multiple survey sites over a very large geographical area, large areas of peat extraction and myriad different habitat types with access issues. There are 33 separate bogs located within these two Bog Groups and each of these was surveyed as part of this baseline assessment.

All surveys were carried out between the months of June and September 2013 with a total of 139 separate transects surveyed within the two bog groups; each of these transects were surveyed for bat activity three times. Remote monitoring using an Anabat SD1 device was carried out at all 33 bog locations. In addition to the Anabat, a GML1 Remote Download (GML) system was installed at one bog (Clonsast) to survey for bats over the entire survey period (69 days) on a constant basis, 7 days per week. The use of this GML technology is a first for Ireland and heralds the arrival of the most modern technology for surveying bats quantitatively in the world today.

Due to the prevalence of old buildings and other potential roost sites proximal to the bog groups a bat roost survey was completed at selected potential roost sites within and adjacent to the bog groups.

This report provides the results of the extensive baseline bat monitoring survey which was carried out and provides an insight into bat populations, foraging/commuting activity patterns and roost preferences. In conjunction with best practice methods used, the Chartered Institute of Ecology and

Environmental Management's (CIEEM) Code of Professional Conduct was adhered to throughout the consultation, surveying and report writing stages of this project.

2. METHODOLOGY

2.1. Guidelines and legislative context

This current survey constitutes a baseline assessment of the areas in question and has been prepared taking cognisance of the Environmental Protection Agency's (EPA) 'Guidelines on the Information to be contained in Environmental Impact Statements' (EPA, 2002) and 'Advice Notes on Current Practice (in the Preparation of Environmental Impact Statements)' (EPA, 2003) and the 'Guidelines for Ecological Impact Assessment' (Chartered Institute of Ecology and Environmental Management. 2006).

In addition the European Communities (Environmental Impact Assessment) Regulations, 1989 (S.I. No. 349 of 1989) and subsequent amendments have been reviewed and taken into account when preparing the surveys and resultant report.

The Habitats Directive 92/43/EEC was transposed into national law through the European Communities (Natural Habitats) Regulations 1997 (S.I. 94/97) and amended in 1998 and 2005. The EU Habitats Directive requires Member States to maintain or restore the favourable conservation status of the habitats and species listed in its annexes. The Directive specifies that the habitats of 25 species listed in Annex 2 must be designated as SACs. Thus designation of a site as an SAC has wide-ranging implications. Land use practices that may be affected include farming, aquaculture, grazing, sporting and turf-cutting rights. A further 33 species, requiring strict protection, are listed on Annex 4 (plant species listed on Annex 2 are also listed on Annex 4). Some species while not requiring a high level of protection need to be safeguarded against exploitation. These species are listed in Annex 5 of the Directive. The Habitat Regulations have been updated in 2011 as the European Communities (Birds and Natural Habitats) Regulations 2011 to bring the Irish transposition of these regulations into line with the requirements of the EU Habitats Directive (1992). Article 6 paragraphs 3 and 4 of the EU Habitats Directive (1992) state that:

- Article 6 Paragraph 3

  Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, whether individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the sites conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned, and if appropriate, after having obtained the opinion of the general public.

- Article 6 Paragraph 4

  If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary important for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interests.

The Third Schedule to the Wildlife Act 1976, was amended on the 6th December 1985, when the minister, in compliance with the European Communities Council Directive of 2 April, 1979 (No. 79/409/EEC), made regulations entitled the European Communities (Wildlife Act, 1976)(Amendment) Regulations, 1985 (No. 397 of 1985) removing the remaining twelve unprotected species from that schedule. As a consequence all wild birds are now protected throughout the state and careful assessment of their habitats must take place before any development is allowed. The Wildlife Act, 1976, is the principal national legislation providing for the protection of wildlife and the control of some activities, which may adversely affect wildlife. The Wildlife Act, 1976, came into operation on 1 June 1977. The aims of the Wildlife Act, 1976, are to provide for the protection and conservation of wild fauna and flora, to conserve a representative sample of important ecosystems, to provide for the development and protection of game resources

and to regulate their exploitation, and to provide the services necessary to accomplish such aims. As a consequence of the Wildlife Act all wild birds are now protected throughout the state and careful assessment of their habitats must take place before any development is allowed.

This act broadened the scope of the Wildlife Acts to include most species, including the majority of fish and aquatic invertebrate species, which were excluded from the 1976 Act. It also strengthened the provisions relating to the cutting of hedgerows during the critical bird-nesting period. It also strengthened the protective regime for Special Areas of Conservation (SACs) by removing any doubt that protection will in all cases apply from the time of notification of proposed sites. The act also gave specific statutory recognition to the Minister's responsibilities in regard to promoting the conservation of biological diversity, in light of Ireland's commitment to the UN Convention on Biological Diversity.

The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention, 1982) ensures that governments take into account the conservation needs of species during the formulation of planning and development policies. It also seeks the protection of endangered species and in relation to bats, it stipulates that all bat species and their habitats are conserved.

Department of Environment, Heritage and Local Government Planning Guidelines for Wind Development (2006) (DoEHLG) state that *"the designation of an area for protection of natural or built heritage or as an amenity area does not automatically preclude wind energy development. However, consideration of any wind energy development in or near these areas must be subject to Ireland's obligations under the Habitats Directive (92/43/EEC), the EU (Birds) Directive (97/409/EEC) and the Environmental Impact Assessment Directive. Planning authorities must ensure that a proposal which is likely to have a significant effect on an SAC or other designated area, is authorised only to the extent that the planning authority is satisfied will not adversely affect the integrity of the area. If necessary, they can seek changes to the development proposed or attach appropriate planning conditions."*

2.2. Desktop review

A desktop review was completed to identify features of ecological importance within the study area and surrounding region. This review included all designated areas and sensitive areas within the zone of potential around the study area. Important bat roost sites around the Bog Groups were

identified from information supplied by the National Parks and Wildlife Service (NPWS) of the Department of Arts, Heritage and the Gaeltacht. Prior to field surveys taking place, other potential sites of ecological importance and conservation interest were identified using orthophoto maps provided by Bord na Mona and also by examination of Ordnance Survey (OS) aerial photography and OS maps (1:50000, 1:10560 (6'') and 1:2500 scale).

Various literature sources, guidance documents and mapping tools were also consulted. These will be referenced in the text.

The list of literature used in all our bat surveys includes (list not exhaustive):

- **Hundt, L (2012) Bat Surveys: Good Practice Guidelines, 2nd Edition, Bat conservation Trust. Natural England Technical Information Note TIN051.** Bats and onshore wind turbines. 2nd Edition, February 2012.
- **Eurobats Publication No.3:** Guidelines for consideration of bats in wind farm projects.
- **Bat Survey Guidelines: Traditional Farm Buildings Scheme** (2008) Tina Aughney, Conor Kelleher & Donna Mullen. The Heritage Council, Áras na hOidhreachta, Church Lane, Kilkenny.
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- **Irish Bat Monitoring Programme** (2006) Tina Aughney, Steve Langton, Niamh Roche, Jon Russ and Phillip Briggs.
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- **Animal tracks and signs.** (2007) Preben Bang and Preben Dahlstrom. Oxford

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- **How to find and identify mammals** (1997) by Gillie Sargent and Pat Morris. ISBN 0-906-282-34-9. The Mammal Society, 15 Cloisters House, 8 Battersea Park Road, London SW8 4BG, England.
- **Mammals of Britain and Europe** (1993) by David Macdonald & Priscilla Barrett. Collins Field Guide ISBN 0-00-219779-0. HarperCollins Publishers, 77-85 Fulham Palace Road, Hammersmith, London W6 8JB, England.
- **Observing British and European mammals** (1989) by Christian Bouchardy and François Moutou. ISBN 0-565-01095-6. British Museum (Natural History), Cromwell Road, London SW7 5 BD.

2.3. Field Survey Work

2.3.1. Health and Safety considerations

The bog groups include large expansive areas with soft ground conditions and many deep water filled trenches which presented significant health and safety issues. In order to carry out the surveys efficiently and safely, surveyors became familiar with all sites in daylight i.e. all planned locations of transects and timed searches. Surveys were conducted using pairs of surveyors or alternatively a buddy system was initiated. This Health and Safety methodology was followed at all times. A full risk assessment was prepared and followed by all INIS ecologists prior to surveys initiating.

2.4. Methods

Bat activity on the Bog Groups was surveyed using three different methods:

- Hand held heterodyne bat detectors (Batbox Duet) used for walked and driven **bat activity transects**;
- **Remote surveys**:
    1. ANABAT SD1 was used as a remote recording device throughout the different bogs (used as a static device but also during driven transects);
    2. GML system (ANABAT SD2) was installed in Clonsast bog;
- Bat **roost surveys**, both within Bord na Mona land parcels and adjoining lands (where necessary, permission was requested from private landowners before surveys).

These methods are recognised as being the most up to date, Best Practice methods for surveying bats. INIS ecologists obtained accurate results and species identification throughout all survey periods.

2.4.1. Bat activity surveys (transects)

Regarding transect surveys for bats there are a number of guidelines (Mitchell-Jones and McLeish 2004, Kelleher and Marnell 2006, Rodrigues *et al.* 2008, Bat Conservation Ireland 2012, Natural England 2012, Hundt 2012) that give detailed accounts of the best practice methods for surveying bats in large areas while incorporating the highest health and safety standards. These were all assessed and used to formulate our survey strategy.

Hundt (2012) suggests that when carrying out activity surveys, broadband bat detectors (frequency division or full spectrum) should be used with the guidelines also suggesting that all detectors should have the capacity to record or to be connected to a recorder; this should be considered a standard for bat surveys by professional ecologists, for the purposes of planning applications and impact assessment. This methodology ensures that all bat calls are recorded and can subsequently be analysed for identification to species or species group level.

Manual activity transect surveys were conducted with hand held bat detectors (Batbox duet) in addition to all calls being recorded on an Anabat SD1 device. Manual activity surveys were carried out at all 33 bogs within the two Bog Groups using walked and driven transects methodologies. The emphasis of these surveys was detecting important flight paths across the different bog sites and those likely to intersect with the turbine areas, as well as in depth surveys in the autumn time (September in this case) to account for migrating/swarming species (Mitchell-Jones and McLeish 2004).

As mentioned surveys focused on potential turbine areas but also habitat features that are close to these locations. Habitat features that required in depth surveys were those that had a medium/high foraging/commuting/connectivity factor for bats within the wider landscape (e.g. linear corridors, hedgerows, tree lines, watercourses/bodies, woodland) Hundt (2012).

Since there are numerous access roads to each of the bogs, driven transects were conducted to improve efficiency of this baseline survey allowing for more ground to be covered, increasing our

information base. As per the guidelines, driven transects were conducted at a speed of no more than 15 km per hour (Bat Conservation Ireland 2012).

Table 1. Description of best practice methods for surveying bats outlined in relevant guidelines (Rodrigues *et al.* 2008, Bat Conservation Ireland 2012, Hundt 2012)

Survey Type	Description of best practice
Dusk activity survey	Manual detector surveys should be designed to ensure that all areas and main features of the site are sampled within the time period. This survey can be used to determine the spatial distribution or abundance of bats, which features they are using and perhaps the extent to which activity changes over time. Environmental conditions should be recorded at regular intervals to determine if there is a change in bat activity attributable to temperature/rainfall/wind speed *etc*. This survey can be done through point counts or through walked/driven/boat transects.
Dawn activity survey	Pre-dawn surveys can be carried out in a similar fashion with similar results. However, they are particularly useful for locating roosts on or within a 200 meter radius of the site., and can be used in combination with dusk transect surveys

When conducting all bat activity surveys INIS ecologists conducted them in optimal weather conditions allowing the results to accurately reflect bat activity at all locations. Bat activity surveys were only carried out when the temperature was above 10 degrees Celsius (Kelleher and Marnell, 2006), no heavy rain and no strong winds (> Beaufort Force 5) (Bat Conservation Ireland 2012). (For static surveys it is impossible to say that these conditions can be met all the time but this information can be used to examine how environmental variables affect bat activity on site). Weather conditions this year were absolutely perfect with optimal temperatures being recorded throughout all surveys.

In accordance with best practice it is also important to survey for bats at the appropriate time of year and time of night/day. The times of all surveys adhered to the timing reflected in Tables 2 and 3. Another important factor in ensuring accurate results was surveying transects at different times i.e. that the three surveys of each bog didn't take place within the same time window on each survey date. We designed different survey times to confirm the correct bat activity patterns at each location.

Table 2: Best practice times to conduct bat surveys (Hundt 2012, Bat Conservation Ireland 2012)

Survey Type	Time Start	Time Finish
Bat Activity (Dusk surveys, all species)	½ hour before sunset	2-3 hours after sunset
Bat Activity (Dawn surveys, all species)	2 hours before sunrise	1/2 hour after sunrise
Swarming activity (all species)	Sunset	4 hours after sunset

Table 3: Shows best practice time of year is the most appropriate to survey for bat activity

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Hibernation roost survey			*	Summer roost emergence and activity surveys					*	Hibernation roost survey	
Potential roost and internal surveys. Tree roost Surveys are best conducted in Winter											

* Limited activity

Results of the transect surveys are presented in tabulated format within Appendix 4 and include a 10 figure grid coordinate for every bat contact recorded throughout the survey season.

2.4.2. Remote surveys

The most modern remote survey technology available in the world today was used to assess bats at the Bord na Mona sites and immediate surrounding areas. Developed by Titley Scientific, Anabat technology is the most advanced system to remotely record bat activity and is now used on every continent in the world by bat ecologists to survey bats.

2.4.2.1. AnaBat SD1

The AnaBat SD1/2 compact flash (CF) was launched by an Australian company and heralds a system that is extremely sensitive and accurate for identifying any different species present. It is currently difficult to separate out the *Myotis* group of bats using any of the bat detector types (time expansion and heterodyne) currently available however using field notes and observer experience in conjunction with Anabat graphs specific *Myotis* species can be identified. This is crucial to any bat survey for accuracy of results and identifying correct mitigation.

The Anabat SD1/2 CF incorporates the AnaBat II detector used in conjunction with the CF Storage ZCAIM and makes a powerful remote recording system for bats. Timer facilities are incorporated into the ZCAIM so it can be programmed to switch on and off at selected times.

The ZCAIM controls the power to the detector. Because of this and the systems use of compact flash memory cards, the system can be left remotely in the field for a week or more without changing batteries or CF cards. The Analook software for programming the ZCAIM, reading the memory card and extracting AnaBat files will now work on computers using any version of Windows. The software is supplied with the system. A CF memory card and CF reader/writer are required.

An AnaBat SD1 was used to survey for extended periods in all 33 different bogs throughout both Derrygreenagh and Ballydermot bog groups. The AnaBat was used to survey for either a dusk or dawn survey in each location. The dusk surveying periods comprise of leaving the device out for half an hour before dusk until 3 hours after. The dawn survey period comprised of leaving the device out for three hours before dawn until a half an hour after. In addition to the device being left out in each of the 33 bogs for the standard survey, we also completed an extra 12 hours of Anabat surveys in open peat habitat (includes both bare peat areas and active open peat extraction areas) in order to gain more comprehensive and robust bat activity data regarding this habitat type.

Throughout the surveys the AnaBat was left out in a variety of different habitats including mineral banks, hedgerows, open peat and adjacent to water bodies. This data can be used to quantify the relative importance of features and locations, and how bat activity changes over time within each bog group.

Results of the AnaBat SD1 surveys are presented in tabulated format within Section 8.3.1.

2.4.2.2. GML system

INIS installed a GML system on a building in the Clonsast factory complex on the 10/07/2013 and disconnected it on the 16/09/2013. This is the first time this state of the art system has been used in Ireland and heralds the most modern surveying technique ever used for surveying bats in Ireland. This system was used for the first time in Europe (Scotland) in July 2013.

INIS sees this GML system as being the one of the most efficient and cost effective means of mitigation for bats on large scale wind farms in the future.

There were a number of different habitats covered by the GML system including a water body, hedgerows and open areas of scrub vegetation. The system was programmed to turn on at 19.30 pm and switch off at 07.30 am, every day.

There are two types of division ratios used on AnaBat devices, 8 and 16; these represent the amount of data that is stored on the CF memory card. If division ratio 8 is used, a greater range of sound frequency is stored on the memory card within the device; it is important to stress that there is no impact on the quality of data being recorded. Division 8 is suitable for short term studies i.e. single nights etc. However for long term studies (e.g. one month) division ratio 16 is better to use as it means data can be collected over the long term and this is why a division ratio of 16 was used for this study. The use of division ratio 16 had no impact on the quantity or quality of the data for the purpose of this study. As the AnaBat also detects other ultrasonic sounds, such as those sounds made by insects, rain, and other sources the sensitivity of the device was remotely altered during the first few days of surveys in order to obtain the best results. In the end a sensitivity setting of 40 was used for this study. The calls were then recorded onto a CF memory card with large storage capacity.

In order to make the GML system waterproof they were placed inside a special metal case. All bat activity was recorded by the GML system and later downloaded through the internet. This data was then analysed using AnalookW software.

Results of the GML survey is presented in tabulated format within Section 8.3.2.

2.4.3. Roost surveys

For roost surveys it is important that surveys be undertaken by appropriately trained and experienced bat specialists to prevent roost abandonment and accidental injury or death to bats. All ecologists involved with this survey have extensive experience with bat surveys and have an advanced knowledge of bat ecology and roost survey techniques. Bat roost surveys were completed at 20 potential bat roosts within and adjacent to the bog groups including bridges, trees, buildings (inhabited and uninhabited) and workshops (derelict and active).

During this survey, potential roost locations were identified using both OS maps and field observations during the bat activity surveys. All of these locations were visited during daylight for an

initial inspection for roost potential and possible bat presence. The bat roost surveys were undertaken before September 15th because bats are most active in the months May - August.

The reason for daylight inspections was twofold:

1. To ascertain if there were any obvious signs of bat activity at the structure/potential roosting areas associated with the structure and
2. To ascertain if there were any health and safety hazards associated with the structure.

The initial daytime search involved a methodical search where the structure was examined using best practice techniques to locate droppings beneath gable ends, on windowsills, under hanging tiles, fascia's, on windows or on walls. In addition, the structure was examined for urine and oily residue stains, scratch marks and the remains of insect prey (moth wings etc.).

Following the external search we moved into the buildings where we searched all first floor areas for bat signs in the form of bat droppings and urine and oily residue stains. Following this investigation we moved into the second floor spaces and then attic spaces of all buildings, if it was required. This necessitated us entering through the attic doors with head torches and inspecting all floor space within the attic for bat droppings. We used head torches and a large hand held torch for this search.

The aims of the bat roost surveys at trees/buildings/ bridge structures were to:

- Determine if bats are currently present or have been present in the past
- Determine the bat species
- Determine the number of bats
- Determine the roost category or categories e.g. the purpose and therefore the importance of the structure/tree
- Determine the bats' entry and exit points within the structure(s)
- Determine the bats' roosting locations within the structure
- Determine the commuting corridors used by bats to and from their roost(s) with a description of any vegetation or other linear features of importance to bats (this will be especially important for these Bord na Mona surveys to assess linear features being used by bats to enter the bog groups)

Using the evidence gathered during the initial daylight site inspections at each potential roost, dawn/dusk roost surveys were then conducted. The dawn/dusk surveys were carried out in optimal weather conditions e.g. mild temperatures, light winds and no rainfall to maximise the results of the roost surveys.

These roost surveys, along with the National Parks and Wildlife Service roost data have allowed an excellent indicative baseline assessment of bat roosts in the study area to be made.

Results of the bat roost surveys are presented in tabulated format within Section 8.4.

3. CONSULTATION

The preparation of this section included consultation either directly or through publically-available information with:

- National Parks and Wildlife Service (NPWS) of the Department of Arts, Heritage and the Gaeltacht
- Bord na Mona (BnM)
- Offaly County Council
- National Biodiversity Data Centre (NBDC)
- Bat Conservation Ireland (BCI)
- Environmental Protection Agency (EPA)

A formal consultation response was received from NPWS regarding the distribution of bat roosts in the study area and within the region of the study area. This information was reviewed and assimilated into our report.

4. STAFF PROFILES

4.1. Howard Williams (Principal ecologist)

Mr Howard Williams is a senior ecologist with 17 years professional ecological management experience. He was the principal ecologist on the current assessment, designed all surveys and was responsible for the production of the final report. Mr. Williams is principal ecologist with INIS

Environmental Consultants Ltd and currently project manager on all INIS projects in the Republic of Ireland and the UK.

Mr Williams has formal training and CPD on bat surveying that is relevant to the current assessment. He is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and is a Chartered Environmentalist (CEnv) with the Society for the Environment (Soc Env) and a Chartered Biologist (CBiol) with the Society of Biology. He completed his B.Sc. in Biological Sciences, National University of Ireland Cork, in June 1997. Following his degree he worked as a senior ecologist with ESB Fisheries Conservation until 1999 and has been working as a private consultant since 2000. Mr. Williams has extensive experience of ecological surveys and ecological survey techniques. He has acted as lead ecologist on 34 wind farm developments in Ireland and the UK since 2000; in addition to this he has acted as lead ecologist on two major road infrastructure projects, one Combined Cycle Gas Turbine (CCGT) project and numerous other renewable energy projects. Howard has extensive expertise in managing Environmental Impact Statements and Appropriate Assessment work on major renewables projects for both private and public clients. Last year he was responsible for the management and production of the entire EIS for a wind farm in West County Clare from design phase right through to planning submission.

Mr Williams is considered by his peers and clients alike to be one of Irelands leading ecological site assessors and has been requested to complete in excess of 400 separate full ecology surveys in Ireland and the UK in the past 15 years. While birds are his primary expertise he has vast experience with surveying bats and non-volant mammals over the past 15 years and has held licenses to disturb bats and lesser horseshoe bats (Annex II) in particular. In relation to bats he has attended formal training in England with Bat Conservation Trust UK and is proficient in the use of all Anabat technology including Analook software.

4.2. Domhnall Finch (Ecologist)

Mr. Domhnall Finch, M.Sc., B.Sc., GradCIEEM, is an ecologist with INIS Environmental Consultants Ltd. Mr. Finch was awarded a first class honours M.Sc. in Biodiversity and Conservation from the University of Leeds completing his thesis on bats and an honours B.Sc. in Environmental Science from University College Dublin.

Mr. Finch is a bat specialist and has vast experience surveying bats in both Ireland and the UK working for private consultancies and universities on both large scale bat surveys for wind farm projects and private developments. Mr. Finch is capable of operating the advanced bat identification device i.e. the Anabat bat identification module. He has a license to capture bats using mist nets for scientific study and has vast experience catching and processing bats in the UK and Poland for scientific research.

Along with bats, Mr. Finch has excellent experience in conducting large scale bird surveys for wind farm projects and scientific research, including both terrestrial and marine species. Since leaving university Mr. Finch has also gained invaluable experience in surveying non-volant mammals and cetaceans. Mr. Finch is has completed an ArcView GIS course and is fully proficient in using ArcView GIS to analyses, model and digitise large data sets to create both current and predictive maps.

4.3. Anne Mullen (Ecologist)

Ms. Mullen received her primary degree in Environmental Science in the National University of Ireland, Galway in 2004 and completed a Masters in Ecological Assessment from University College Cork in 2012. She has worked in the scientific sector for a number of years including laboratory work in a number of industries. She has substantial experience with habitats surveying and mapping, species rich grasslands surveying, water quality assessment, site auditing. Anne completed all the GIS mapping for the current survey. Anne is an ecologist with INIS Environmental Consultants Ltd.

4.4. Andrew Dobson (Titley Scientific – principal ecologist)

In addition to the involvement of INIS staff, outside assistance was provided by experts from Titley Scientific in England and the United States of America. Titley Scientific manufacture the Anabat technology that is recognised around the world as the most advanced system for monitoring bats. This is the technology that INIS ecologists decided to use on the Bord na Mona project.

With reference to the Bord na Mona sites, ecologists from Titley Scientific travelled to Ireland to discuss the best survey products to suit onsite habitats, project scale and bat species. Titley provided the GML system to remotely record bat species at Clonsast and they also recommended different monitoring strategies for the expansive areas of peat.

No private or commercial Bord na Mona information was shared with any third parties as part of this work partnership.

5. LIMITATIONS OF CURRENT ASSESSMENT

Due to the physical characteristics of the survey areas certain limitations were recorded over the duration of the survey. These were as follows:

- Health & Safety dictated that some planned transects were abandoned or had to be redesigned due to deep ditches traversing sites, watercourses, unstable ground and inaccessibility due to heavy undergrowth.
- INIS ecologists identified many potential bat roosts that could not be surveyed due to the timing constraints of the present assessment. Surveying these as part of any further investigation on bats in the bog groups will be crucial to completing an in-depth bat assessment and to enable meaningful mitigation to be designed in future.

These limitations did not affect the study or the results thereof. The results are a true reflection of bat activity onsite.

6. RECEIVING ENVIRONMENT

6.1. Designated Areas

All designated sites of ecological importance; within 10 kilometres of the survey area and with relevance to the survey were considered for this survey. These included candidate Special Areas of Conservation (cSAC) and Natural Heritage Areas (NHA's). Special Protection Areas (SPAs) for birds were not reviewed as they relate directly to birds and as such, are outside the scope of this assessment.

Altogether there are 22 designated sites within 10km of these two bog Groups (Table 4). These include Special Area of Conservation (SAC) and Natural Heritage Areas (NHA).

No designated sites for bats exist proximal to the two bog groups under investigation.

as two BnM bogs to the south and west of its location. It is approximately 6 kilometres North West from the village of Clonbullogue and 6 kilometres south of Rhode.

7.3.2.3. Ballykeane

The boundaries of Ballykeane bog are surrounded largely by agricultural fields. Ballykeane bog is located in the southern part of Derrygreenagh Bog Group. The bog is less than 1 km west of Walsh's Island village and 4 kilometres north of Clonygown village. The site is approximately 4 km^2, with open peat extraction covering approximately 95% of the land cover. Along the edges of Ballykeane bog there are well defined linear hedgerows and mature tree lines within the boundaries of the bog.

7.3.2.4. Cavemount

This bog is situated near the centre of the Derrygreenagh Bog Group. It is connected to three separate bogs through BnM railway lines; however the immediate surroundings of this bog consist of large agricultural fields. The Grand Canal borders the northern side of this bog. Cavemount bog is approximately 4.5 km^2, open peat extraction occupies most of the land use within this bog (ca. 60% of land cover). Approximately 40% of the land is covered in large water bodies and scrub vegetation, with well-developed hedgerow around the edge of it there is very little vegetation within this bog.

7.3.2.5. Clonad

Clonad bog is approximately 3.5 km^2 and within it there are several different types of habitats. The main habitat is predominantly open peat extraction (ca. 85% of the land cover). There are well developed hedgerows along the periphery of this bog. Within these hedgerows there are some sections of well-developed mature trees (ca. 5% of the land cover). This bog is situated near the western side of the Derrygreenagh Bog Group complex and it is bordered by two BnM bogs to the east and North West of its location. It is only 2 kilometres south of Daingean town and it is approximately 2.5 kilometres north from the village of Geashill.

7.3.2.6. Cloncreen

The boundaries of Cloncreen bog are surrounded largely by agricultural fields. The bog is located in the eastern part of the central bogs of the Derrygreenagh Bog Group. The bog is less than 1 km east of Clonbullogue village and approximately 3 kilometres south west of Edenderry. The site is approximately 10 km^2, with open peat extraction covering approximately 90% of all land cover. Along the edges of Cloncreen bog there are well defined linear hedgerows and mature tree lines

within the boundaries of the bog. Scrub vegetation also occurs in patches throughout the bog (ca. 5% of land cover).

7.3.2.7. Clonsast

This bog is situated in the southern end of the Derrygreenagh Bog Group and it is largely surrounded by agricultural fields. Within the centre of this bog there is a private farm. Clonsast bog is approximately 19 km^2 and has several minor tracks and BnM railway lines running through and around the bog. Coniferous forest occupies most of the land use within this bog, approximately 95% of land cover. There is a workshop comprised of seven structures at the southern end of this bog. The River Cushina runs through the boundaries of this bog as well as developed hedgerow around the periphery of this bog.

7.3.2.8. Clonsast North

Clonsast North bog located 5 km to the west of Clonbullogue and 4 km to the north east of Walsh's Island is in one of the most central bogs within the Derrygreenagh Bog Group. Approximately 1.5 km^2 in area the majority of this bog (ca. 85% of the land cover) consists of scrub vegetation. There are several large water bodies within the centre of this bog along with some areas where open peat extraction used to occur (ca. 10% of the land cover). Well-developed hedgerows and mature deciduous trees exist around the periphery of this bog (ca. 5% of the land cover).

7.3.2.9. Croghan

Croghan bog is one of the smallest bogs within the Derrygreenagh Bog Group and it is less than 1 km^2. The main habitat is predominantly well developed hedgerows (ca. 90% of the land cover). These occur along the periphery of this bog. Within these hedgerows there are some sections of well developed mature trees (ca. 5% of the land cover). There is no open peat extraction taking place within this bog. This bog is situated near the centre of the Derrygreenagh Bog Group complex and it is bordered by two BnM bogs to the south and North West of its location. It is only 4 kilometres east of Daingean town and it is approximately 1 kilometres west from the village of Mountlucus village.

7.3.2.10. Daingean Derries

The boundaries of Daingean Derries bog are surrounded largely by agricultural fields. The bog is the most western bog in the Derrygreenagh Bog Group and it is 6 km west of Daingean town and approximately 6 kilometres east of Tullamore town. The site is approximately 4 km^2, with open peat

the western side of this bog. No bats were recorded in open peat habitats. One common pipistrelle was noted to be commuting along the mineral bank within this bog.

8.1.2.6. Cloncreen

Five transects were designed at Cloncreen bog and these covered approximately 6 kilometres in distance. These were designed to survey open peat, scrub vegetation and well developed hedgerow habitat in the same bog. Eight bat contacts were recorded throughout the survey season with three species present: common pipistrelle *Pipistrellus pipistrellus* (n=5), myotis whiskered/Brandt's *Myotis mystacinus/brandtii* (n=7), leisler's *Nyctalus leisleri* (n=1). These results accounted for 1.3% of all bat records for this survey in both Bog Groups. All bat records were from the linear features of well developed hedgerows at the north western side of this bog. Only a single common pipistrelle was recorded commuting, all other records were noted as foraging.

8.1.2.7. Clonsast

Of the 6 transects that were conducted within this bog 95% were along BnM tracks/railway lines cut through the coniferous forest. The 6 transects within this bog have a combined length of over 10 km. Sixteen bat contacts were recorded throughout the survey season with five species present: soprano pipistrelle *Pipistrellus pygmaeus* (n=7), common pipistrelle *Pipistrellus pipistrellus* (n=4), leisler's *Nyctalus leisleri* (n=3), myotis whiskered/brandt's *Myotis mystacinus/brandtii* (n=1), daubenton's *Myotis duabentonii* (n=1). These results accounted for 2.5% of all bat records for this survey in both Bog Groups. Most bat records were from the workshop and the Cushina River located at the southern end of this bog.

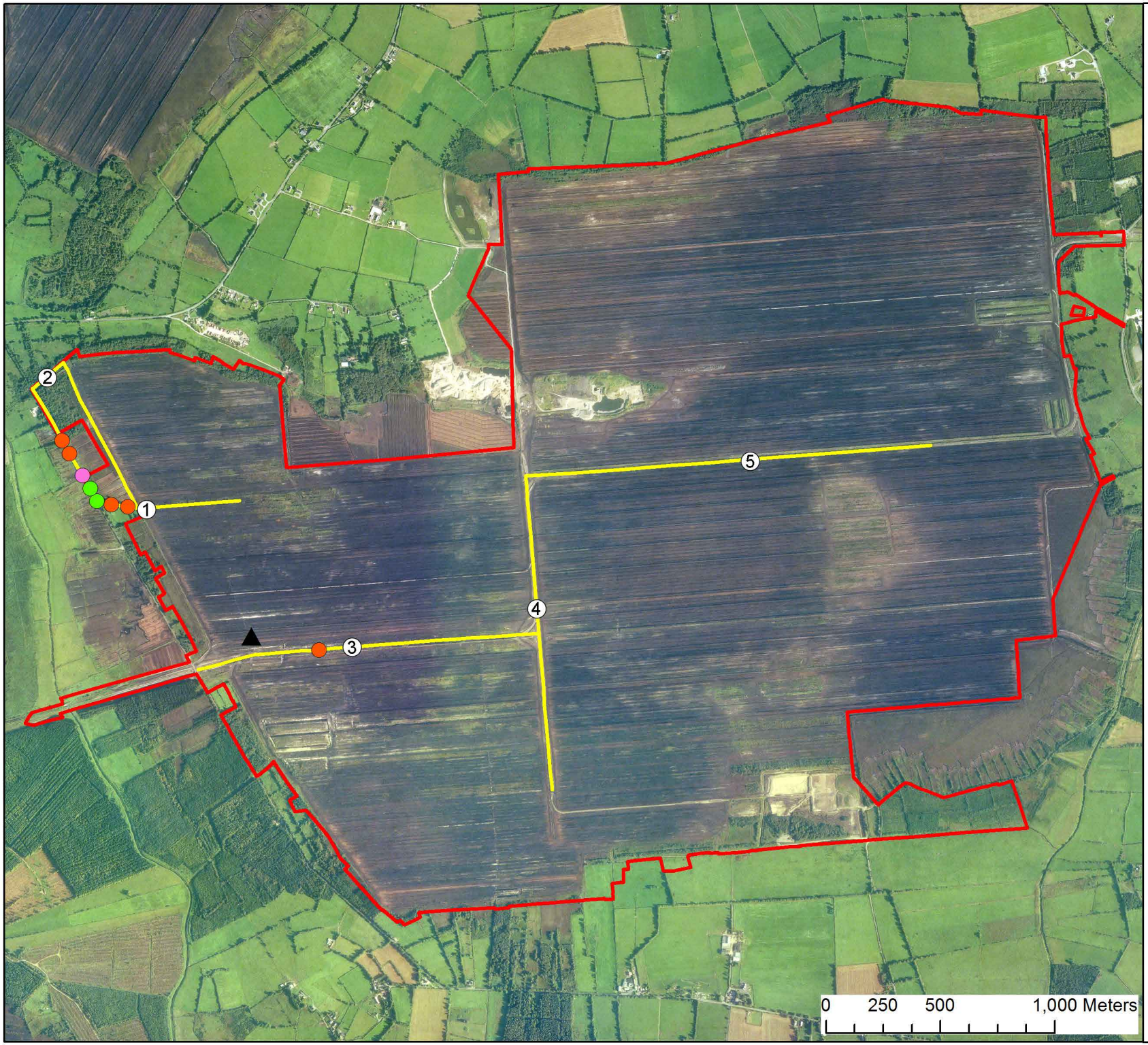
8.1.2.8. Clonsast North

Four transects were designed at Clonsast North bog and these covered approximately 2 kilometres in distance. Seven bat contacts were recorded throughout the survey season with five species present: soprano pipistrelle *Pipistrellus pygmaeus* (n=2), leisler's *Nyctalus leisleri* (n=2), common pipistrelle *Pipistrellus pipistrellus* (n=1), myotis whiskered/Brandt's *Myotis mystacinus/brandtii* (n=1), natterer's *Myotis natterreri* (n=1). These results accounted for 1.1% of all bat records in both Bog Groups. The majority of bat activity was recorded within either scrub vegetation or mature deciduous trees along the borders of this bog. Only one common pipistrelle and one soprano pipistrelle were recorded commuting within the scrub vegetation, all other records were of foraging bats.

Table 7. Tabulated results of the total number of bats recorded in each bog during all bat activity transect surveys

Name of Bog	Soprano pipistrelle	Common pipistrelle	Leisler's	Daubenton's	Myotis whiskered/Brandt's	Natterer's	Brown long-eared	Total number of species present	Total number of bat records	% of total bat activity
Ballydermot	10	13	1	2	1	-	-	5	30	4.8
Barnaran	8	11	-	-	-	-	-	2	19	3.0
Blackriver	27	33	12	3	7	1	2	7	85	13.5
Codd	10	6	4	-	2	-	-	4	22	3.5
Glashabaun North	-	-	-	-	-	-	-	0	0	0.0
Glashabaun South	14	19	2	2	1	-	-	5	38	6.0
Lodge	-	1	8	-	1	-	1	4	11	1.7
Lullymore	2	3	-	-	-	-	-	2	5	0.8
Ticknevin	10	23	-	-	3	-	-	3	36	5.7
Timahoe North	3	8	8	-	2	-	-	4	21	3.3
Timahoe South	6	14	11	5	3	-	-	5	39	6.2
Ballybeg	6	5	1	-	-	-	-	3	12	1.9
Ballycon	-	1	-	-	-	-	-	1	1	0.2
Ballykeane	-	2	1	-	-	-	-	2	3	0.5
Cavemount	4	2	1	1	-	-	-	4	8	1.3
Clonad	7	9	1	-	2	-	-	4	19	3.0

Cloncreen	-	5	1	-	2	-	-	3	8	1.3
Clonsast	7	4	3	1	1	-	-	5	16	2.5
Clonsast North	2	1	2	-	1	1	-	5	7	1.1
Croghan	7	4	-	-	-	-	-	2	11	1.7
Daingean Derries		2	-	-	-	-	-	1	2	0.3
Daingean Rathdrum	7	10	-	3	2	-	-	4	22	3.5
Derryarkin	9	12	-	6	3	-	1	5	31	4.9
Derrycricket	1	1	-	-	-	-	-	2	2	0.3
Derryhinch	3	2	1	-	-	-	-	3	6	1.0
Derrylea	4	10	1	-	1	1	-	5	17	2.7
Derryounce	23	16	6	9	5	-	-	5	54	8.6
Drumman	2	8	1	3	1	-	-	5	15	2.4
Esker	2	8	2	2	8	-	-	5	22	3.5
Garryhinch	7	16	10	4	-	-	-	4	37	5.9
Garrymore	3	1	-	-	-	-	-	2	4	0.6
Kinnegad	6	7	4	1	3	-	-	5	21	3.3
Torr	2	5	-	-	-	-	-	2	7	1.1



CLOONCREEN

BAT SURVEY MAP

N

Legend

- Common pipistrelle
- Leisler's
- Myotis spp.
- Transects
- Transect Number
- AnaBat Location
- Site Boundary

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Annex 2

Malachy Walsh and Partners Cloncreen Bat Survey Report 2015

Malachy Walsh and Partners
Engineering and Environmental Consultants

Baseline Bat Surveys
Cloncreen Bog

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1 INTRODUCTION

Malachy Walsh and Partners were commissioned by Bord na Móna to carry out a second year of baseline bat surveys on Bord na Móna lands, namely the Ballydermot/Timahoe and Derrygreenagh Bog Groups. The Cloncreen Bog is located within the Derrygreenagh Bog Group. This report gives the details of the bat surveys carried out at the Cloncreen Bog study area, and the results of the same.

Bat surveys included roost surveys, activity bat surveys and passive bat surveys. Bat roost surveys were conducted within and adjacent to the site. Bat transects were carried out at the site on three separate occasions, to identify the bat activity at the site. Passive bat surveys included monitoring from height (top of Cloncreen Met Mast) and remote monitoring at three different locations throughout the survey period.

This report provides the results of the baseline bat monitoring surveys conducted at the Cloncreen study area, and provides an insight into bat populations, foraging/commuting activity patterns and roost surveys at the study area.

2 BATS

2.1 BACKGROUND

In Ireland there are 10 known bat species of two families (*Rhinolophidae* and *Vespertilionidae*). These species are:

- ***Rhinolophidae*:**
  - Lesser Horseshoe bat (*Rhinolophus hipposideros*)
- ***Vespertilionidae*:**
  - Daubenton's bat (*Myotis daubentoni*)
  - Whiskered bat (*Myotis mystacinus*)
  - Natterer's bat (*Myotis nattereri*)
  - Nathusius' Pipistrelle (*Pipistrellus nathusii*)
  - Common Pipistrelle (*Pipistrellus pipistrellus*)
  - Soprano Pipistrelle (*Pipistrellus pygmaeus*)
  - Leisler's bat (*Nyctalus leisleri*)
  - Brown long-eared bat (*Plecotus auritus*)
  - Brandt's bat (*Myotis brandtii*)

2.2 LEGISLATIVE CONTEXT

2.2.1 The Wildlife Acts 1976 and 2000

All bat species are protected under the Wildlife Act (1976) and Wildlife [Amendment] Act (2000) which make it an offence to wilfully interfere with or destroy the breeding or resting place of these species; however, the Acts permit limited exemptions for certain kinds of development.

All species of bats in Ireland are listed on Schedule 5 of the 1976 Act, and are therefore subject to the provisions of Section 23, which make it an offence to:

- Intentionally kill, injure or take a bat;
- Possess or control any live or dead specimen or anything derived from a bat;
- Wilfully interfere with any structure or place used for breeding or resting by a bat ;
- Wilfully interfere with a bat while it is occupying a structure or place which it uses for that purpose

2.2.2 The Habitats Regulations 1997-2005

The EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive 1992(92/43/EEC)) seeks to protect rare and vulnerable species, including all species of bats, and their habitats and requires that appropriate monitoring of populations be undertaken. All species of bat found in Ireland are listed on Annex IV of the Directive, while the lesser horseshoe bat is further protected under Annex II. The latter Annex relates to the designation of Special Areas of Conservation (SACs). Inclusion on Annex IV ('European protected species') means that member states are required to put in place a system of strict protection as outlined in Article 12. The Habitats Directive is transposed into Irish law by the European Communities (Natural Habitats) Regulations 1997. These Regulations substantially strengthen the protection provided by the Wildlife Acts, and in particular they remove all of the exemptions provided in Section 23(7) of the Wildlife Act insofar as they relate to Annex IV species, including all species of bats. All bats species are listed on the First Schedule and Section 23 of the Regulations makes it an offence to:

- Deliberately capture or kill a bat;
- Deliberately disturb a bat;
- Damage or destroy a breeding site or resting place of a bat.

2.2.3 International Conventions

Across Europe, bats are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries. The Irish government has ratified both conventions.

2.3 CONSERVATION STATUS

The overall conservation status for all bat species is 'Good' as is the evaluation of the individual attributes assessed, namely, Range, Population, Suitable Habitat and Future Prospects (NPWS, 2008).

2.4 ECOLOGY AND HABITAT IN IRELAND

2.4.1 Introduction

Bats are long-lived mammals with a complex social life that have evolved a number of unusual biological and behavioural features. They have developed a highly sophisticated echolocation system that allows them to avoid obstacles and catch tiny insects in complete darkness. Bats need different roosting conditions at different times of the year in order to suit their metabolic and social requirements, and will often move around on a regular basis to find the condition that meets their needs. As a consequence, bats roost in a range of areas including: buildings, trees, highway structures, underground sites such as caves, cellars, mines, underground bunkers, culverts and underpasses, dry stone walls and rock fissures with different bat species preferentially selecting

different types of roosting sites. As a consequence individual bat species have different association with the various roosting habitat types.

Bats select different types of roosts at different times of the year for different phases in the breeding and life cycle. These include hibernation and winter roosts, summer and nursery roosts, temporary roosts, night feeding roosts and mating roosts/swarming sites. Bats hibernate to conserve energy during the winter months, when their insect food is in short supply. Hibernation roosts (hibernacula) may be in caves, underground, and other structures, buildings or trees, where there is low temperature variation and a high relative humidity. Bats may hibernate singly, or many bats may use the same roost site.

Female bats tend to be colonial during the summer months, congregating at nursery roosts mostly in trees or buildings to give birth (some give birth in tunnels, mines and caves). Bats are very faithful to their natal nursery colony and return year after year. Female bats give birth in the summer usually to only one young, averaging one birth every second year. For this reason bat population numbers do not increase rapidly, unlike other small mammal species such as rodents.

2.4.2 Roost Requirements

Because their metabolic and social requirements vary throughout the year, most bats will use a variety of roosts of different types. Many species of bats are closely associated with the built environment, both for breeding and hibernation and some species have rarely been recorded anywhere else. The majority of species form maternity roosts in the roofs of buildings to take advantage of the heat provided by the sun, as during this phase of their life-cycle breeding females are seeking areas with high temperatures to minimise the energy cost of maintaining a high body temperature. Some species, such as the Common pipistrelle, show a clear preference for confined roost sites, such as soffit-boxes, eaves or under hanging tiles, whereas others, such as the lesser horseshoe and long-eared bats are more typically associated with open roof voids that they can fly into. There are many exceptions and many species have been recorded from a wide range of situations. In winter, bats of most species have been recorded hibernating in various parts of buildings, such as inside cavity walls, around window frames, under ridge-tiles and in cooler areas with stable temperatures.

The lesser horseshoe bat has a particular affinity with underground sites. In winter, it is rarely found in any other type of site and the species has even been recorded breeding underground, though the great majority of maternity sites are now in the roof voids of buildings. Other species which are considered typical hibernators in underground sites are Natterer's bat, Daubenton's bat, whiskered bat, Brandt's bat and brown-long-eared bat.

While some species are particularly associated with tree roosts, others primarily use buildings and underground places; however, the majority use a range of roosts including trees, buildings and underground sites.

Table 1 below lists the bat species present in Ireland and different roost types. The table indicates the strength of association between each species, and with their use of trees as roosting sites. It is noted that only brown long-eared bats have strong association with tree roosting sites.

Table 1: Species associations with different roost types

Species	Trees		Buildings		Underground	
	Maternity	Hibernation	Maternity	Hibernation	Maternity	Hibernation
Lesser horseshoe bat	L	L	H	M	L	H
Brandt's bat	L	L	H	H?	N	H
Daubenton's bat	M?	L?	M	L	M?	H
Whiskered bat	M?	M?	H	L	N	H
Natterer's bat	M?	M?	H	L	L	H
Nathusius' pipistrelle			H?			
Common pipistrelle	M	M	H	H	N	L
Soprano pipistrelle	M	M	H	H	N	L
Leisler's bat	M	M	H	L	N	N
Brown long-eared bat	H	H	H	H	N	M

Trees- includes all types of crevice and hollow as well as bat-boxes attached to trees.
Buildings – above-ground areas, with an emphasis on roof voids and other areas warmed by the sun.
Underground – anywhere that provides cool humid conditions buffered against rapid temperature change. Includes caves, mines, tunnels, souterrains, fortifications, cellars, ice-houses, lime-kilns etc.

N – not recorded in recent times
L- low dependence; unusual, but has been recorded
M – some usage recorded, though perhaps not the most important type of site
H – the most frequently recorded type of site for this species/activity

Weak association with tree selection as roost site

Medium strength association with tree selection as roost site

Strong association with tree selection as roost site

(Adapted from Kelleher and Marnell, 2006)

2.4.3 Criteria for Bat Roosts of National or International Importance

There are no clear guidelines as to the nature of a bat roost of international importance. All of the largest roosts of lesser horseshoe bats in Ireland would be of international importance and it is anticipated that all large Leisler's bat roosts (in excess of 100) would also have international significance. The following table (Table 2) shows the working guidelines developed by the Bat Expert Panel of the Heritage Council in 2003 to provide a basis for comparing the importance of different building roosts nationally and internationally[1].

Table 2: Level of importance of different buildings roosts for bat species

Species	Indicator	Significance
Lesser Horseshoe Bat	Special Areas of Conservation (SACs) have been created for this species, throughout its European range.	Very significant
	If present	Significant
Whiskered	>10	Very significant
	If present	Significant
Natterer's	>10	Very significant
	If present	Significant
Daubenton's	Maternity roost	Very significant

[1]http://www.tii.ie/technical services/environment/planning/Best_Practice_Guidelines_for_the_Conservation_of_Bats_in_the_Planning_of_National_Road_Schemes.pdf

Species	Indicator	Significance
Leisler's	Maternity roost	Very significant
Common Pipistrelle	Maternity roost	Significant
Soprano Pipistrelle	Maternity roost	Significant
Brown Long-eared	Maternity roost	Significant

Adapted from (NRA, 2005): Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes

3 METHODOLOGY

3.1 DESK STUDY

A desk study was carried out to collate available information on the species to be surveyed and on the site's natural environment. This comprised a review of the following publications and datasets:

- Hundt, L (2012) Bat Surveys: Good Practice Guidelines, 2nd Edition, Bat conservation Trust.
- Natural England Technical Information Note TIN051. Bats and onshore wind turbines. 2nd Edition, February 2012.
- Natural England Technical Information Note TIN051.Bats and onshore wind turbines. 2nd Edition, February 2012
- Bat Survey Guidelines: Traditional Farm Buildings Scheme (2008) Tina Aughney, Conor Kelleher & Donna Mullen. The Heritage Council, Áras na hOidhreachta, Church Lane, Kilkenny.
- Eurobats Publication No. 3: Guidelines for consideration of bats in wind farm projects
- *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes* (National Road Authority (NRA, 2006a).
- Bat Conservation Ireland. Wind Turbine/Wind Farm Development, Bat Survey Guidelines (Version No. 2.8, December 2012)
- Kelleher, C. & Marnell, F. (2006) Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No. 25. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.
- Northern Ireland Environment Agency November 2011, Bat Survey – Specific Requirements of Windfarm proposals.
- Bat Mitigation Guidelines for Ireland. *Irish Wildlife Manuals*, No. 25 (National Parks and Wildlife Service 2006).
- NRA Guidelines for treatment of Bats During Construction of National Road Schemes (2005) NPWS, Natura, Tina Aughney.
- Bat Survey Guidelines: Traditional Farm Buildings Scheme (2008) Tina Aughney, Conor Kelleher & Donna Mullen. The Heritage Council, Áras na hOidhreachta, Church Lane, Kilkenny.
- *The Status Of EU Protected Habitats And Species In Ireland* (National Parks and Wildlife Service 2013),
- Previous Report/Baseline Bat Surveys, completed by INIS Environmental Consultants Ltd, conducted in 2013.
- OSI Aerial photography and 1:50000 mapping,
- National Parks and Wildlife Service (NPWS),
- Geological Survey Ireland (GSI) area maps,

- Bat Conservation Ireland publications and website,
- National Biodiversity Centre (NBDC) (on-line map-viewer).

A desktop review was completed to identify features of ecological importance within the study area and surrounding region.

3.1.1 Consultation (Data Request submitted to Bat Conservation Ireland)

A data search request was submitted to Bat Conservation Ireland (BCI) for a search of their database for all known records of bat species (both roosting sites and ad-hoc observations) retained by BCI within a radius of 10km of the Cloncreen Bog site. Irish Transverse Mercator (ITM) X, Y co ordinates were provided as a reference point from which the search radius extended.

3.1.2 National Biodiversity Data Centre (NBDC)

The NBDC online mapper includes a bat habitat suitability layer index. The index ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats. The index presented is for all species combined, in addition to each individual species indices. The suitability indices for each bat species are included in Table 5, Section 4.1.3 below. The reference area to which the indices relate comprises the Cloncreen Bog site area, and the geographical area extending away from it.

3.1.3 Previous surveys

A preliminary bat survey was carried out on two Bord na Móna bog groups in 2012/13, namely the Ballydermot/Timahoe Bog group, and the Derrygreenagh Bog group. The Cloncreen Bog site is included within the Derrygreenagh Bog group. The goal of these surveys was to establish indicative levels of bat activity within the two bog groups. No formal bat survey had been carried out within these areas prior to the preliminary study (apart from some project specific studies in a limited number of locations). Therefore the levels of bat activity within these areas were relatively unknown. A summary of these findings for the Cloncreen Bog site is included in section 4.1.6 below.

3.1.4 Designated sites

This desk study included all designated areas and sensitive areas within a 15km radius of the study area.

3.2 FIELD SURVEYS

3.2.1 Introduction

Bats in Ireland feed exclusively on insects and in the summer they generally emerge from their roosts at dusk to feed. The distances covered while foraging varies considerably between species. They are known to use a number of different foraging sites in the same night and move between them to locate areas of high insect density. They are also known to exhibit a level of site loyalty and will frequently return to the same foraging sites night after night (JNCC, 2001).

Information on bat activity at the study area was collated from a comprehensive set of field surveys conducted during the months of March, May, June, July and August 2015, and November 2015. Three forms of survey design were implemented and included;

1. Roost surveys (daytime visual search and bat activity surveys within the study area).
2. Bat activity surveys (bat transects), and
3. Automated bat surveys.

All bat surveys were undertaken by appropriately trained and experienced ecologists. In order to carry out the surveys efficiently and safely, surveyors became familiar with the site during daylight hours. All surveys were conducted using pairs of surveyors. This Health and Safety methodology was followed at all times.

Bat survey methods are described in the following sections.

3.2.2 Roosting habitat availability

3.2.2.1 Structure/tree survey (Visual daytime searching)

Daytime bat roost surveys were conducted at the study area in the months of March, May, June, July, August and September 2015. A daytime bat roost survey was also carried out on the 16th of November and the 15th of December, 2015.

The daytime surveys did not involve any activities which would require a National Parks and Wildlife Service handling license. The site and adjacent lands were searched for potential bat roost sites. Structures were examined for potential bat roosts, which included bridges adjacent to the Cloncreen Bog site, Bord na Móna buildings, and two private unused dwellings in proximity of the Cloncreen Bog. Trees within and adjacent to the site were checked for holes, cracks, crevices and openings in both living and dead trees. Trees were inspected from ground level using binoculars, for external signs of damage or evidence of the presence of holes or cavities. Where required, an endoscope was used to investigate cracks and crevices present on trees.

The daytime survey included the following;

- Communication with client and local landowners.
- External inspection of potential bat roost sites included, looking/searching for bat droppings on the ground, streaking on walls, suitable entry and exit points around eaves, soffits, flashing, crevices etc., at the Bord na Móna Tea Centre and other buildings, including the nearby wildlife sanctuary to the northwest of the site.
- Where required/access available, internal inspection of buildings were carried out.
- This part of the survey mainly focussed on areas which would provide appropriate environmental conditions for bats. This included checking joints, cracks and crevices on plastered walls, stone walls, wood and wooden beams. The floors, walls and structural elements were examined for droppings, streaking and other bat signs such as oily marks on walls from fur, the feeding remains such as moth wings or other insect parts, along with checking areas for corpses and skeletons of bats. Plastered areas and ridge beams were searched for scratch marks. Ledge areas such as window boards were searched for evidence of bats (urine stains, droppings remains of prey etc.).
- Bridges in the proximity of the Cloncreen Bog site were investigated for any evidence of bats. These were inspected using a high-powered torch and endoscope. Any crevices, holes, cracks and joints present at bridge structures were inspected, searching for evidence of bats.
- An endoscope was used to check cracks and crevices in old stone walls and cracks and crevices that are present in the workshop and bridge structures, and the more mature trees that occur within the study area.
- Trees occurring at the site were initially assessed for the potential of a roost site, looking out for holes, cracks and splits (in trunks and limbs), cavities formed by cracked stems or limbs,

peeling bark, crevices and deadwood. Also while conducting the survey trees were searched for any evidence of bats such as scratch marks, oil stains and droppings.

While conducting the daytime surveys, other habitats within the study area, and the immediate surroundings were noted. This was done to assess bat foraging habitat availability, and to record the presence of significant landscape features, particularly linear features that provide wildlife corridors for commuting bats.

3.2.2.2 Bat emergence survey

Bat emergence surveys were carried out at potential roost sites, identified during the daytime visual surveys and bat roost sites identified during previous baseline surveys at the site. The following was carried out while conducting the bat emergence survey at the site;

- The surveys began approximately 40 minutes before dusk.
- The potential roost sites were watched for 1 hour after dusk.
- Equipment used included Frequency Division AnaBat Detector System (AnaBat SD2 Flash Card Bat Detector), a hand-held heterodyne bat detector (the Batbox Duet) flash lights and hand held GPS.

3.2.3 Bat activity surveys (Transects)

Bat transect surveys conducted at the site consisted of walked and driven transects. Surveys included previous transect routes, carried out at the site (for a continuation of baseline surveys), with additional transects also included. The transect routes were designed to comprehensively survey the proposed development area and intersected/followed the foraging and commuting habitats present within it, particularly those associated with linear features such as roadside margins, vegetated linear strips, scrub, woodland edges, and hedgerows.

The transects at the site were repeated three times, completed during the following nights visits;

- **Bat transect survey 1:** carried out on the 24th June 2015.
- **Bat transect survey 2:** carried out on the 19th of August 2015.
- **Bat transect survey 3**: carried out on the 10th of September 2015.

The repeated transects were undertaken in opposite directions on another occasions, where possible, from different points/times along the route. Transect times were spread throughout the survey nights, to provide a more complete overview of the bat activity/usage at the site, throughout the survey period.

The activity survey was conducted using the Frequency Division AnaBat Detector System (AnaBat SD2 Flash Card Bat Detector) in conjunction with the BatNav KML Generator which generates GPS co ordinates for each bat pass recorded. The AnaBat detector records bat ultrasonic calls on a continuous basis, and stores the information onto an internal CF card. Frequency Division is a technique used to convert the inaudible bat echolocation calls to audible sounds. The AnaBat unit also uses Zero-Crossing Analysis (ZCA) to make the real-time recorded calls visible for display purposes. It is these sonograms (2-d sound pictures) that are digitally stored on the CF card, and downloaded for analysis. Each time a bat is detected, an individual time-stamped (date and time to the second) file is recorded. The GPS location of each call is also recorded.

Walked transects were conducted within the study area, which were not suitable for vehicle access. Driven transects were carried out with the use of a four by four vehicle. The Anabat detector was connected to a specially adapted microphone, mounted to the roof of the vehicle.

Post survey, the species of each individual bat pass is identified, and the recording is labelled. If sufficient calls are recorded the GPS location is appended to each call and the distribution mapping of bat activity along the survey route can be generated on GIS platforms and on Google Earth. These formats provide easy and quick access to detailed distribution mapping of any activity recorded. Repeated surveys can be overlaid, or multiple surveyors' results can be plotted to visualise a large site.

A hand-held heterodyne bat detector (the Batbox Duet) was also utilised, to enable identification of individual species in the field in real time. The frequency detection dials were rotated so that there was frequent scanning of the frequencies between 20 kHz and 120 kHz.

The bat transect surveys conducted at the Cloncreen Bog site, were conducted by experienced bat ecologists. Surveys were carried out during periods where weather conditions meet the requirement set out in standard survey methodology guidance documents (Bat conservation Ireland 2012[2]; Hundt, 2012[3]; Mitchell-Jones and Mcleish 2004[4]). Recommended guidelines state that surveys are appropriate when nocturnal temperatures are greater than 7°C, avoiding prolonged or heavy precipitation. Prior to survey, each transect was walked during daylight hours, to make note, and to be avoid potential hazards during surveys. A hand held 'Sat Map' navigational device, which incorporated aerial photography of the study area transect routes, further aided in the navigation during darkness.

Transect routes can be viewed in Figure 1 below.

3.2.4 Passive bat survey

An unmanned automated bat survey was completed at three locations, in July (one location), and early September 2015 (two locations). The Song Meter SMZC Bat Recorder was deployed at locations that were selected for their proximity to habitats, or features potentially valuable to bats, at strategic locations at the site. This was carried out as to provide a good representative coverage of the survey area. The song meters were set at three different locations for a minimum five consecutive nights, once in July 2015, and two locations in early September 2015. The detectors were set from half an hour before sun set, to half an hour after sunrise.

Calls emitted by bats that passed in the proximity to the SMZC detectors were recorded and their calls stored for later analysis. The SMZC detector system records bat ultrasonic calls on a continuous basis and stores the information onto internal SD cards. The bat detector is effectively used as a bat activity data logger.

Passive bat survey locations can be viewed in Figure 1 below.

[2] Bat Conservation Ireland (2012) Wind turbine / windfarm development bat guidelines, Version 2.8, December 2012.

[3] Bat Surveys: Good Practice Guidelines, 2nd Edition, Bat conservation Trust.

[4] The Bat Workers' Manual, 3rd Edition. JNCC, Peterborough.

3.2.5 Automated bat surveys from height

Recent guidance on good practice for bat surveys at proposed on-shore windfarm sites (Bat Conservation Thrust 2011) recommends that where possible, static automated bat detectors be installed at turbine height (or as close as possible).

An automated bat survey from height was conducted at the Cloncreen Met Mast, for a period of 55 consecutive nights, to provide a sample of the bat activity at turbine height over the survey period.

A weather-resistant SMM-U1 ultrasonic microphone was attached to a bird deterrent unit, and fixed to the Cloncreen Met Mast, at a height of approximately 95m, above ground level. An electronic cable, connected to an SM3BAT Bat Song Meter, at ground level. The SM3BAT Song Meter unit was installed, and secured, on the 24th of June 2015, and was removed on the 18th of August 2015. Prior to deployment, the SM3 Bat detector was calibrated with an ultrasonic calibrator, to ensure that the microphone and the detector were performing properly. The SM3 Bat detector was equipped with secured digital (SD) memory cards to store call data. The detector was programmed to record both zero-crossing and full spectrum call files simultaneously. Following the survey period the data was downloaded using Kaleidascope and Analook software, to view/analyse any bat sonograms (see following section, Section 3.2.6). The unit was checked frequently during the survey period, replacing batteries at regular intervals and making sure the device was working appropriately.

3.2.6 Download analysis of data

The data was downloaded and analysed using Kaleidascope and Analook software. Each time-stamped bat file was analysed and the species of bat recorded noted as a bat pass. A single sound file can have bat passes from more than one species as well as calls from more than one bat of the same species. Where this occurs a bat pass was noted for each species. (e.g. two species identified in a time-stamped file).

The sound files collected were converted from .wac format to .wav and zero crossing for sound analysis within Kaleidoscope software. This software can automatically sort sound files that contain only non-bat 'noise' from sound files that contain bat passes. The software can also 'tag' each call with a potential identification, according to similarities in call shape to archetypal call clusters within the database. This approach allows identification of bats to genus level for Myotis species, and to species level for other bats found in Ireland. Separation of Myotis species is complicated by the high degree of overlap between call characteristics.

Following Kaleidascope download, the bat tags were then checked using Analook software, and confirmed or corrected manually, since automatic classification is not yet accurate enough to rely upon in isolation for most species (Waters & Barlow, 2013). The manual identification was carried out by comparison with call parameters as set out in Russ (2012) and Barataud (2015).

Species identification of recordings was determined independently, by a minimum of two observers, if calls were not characteristic, and easily identifiable.

From analysing the sonograms produced during surveys, in combination with communications with Tina Aughney (BCI), made it was possible to separate Natterer's bat, from other Myotis species.

3.2.7 Summary of bat surveys carried out at study area

The location of the automated survey from height at the Cloncreen Met Mast can be viewed in Figure 1 below.

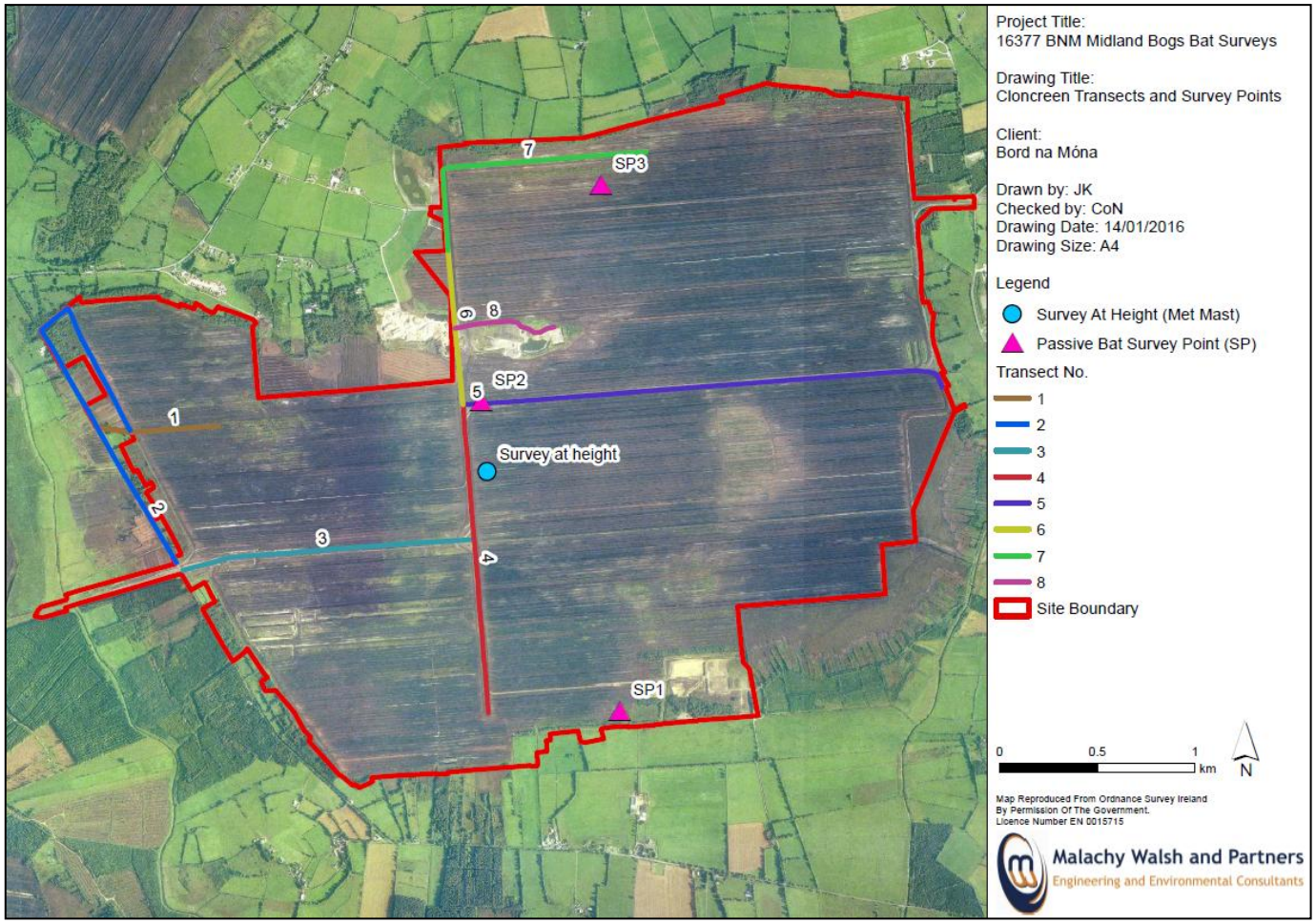


Figure 1: Location of bat surveys at the study area

4 RESULTS

4.1 DESK REVIEW/STUDY

4.1.1 Consultations (Records retained by Bat Conservation Ireland)

On the 13th of November 2015, BCI replied to a request for information regarding any known bat activity within a 10km radius of the Cloncreen Bog site.

The results of the BCI search indicated six records of bat roosts within the 10km search radius specified, with an additional bat roost, just outside the search area. Species included brown long-eared bat, whiskered bat, Leislers' bat, Common pipistrelle and Soprano pipistrelle. Following consultations with BCI, the closest known bat roost site, is in Edenderry, approximately 5.5km to the northeast of the Cloncreen Bog site (unidentified bat species). Adhoc observations, included Daubentons bat, recorded during transects, carried out at a number of bridges within a 10km radius of the Cloncreen Bog site, the closest of which is approximately 7km to the northeast. Consultations with BCI can be viewed in Appendix 1.

4.1.2 Summary of Habitats Associations of Irish Bats

Table 3: Summary of habitat associations of Irish bats

Species	Foraging habitat	Roost habitat
Brown long eared bat	Foraging habitat includes broad-leaved woodlands, tree lines, scrub, conifer plantations, gardens with mature trees, parkland, and orchards	Roosts in close association with foraging habitats, but avoids roosting in mixed agricultural areas, bog, marsh, heath and natural grassland. In Ireland, large open attics, tree holes, ruins, houses, churches and farm buildings.
Common pipistrelle/Soprano pipistrelle	Broad foraging niches (Russ 1999) which reflect their widespread occurrence in Ireland. Highly adaptive to changing landscape conditions and can occupy a range of different habitat types from urban areas to woodlands.	Houses, although they also roost in other locations such as tree holes, can be found in most habitat types except for very exposed areas. Confined areas in houses, behind hanging tiles, soffit boards or between roofing felt and roof tiles, rather than the main attic space.
Nathusius' Pipistrelle	Mainly forest dwelling bat species. Forests including deciduous woodlands to dry coniferous forests. Use parks, farmland and woodland edges, rarely seen in urban settlements than other bat species. Prefer lowland areas.	Often recorded roosting in crevices and have been found in cracks in walls, under soffit boards, fissures in rocks and tree hollows.
Lesser horseshoe bat	Sheltered valleys near wooded countryside. Distribution in the west is strongly linked with broadleaved and mixed woodland and it usually forages in woodland and scrub.	Mainly in roofs of old houses or in outhouses, stables or old cottages. In winter this species hibernates in caves, disused cellars, mines and underground structures.
Leisler's bat	Forages over a range of habitat types including over pasture, rivers, lakes, canals and forestry. It also hunts around streetlights and floodlights.	In Ireland, nursery roosts are chiefly located in attic spaces of buildings. There are also a few records of nursery roosts in trees.
Daubenton's bat	Surface of lakes, slow-moving rivers and canals.	Usual roost sites are under stone bridges, in ruins, canal tunnels, trees and damp caves.
Natterer's bat	Can be found in woodland, mature hedgerows and pasture habitats.	Usual roost sites are in tree holes, old stone buildings such as churches and barns, and under bridges.
Brandt's bat/Whiskered bat	Typically forages along forest tracks, or near water	Can be found roosting in attics of old buildings. Very few confirmed roosts in Ireland. It is also sometimes found roosting in crevices under stone bridges and in trees.

A study carried out by Lundy et al (2011), revealed some consistent patterns across bat species associations with habitat types. In general, bog, marsh and heath have negative associations, while broadleaf woodland, mixed forest and riparian habitats have positive associations with bat occurrence. Table 4 below, provides a summary of key land cover associations and the most relevant spatial scale of these associations for each bat species.

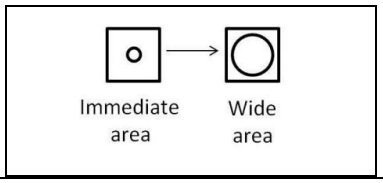
Table 4: Summary of the habitat associations of bats

A summary of habitats associations of Irish bats: Two elements of habitat association are identified; direction of association (positive or negative) and scale of association (fine scale or broad scale).

Direction of association:
The colour of the box identifies the direction of association. Three relationships are identified; a positive association, a negative association and an intermediate association. An intermediate association reflects that a species is positively associated with a small area ofthis habitat but as this area increases this association becomes negative. A non-filled box signifies that this habitat is not an important predictor of that species occurring.

Positive association
Intermediate association
Negative association

Scale of association:
The size of the circle identifies the scale of the habitat that is most important – a small circle identifies that this habitat is important in the immediate area whereas a large circle reflects an association with that habitat at a wider landscape scale.



	Arable	Bog	Broadleaf forest	Mixed forest	Pasture	Riparian habitats	Scrub	Urban	Freshwater	Altitude
Brown long eared bat										
Common pipistrelle										
Lesser horseshoe										
Leisler's										
Daubenton's										
Nathusius' Pipistrelle										
Natterer's bat										
Soprano Pipistrelle										
Whiskered										

Adapted from: (Lundy et al 2011) Landscape conservation for Irish bats and species specific roosting characteristics. Bat Conservation Ireland

4.1.3 Bat habitat suitability index at National Biodiversity Data Centre (NBDC)

The NBDC online mapper bat habitat suitability layer index was viewed on the 21st of November 2015. The results outlined in Table 5 below, indicate that the habitats within the majority of the site are of relatively low value to bats in general, with a rating of 21.56 for the category 'All bats'. The rating for the very southern end of the site is slightly higher, with a rating of 29.22 for the category 'All bats'. Within the majority of the site two species have a rating of lower than 10, namely lesser horseshoe bat (*Rhinolophus hipposideros*) (n=0) and Nathusius' Pipistrelle (*Pipistrellus nathusii*) (n=2). Common pipistrelle (*Pipistrellus pipistrellus*), has the highest habitat suitability index, with a rating of 38, followed by Soprano pipistrelle (*Pipistrellus pygmaeus*) and Leisler's bat (*Nyctalus leisleri*), both with a rating of 33. For the most part, the habitat suitability index rating increases by approximately 15% for the very southern part of the site.

Table 5: Bat habitat suitability index rating for the general location of the Cloncreen Bog site

Species	Bat Suitability Index	
	Majority of site	Very southern end of site
All bats	21.56	29.22
Common Pipistrelle	38	46
Soprano Pipistrelle	33	43
Leisler's bat	33	40
Brown long-eared bat	27	39
Natterer's bat	23	39
Daubenton's bat	22	30
Whiskered bat	16	25
Nathusius' Pipistrelle	2	2
Lesser Horseshoe bat	0	0

4.1.4 National Biodiversity Data Centre

The on-line mapping resource of the National Biodiversity Data Centre (NBDC)[5], allows users to search almost 2 million records available across 80 datasets. Data analysis tools enable users to refine data base searches by selecting 1km, 2km or 10km grid squares on the interactive map. All species records for the selected grid square, retained at the NBDC, are then available for download in 'Excel' spreadsheet format. The study area, is situated within two OSI 10km grid squares, namely N52 (western and central part of the site) and N62 (eastern end of the site). The results of a search of the area within 10km squares N52 and N62 are outlined in Table 6 below.

Table 6: Records retained at the National Biodiversity Data Centre

Species	Record Retained for Grid Square N52	Record Retained for Grid Square N62
Common pipistrelle	No	Yes
Soprano pipistrelle	No	Yes
Leisler's bat	No	No
Brown long-eared bat	No	Yes

[5] Available at : http://maps.biodiversityireland.ie/#/Map [accessed 21/08/2014]

Species	Record Retained for Grid Square N52	Record Retained for Grid Square N62
Natterer's bat	No	No
Daubenton's bat	No	No
Whiskered bat	No	No
Nathusius' pipistrelle	No	No
Lesser horseshoe bat	No	No
Brandt's bat	No	No

4.1.5 Current Distribution

4.1.5.1 National Parks and Wildlife Service Mapping

Current species distribution mapping is included in the Department of the Environment, Heritage and Local Government's most recently published report to the European Commission on the Conservation Status in Ireland of Habitats and Species listed in the European Council Directive on the Conservation of Habitats, Flora and Fauna 92/43/EEC (NPWS 2013). The following tables (Table 7 and Table 8), show the current known, or estimated distribution for bat species, within the 10km OSI grid squares that include the Cloncreen Bog site.

Table 7: Species distribution for OSI Grid Square N52, records from NPWS 2013.

Species	Current Distribution[6] includes Grid Square N52	Current Range[7] includes Grid Square 52[8]
Common pipistrelle	No	Yes
Soprano pipistrelle[9]	Yes	Yes
Leisler's bat	No	Yes
Brown long eared bat	No	Yes
Natterer's bat	No	Yes
Daubenton's bat	No	Yes
Whiskered bat	No	No
Nathusius' pipistrelle	No	No
Lesser horseshoe bat	No	No

Table 8: Species distribution for OSI Grid Square N62, records from NPWS 2013.

Species	Current Distribution[10] includes Grid Square N62	Current Range[11] includes Grid Square 62[12]
Common pipistrelle	Yes	Yes
Soprano pipistrelle[13]	Yes	Yes
Leisler's bat	No	Yes
Brown long eared bat	Yes	Yes
Natterer's bat	No	Yes

[6] Based on the known or best estimate of distribution (NPWS, 2013)

[7] A mapping convention whereby the smallest polygon size containing all grid squares where distribution is indicated is mapped (NPWS, 2013).

[8] The proposal site considered in this document is located within this 10km grid square.

[9] Based on the known or best estimate of distribution (NPWS, 2008)

[10] Based on the known or best estimate of distribution (NPWS, 2013)

[11] A mapping convention whereby the smallest polygon size containing all grid squares where distribution is indicated is mapped (NPWS, 2013).

[12] The proposal site considered in this document is located within this 10km grid squares.

[13] Based on the known or best estimate of distribution (NPWS, 2008)

Species	Current Distribution[10] includes Grid Square N62	Current Range[11] includes Grid Square 62[12]
Daubenton's bat	Yes	Yes
Whiskered bat	No	No
Nathusius' pipistrelle	No	No
Lesser horseshoe bat	No	No

4.1.5.2 Summary

Table 9 below summarises the data from Tables 6, 7, and 8 above, which relates to the 10km^2 area covered by OSI 10km grid squares N52, and N62, which includes the study area. The species are colour coded, on the basis of the extent to which overlap occurs between the records retained by the National Parks and Wildlife Service and the National Biodiversity Data Centre. The following assessment is an indicator only, of the potential for presence, or absence of species based solely on the information obtained during the desk study.

Table 9: Potential for presence within Grid squares S14

Species	Record Retained for Grid Square N52 & N62	Current Distribution[14] includes Grid Square N52 & N62	
Lesser horseshoe bat	No	No	Less likely
Brandt's bat	No	No	
Whiskered bat	No	No	
Nathusius' pipistrelle	No	No	
Nattere's bat	No	Yes	More likely
Leisler's bat	No	Yes	
Daubenton's bat	Yes	Yes	
Brown long-eared bat	Yes	Yes	
Soprano pipistrelle	Yes	Yes	
Common pipistrelle	Yes	Yes	
No positive indicator across the headings (Extremely unlikely to be present) One positive indicator across the headings(Potential to be present) Two positive indicators across the headings (Potentially/possibly present)			

Table 3 above highlights the different habitats associated with foraging and roosting bat. Table 4 above indicates that bat species show consistent patterns of associations with different habitat types. In general, bog, marsh and heath have negative associations, while woodland (broadleaf, and mixed species moreover), and riparian habitats, have positive associations with bat occurrence. In general, bats show an avoidance of anthropogenically modified areas, such as areas of agriculture and conifer forestry (Lundy *et al*, 2011). The habitat quality at a site, like the density of resources may significantly influence the density of bats using a particular area. The complex nature of the bat species habitat requirements, and the occurrence of bats are dependent on a combination of broad landscape patterns, local roosting conditions and the character of a roost. Studies have shown that bat activities correlate with a high insect abundance, but in addition, depend on the spatial

[14] Based on the known or best estimate of distribution (NPWS, 2008)

heterogeneity of the available habitat (Kusch *et al*, 2004). Open cutover bog, is by far the dominant habitat type at the Cloncreen Bog site, with vegetated fringes, and some linear vegetated strips, separating the bog fields. In general open cutover bog does not provide optimum habitat for foraging and roosting bats. However, areas outside this habitat at a particular site should not be discounted as unimportant. The occurrence of bat species in an area/greater area may be reliant on small fragments of favourable habitats, which are vulnerable to any environmental change. Therefore individual sites/locations within greater areas should be assessed for bats, on their own merit.

4.1.6 Previous surveys

A preliminary bat survey was carried out in the Ballydermot/Timahoe Bog group and the Derrygreenagh Bog group in 2013. The Cloncreen Bog site is included within the Derrygreenagh Bog group.

Bat activity surveys

During bat activity surveys (2013) at the study area (transect surveys), eight bat passes were recorded throughout the survey period, with three species present. These were, Common pipistrelle (n=5), whiskered/Brandt's (*Myotis mystacinus/brandtii*) (n=7), Leisler's bat (n=1). All bat records were from the linear features of well developed hedgerows at the north western side of the Cloncreen Bog, as defined in INIS Baseline Report, 2013. Only a single Common pipistrelle was recorded commuting, all other records were noted as foraging.

Passive surveys

The results of the remote surveys carried out in 2013, at the two bog groups (Ballydermot/Timahoe Bog group and Derrygreenagh Bog group), showed that bats recorded at the site preferred the 'Other habitats', including hedgerow and scrub, rather than the dominant open bog habitats throughout the overall study area.

Bat roost surveys

During preliminary bat surveys carried out in 2013, no significant bat roost sites were identified, within the Cloncreen Bog site.

4.1.7 Designated sites

4.1.7.1 Sites of International Importance

Special Areas of Conservation

Candidate Special Areas of Conservation are protected under the European Union (EU) 'Habitats Directive' (92/43/EEC), as implemented in Ireland by the European Communities (Natural Habitats) Regulations, 1997. There are three SACs within 15km of the Cloncreen Bog site. See Table 10 below.

Special Protection Areas

Special Protection Areas were initially designated under Directive 79/409/EEC, The Directive on the Conservation of Wild Birds ('The Birds Directive'), and are now protected as Natura 2000 Sites under the EU 'Habitats Directive'. There are no SPAs within 15km of the Cloncreen Bog site.

4.1.7.2 Sites of National Importance

Sites of National Importance in the Republic of Ireland are termed, Natural Heritage Areas (NHA) and proposed Natural Heritage Areas (pNHA). While the Wildlife (Amendment) Act 2000 has been passed into law, pNHAs will not have legal protection until the consultative process with landowners has

been completed; this process is currently ongoing. Three NHA sites and four pNHA sites are situated within 15 km of the Cloncreen Bog site boundary. Two of the four pNHA sites are co-located with a similarly named SAC site. See Table 10 below. The qualifying interests of these designated sites can be viewed in Appendix 1.

Table 10: Designated sites within 15km of Cloncreen Bog site

Site Name	Site Code	Proximity to the study at its closest point
Grand Canal pNHA	002104	Approximately 3.45km to the north
The Long Derries, Edenderry SAC and pNHA	000925	Approximately 4.9km to the northeast
Black Castle Bog NHA	000570	Approximately 6.3km to the north
Daingean Bog NHA	002033	Approximately 10km to the west
Carbury Bog NHA	001388	Approximately 10.90km to the northeast
Raheen Lough pNHA	000917[15]	Approximately 11.55km to the southwest
River Barrow and River Nore SAC	002162	Approximately 12.5km to the south
Raheenmore Bog SAC and pNHA	000582	Approximately 12.5km to the northwest

Summary of designated sites

The conservation objectives for the nearby designated sites include peatlands, bird species', including wildfowl and waders, aquatic and semi aquatic habitats and species. Bat species are not included in the conservation objectives of any of the designated site listed in Table 10 above.

4.2 RESULTS OF FIELD SURVEYS

4.2.1 Activity surveys (Transects)

Walked and driven bat transects were carried out at the study area. Bat transects conducted at the site can be viewed in Figure 1 above, Section 3.2. Bat transects were carried out in three phases. Phase one was conducted on the night of the 24th of June 2015. Phase 2 was carried out on the 19th of August 2015. And phase 3 was carried out on the 10th of September, 2015. Due to low temperatures during late night/early morning, no bat transect surveys, were carried out pre dawn. Summary results of the bat transects carried out at the study area are shown in table 11 below.

[15] A Review of Natural Heritage Area Protection in Ireland (An Taisce)

Table 11: Cloncreen bat activity survey results

Cloncreen Bat Transect Survey							
Date	Time	Temp	Rain	Cloud	wind	Bat activity (passes)	Other comments
Phase 1							
24/06/2015	1.48 - 2.40	12°C	No	5/8	No/calm	Commom pipistrelle: 11 Soprano pipistrelle: 2 Leisler's bat: 7 Natteres bat: 1	Some moth activity. Bright night.
Phase 2							
19/08/2015	12.41 - 2.29	13°C - 15°C	No	2/8	No/Calm	Soprano pipistrelle: 12 Common pipistrelle: 5	Good moth activity. Dark night
Phase 3							
10/09/2015	21.45 - 23.45	14°C	No	4/8	Slight E/SE breeze (<F1)	Soprano pipistrelle: 13 Commom pipistrelle: 4	Good moth activity noted

In total 8 transects were carried out, with a combined length of approximately 11.40km. Transects followed Bord na Móna access tracks, railway tracks, open cutover bog, and public road. The surveys were designed to include the spread of habitats throughout the site, with open cutover bog being by far, the dominant habitat type at the Cloncreen Bog site. Habitats surveyed included cutover bog, drainage ditches, and vegetated linear strips between open cutover bog, scrub, conifer plantation, treeline/hedgerow, and woodland edges. Each survey phase had similar results. Phase 1, had a total of 21 bat passes. Phases 2 had 3 both had a total of 17 bat passes. Species recorded throughout the overall survey period included, Soprano pipistrelle (total bat passes: n=27) (49%), Common pipistrelle (total bat passes: n=20) (36%), Leisler' bat (total bat passes: n=7) (13%), and Natterers bat (n=1) (2%).

During phase 1 transects, there were single passes of commuting bats, for the most part along the broken linear vegetated strips adjacent to the railway tracks towards the centre of the site (see Appendix 4 Figure 4-1).

During transects carried out in August, 2015 (Phase 2), bat activity was confined to foraging and commuting pipistrelle species. For the most part, the bat activity was recorded along the well developed hedgerow adjacent to the local public road, outside of the site, to the northwest of the Cloncreen Bog (see Appendix 4 Figure 4-2).

During phase 3 transects, bat activity was again mostly confined to the north western part of the study area, with bat species, mainly commuting and foraging, along the well developed roadside hedgerows. A single bat pass of Soprano pipistrelle was made towards the northern part of the Cloncreen Bog, commuting over willow scrub, in-front of woodland, with open cutover bog extending to the south (see Appendix 4, Figure 4-3).

Figure 2, below shows the breakdown of the percentage of bat activity recorded during bat transects at the Cloncreen study area.

Figure 3, below shows the percentage breakdown of bat activity over the main habitats at the Cloncreen study area during bat activity surveys.

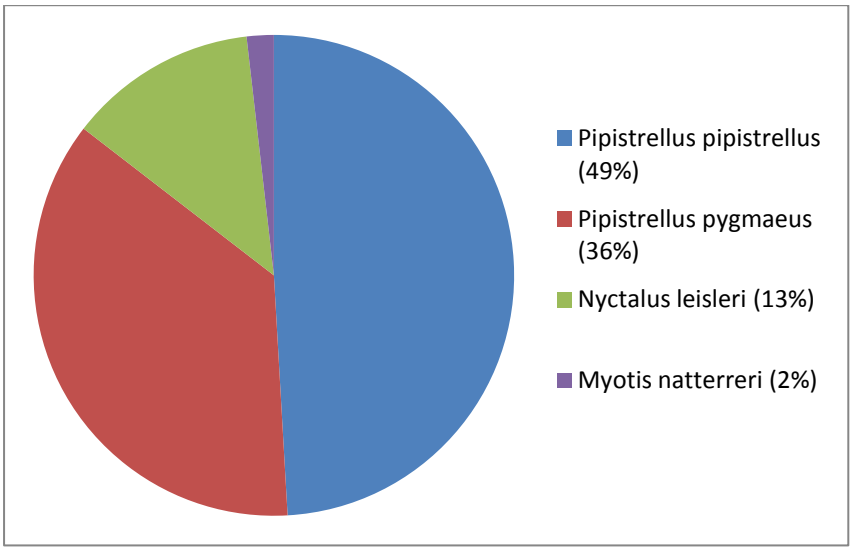


Figure 2: Percentage of bat activity (by species), recorded during activity surveys at study area

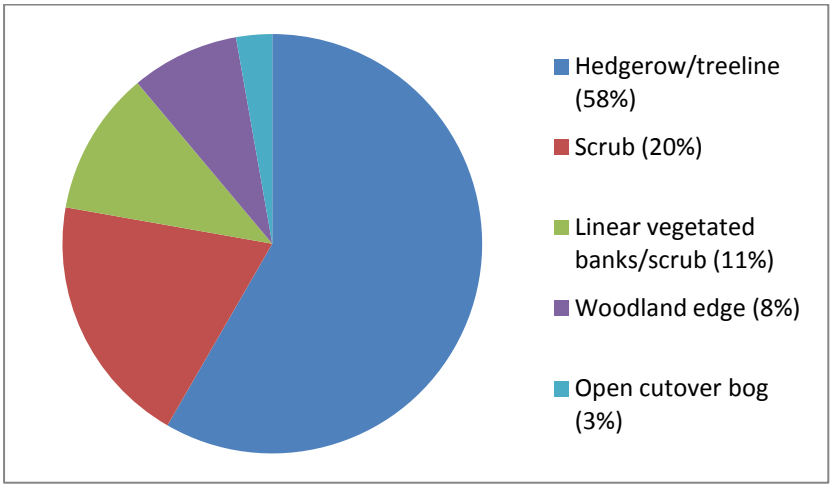


Figure 3: Habitat usage of bat activity, recorded during bat activity surveys at study area

4.2.2 Passive bat survey (Unmanned automated bat survey)

An unmanned automated bat survey was completed at three locations. Site 1 was completed in July, 2015, with sites 2 and 3 completed in early September, 2015. The following tables (Table 12, Table 13 and Table14), summarises the results of these surveys, they include the locations where the SMZC bat detectors were placed, and the durations of the deployment at each location. Figure 1, Section 3.2.7 above, shows the locations of surveys. Bat activity data during passive bat surveys can be viewed in Appendix 3, Table 3-1.

Table 12: Passive bat survey at Site No.1

Cloncreen Bog Passive Bat Survey (Site 1)				
SMZC Grid Ref.	**Dates surveyed**	**Habitats**	**Summary of results (Bat passes)**	
N59055, 24997	21st of July 2015 - 26th of July 2015	Cutover bog, willow dominated scrub. Woodland to the east towards the location of the ash repository. Grassland extending to the south.	Soprano pipistrelle	16
			Common pipistrelle	37
			Pipistrelle species	2
			Leisler's bat	16
			Natteres bat	5
			MYsp	9
Total bat passes				**87**

Bat acoustic survey session dates and weather				
21/07/2015	22/07/2015	23/07/2015	24/07/2015	25/07/2015
12°C	11°C	12°C	8°C	10°C

The approximate time of sunset over the survey nights was 21.40 and sunrise was approximately 05.30 hrs. The weather during the survey period was broadly typical for the location[16] and did not pose a significant constraint to the survey. Warm, calm weather is good for flying invertebrates, and therefore good for bats foraging. No significant rainfall/wind speed was recorded. Temperatures dropped to 8°C on the night of the 24th of July, however this temperature is still within optimal survey conditions for bats.

Table 13: Passive bat survey Site No.2

Cloncreen Bog Passive Bat Survey (Site 2)				
SMZC Grid Ref.	**Dates surveyed**	**Habitats**	**Summary of results (Bat passes)**	
N58345, 26585	2nd of Sept 2015 - 7th of Sept 2015	Linear strip of scrub on peat bank between cutover bog fields.	Soprano pipistrelle	44
			Common pipistrelle	33
			Leisler's bat	5
			Myotis sp.	2
			No ID	2
Total bat passes				**87**

Bat acoustic passive survey session conditions				
02/09/2015	03/09/2015	04/09/2015	05/09/2015	06/09/2015
7°C	9°C	10°C	9°C	8°C

The approximate time of sunset over the survey nights was 20.10hrs and sunrise for the location was approximately 06.45hrs. The historic low temperature for the general location of Daingean for the survey period is 9°C. On the night of the 4th/5th, some rainfall and wind speeds of approximately, Beaufort scale 5 were recorded in the greater area. For the remainder of the survey nights, no significant rainfall or wind speeds were recorded. Therefore, for the most part, the weather during the survey period was broadly typical for the location[17] and did not pose a significant constraint to survey.

[16] http://www.accuweather.com/en/ie/daingean/210701/july-weather/210701?monyr=7/1/2015&view=table
[17] http://www.accuweather.com/en/ie/daingean/210701/july-weather/210701?monyr=7/1/2015&view=table

Table 14: Passive bat survey Site No.3

Cloncreen Bog Passive Bat Survey (Site 3)				
SMZC Grid Ref.	**Dates surveyed**	**Habitats**	**Summary of results (Bat passes)**	
N58960, 27694	2nd of Sept 2015 - 7th of Sept 2015	Edge of willow dominated scrub, and cutover bog. Semi natural woodland further to north of scrub.	Soprano pipistrelle	12
			Common pipistrelle	242
			Leisler's bat	19
			Natteres bat	17
			MYsp	10
Total bat passes				**300**
Bat acoustic survey session dates and weather				
02/09/2015	03/09/2015	04/09/2015	05/09/2015	06/09/2015
7°C	9°C	10°C	9°C	8°C
The approximate time of sunset over the survey nights was 20.12 hrs and sunrise for the location was approximately 06.43 hrs. The historic low temperature for the general location of Daingean for the survey period is 9°C. On the night of the 4th/5th of some rainfall, and wind speeds of approximately Beaufort scale 5, were recorded in the greater area. For the remainder of the survey nights, no significant rainfall, or wind speeds were recorded. Therefore, for the most part the weather during the survey period was broadly typical for the location[18], and did not pose a significant constraint to survey.				

The SMZC bat detectors at the Cloncreen Bog site recorded the following species: Soprano pipistrelle, Common pipistrelle, and Leisler's bat, Natterer's bats, and Myotis species. Over the nights of passive monitoring survey, 3 grid reference locations were monitored. In relation to data collection at each of the sites, bat activity was recorded at all stations, and ranged from 83 and 86 bat passes at site 1 and site 2 respectively, to 300 bat passes at Site 3. Five nights of passive survey were carried out at each location, which resulted in a total of 469 bat passes. Common pipistrelle was the most common recorded species, with 312 passes (67%), followed by Soprano pipistrelle, with 71 bat passes (15%). Lesisler's bat had 39 bat passes (8.3%) and Natterer's bat had 22 passes (4.6%), while 21 passes were identified to Myotis species (4.3%).

The following figures (Figure 4 and Figure 5) include a summary graph, to further illustrate the results of the passive bat surveys and bat activity behaviour. The results are discussed without any visual observations during the night's surveys. These are extrapolated opinions, referring to likely behaviour, in relation to commuting/foraging bats.

[18] http://www.accuweather.com/en/ie/daingean/210701/july-weather/210701?monyr=7/1/2015&view=table

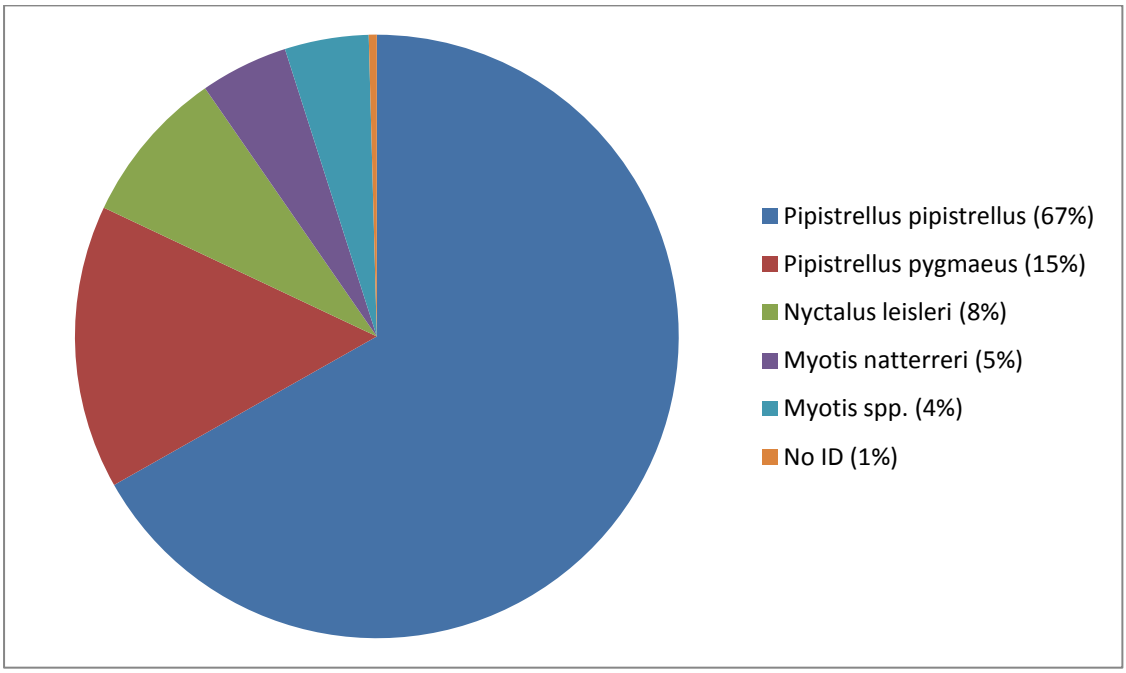


Figure 4: Species percentage of bat activity recorded at all monitoring sites during passive surveys at Cloncreen Bog site

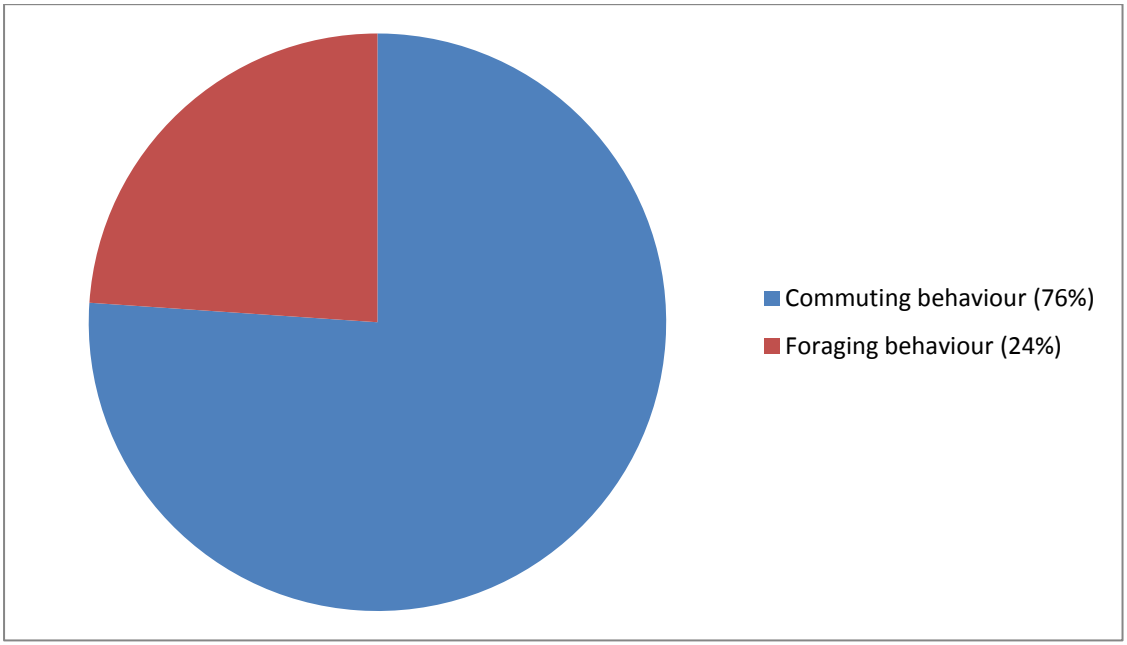


Figure 5: Percentage of bat behaviour recorded during passive bat surveys at the Cloncreen Bog site

Site 1

Site 1 is situated towards the southern end of the Cloncreen Bog site, approximately 1.4km to the southeast of the Cloncreen mat mast. The bat detector unit was deployed, just to the west of willow (*Salix* spp.) dominated scrub, with open cutover bog extending to the north. To the east, bare ground and sections of recolonising bare ground occurs in the Ash Repository, with sections of birch (*Betula* sp.), and conifer woodland. Hedgerow and broken stretches of treeline bound the access track allowing access to the ash repository/south eastern end of the bog site.

SMZC bat detector at Site 1, looking towards the location of deployment

During the survey period at site 1, sunset was approximately 21.40 hrs, while sunrise was approximately 05:30 hrs.

Bat activity was recorded during all of the five nights of survey. Overall bat activity was relatively low during the five nights of survey at Site 1, with a total of 87 bat passes recorded. For the most part bat activity began a little over one hour after sunset (commuting bats), with some scattered clusters of calls (foraging and commuting bats), throughout the middle of the survey nights. The latest bat pass recorded at this site was at 04.55 hrs on the 23rd of July, 2015. This was a single pass of a commuting Leisler's bat. For the remaining survey nights, bat activity ceased approximately one hour prior to sunrise (see Appendix 3, Table 3-1 for bat activity data during passive bat surveys at the site). Species recorded included Common pipistrelle (n=37), Soprano pipistrelle (n=16), Leislers' bat (n=5), Natterers bat (n=4) and Myotis species (n=10).

Site 2

Site 2 is situated towards the centre of the Cloncreen Bog, approximately 50m to the north of the Cloncreen Met Mast, just to the south of the Bord na Móna railway line. The bat detector unit was deployed, just to the east, of an end point of a linear vegetated strip, best described as recolonising bare ground, going on to scrub. This location would be sometimes used by machinery to commute, from east to west through the centre of the site. The vegetated strip separates open cutover bog fields. Dominant species included grey willow (*Salix cinerea*), birch saplings (*Betula* sp.), bramble (*Rubus fruticosus*), purple Moor-grass (*Molinia caerulea*), willow herb (*Epilobium* spp.), and horsetail (*Equisetum* sp.).

SMZC bat detector at Site 2, looking northeast.	SMZC bat detector at Site 2, looking west

During the survey period sunset was approximately 20:10 hrs, while sunrise was approximately 06:45 hrs.

Overall bat activity was relatively low during the five nights of survey at Site 2, with a total of 83 bat passes recorded. Bat activity was recorded during all of the five nights of survey. Only one bat pass was recorded on the night of the 4th/5th of September, 2015. This is likely due to poor weather conditions on this particular night, and Site 2 is situated in an open area, prone to the elements. For the most part, bat activity began approximately one hour after sunset, with little, to no bat activity between 00.00 hrs and 05.00 hours for nights 1, 2, and 4. For night 5 bat activity began at 20.48 hrs and continued through the night, with the last bat pass recorded at 06.20hrs (see Appendix 3, Table 3-1, for bat activity data during passive bat surveys at the site). Species recorded included Common pipistrelle (n=33), Soprano pipistrelle (n=44), Leislers' bat (n=5), a species of Myotis (n=2), and 2 bat passes which were not identified.

Site 3

Site 3 is situated towards the north centre part of the Cloncreen Bog site, approximately 1km to the northeast of the Bord na Mona Tea House. The bat detector unit was deployed, just in-front (to the south of) a linear strip of willow dominated scrub, with cut over bog extending to the south. The scrub is beginning to form semi natural woodland further to the north. Dominant species included grey willow, juvenile birch, Soft rush (*Juncus effuses*) and purple Moor-grass.

SMZC bat detector at Site 3, looking northwest.	SMZC bat detector at Site 3, looking west

The passive monitoring at Site 3 was carried out during the same time as Site 2. During the survey period sunset was approximately 20:12 hrs, while sunrise was approximately 06:43 hrs.

Bat activity was recorded during all of the five nights of survey, with a total of 300 bat passes recorded. During any of the survey nights, there was no bat activity until approximately 30 minutes after sunset. Where bat activity occurred late night night/early morning, it ceased approximately half an hour before sunrise. Night 2, and night 5 had the most bat activity, with 88 passes and 182 passes respectively. Again, night 3 had the least bat activity recorded, likely due to poor weather conditions (see Appendix 3, Table 3-1, for bat activity data during passive bat surveys at the site). Species recorded included Common pipistrelle (n=241), Soprano pipistrelle (n=13), Leislers' bat (n=19), Natterer's bat (n=17) and Myotis species (n=10).

Summary

The level of bat activity recorded is relatively low, particularly given that the survey effort was conducted nightly, from half an hour before sunset, to half an hour after sunrise, over five consecutive nights, during which time weather conditions were favourable far bat activity.

Overall, Common pipistrelle bats were the most active bat species during the passive bat surveys, becoming active, for the most part approximately one hour after sunset. They became more active as the nights progressed, with activity ceasing, approximately 1 hour before sunrise. Similar to Common pipistrelle, Soprano pipistrelle bats became active approximately one hour after sunset, but were less active through the night, with calls ceasing over one hour and fifteen minutes before sunrise. For the most part, where Leisler's bat activity occurred, it began early in the survey nights, with little, to no activity throughout the night, and became active again towards the end of the survey nights. Natterer's bats became active later during survey nights, showing more foraging behaviour, where they were recorded, with activity of this species ceasing a couple of hours before sunrise.

4.2.3 Automated Bat Surveys from Height

In total 55 nights of automated bat survey was carried out from the top of the Cloncreen Met Mast. Surveys were carried out between the 24th of June and the 18th of August, 2015.

Over the survey period, one bat pass was recorded. On the 2nd of July 2015, at 04.05.58 hrs, a single pass of a Leisler's bat was recorded.

The level of activity recorded was extremely low, particularly given that the survey effort was conducted nightly, over a sustained seven week plus period, during which weather conditions were suitable for commuting/foraging bats.

Microphone and cable attached to bird deterrent	Workers ascend the Cloncreen Met Mast with bat equipment
Microphone fixed to top of met mast	SM3 Bat Detector set up and secured

4.2.4 Roost surveys

As part of the 2015 bat surveys conducted at the Cloncreen Bog site, ecologists surveyed the land area within, and adjacent to the Cloncreen bog site.

Bat roost surveys were carried out at the Cloncreen Bog site, and adjacent lands on the following dates;

16th, 21st and 24th, of June 2015,
7th and 19th of August 2015,
2nd, 4th, 7th, 10th 17th of September 2015, a
16th of November 2015, and the
15th of December 2015

Buildings surveyed included, the Bord na Móna Tea House within the Cloncreen Bog site, the buildings associated with the Wildlife Sanctuary, located adjacent to the northeastern part of the site, the Bord na Móna Workshop/Factory at Ballycon, a dilapidated building in agricultural land, situated to the south of the Cloncreen Bog site, and a disused building, approximately 5.3km to northwest of the Cloncreen Bog site. The Bridges adjacent/in close proximity to the site, were also investigated throughout the survey period.

During site walkovers the wooded areas, and the individual trees at the site were investigated, checking for evidence of bats. The plantations/wooded areas include small sections of semi natural woodland, located towards the northern part of the site and planted areas towards the western and northwester end of the site. The following table (Table 15) summarises the bat roost surveys carried out at the study area.

Bat labelling of bat roosts/potential roosts, identified during previous baseline surveys at the site remain the same, with new bat sites labelled/named with the following asterisk; (A).

Table 15: Summary of surveys carried at potential bat roost sites (NPWS-BnM sensitive information)

Cloncreen Bog Potential Bat Roost Surveys									
BR Site	**Description**	**Distance from Cloncreen Bog site**	**GPS coordinates**	**Dates**	**Roost (Yes/No)**	**Species**	**Species recorded in general area**	**Active during previous surveys**	**Need for further investigation**
1	BnM Workshop/Factory	Approximately 2.8km to the west	N5 2	26/03/2015 07/08/2015 04/09/2015 15/12/2015	Yes	9 bats (Leisler's & Common pipistrelle)	Common pipistrelle Soprano pipistrelle *Myotis* sp.	Yes	**Yes** If any future development would result in potential impacts on this location. Then further assessment would have to be carried out at this site.
2(A)	BnM Tea Centre	Within site	N58224, 26887	16/06/2015 16/11/2015	No	N/A	Leislers bat Common pipistrelle Soprano pipistrelle	N/A	No
3	Single arch masonry bridge	Approximately 5.5km to the northwest	N5 ,3	22/06/2015 10/09/2015 15/12/2015	Yes	1unidentified bat (Likely Daubenton's bat)	Common pipistrelle Soprano pipistrelle Daubenton's bat	Yes	No
4(A)	Buildings associated with nature conservation area	Adjacent to north western end of the site	N58065, 27592	16/06/2015	No	N/A	Leislers bat Common pipistrelle Soprano pipistrelle	N/A	No
5(A)	Dilapidated	Approximately 1km to	N59877, 24273	16/06/2015	No	N/A	Common pipistrelle	N/A	No

Cloncreen Bog Potential Bat Roost Surveys									
BR Site	**Description**	**Distance from Cloncreen Bog site**	**GPS coordinates**	**Dates**	**Roost (Yes/No)**	**Species**	**Species recorded in general area**	**Active during previous surveys**	**Need for further investigation**
	house	the south		16/11/2015					
6(A)	Cloncreen Bridge. Triple arch masonry bridge	Approximately 1.3km to the southeast	N60511, 23992	21/06/2015 16/11/2015	No	N/A	Pipistrelle spp.	N/A	No
7(A)	Kilcumber Bridge Double arch stone bridge	Approximately 1.7km to the southeast	N61061, 26817	21/06/2015 16/11/2015	No	N/A	Pipistrelle spp.	N/A	No
10	Rhode Bridge. Single arch masonry bridge	Approximately 5.3km to the northwest	N53477, 31637	16/06/2015 17/09/2015 15/12/2015	No	N/A	Pipistrelle spp.	No	No
11(B)	Two mature trees	Approximately 280m to the east	N60829, 27723	15/12/2015	No	N/A	Pipistrelle spp. Lesiler's bat *Myotis* spp.	N/A	No
13	Building	Approximately 5.3km to northwest	N5[redacted], 3[redacted]	21/06/2015 17/09/2015 15/12/2015	Yes	8 Common pipistrelle	Common pipistrelle	No	Yes (If any future development would result in potential impacts on this location. Then further assessment would have to be carried out at this site.
15	Double concrete culvert	Approximately 1.2km to the east	N61776, 27899	15/12/2015	No	N/A	N/A	No	No

4.2.4.1 Structures

The Ballycon Workshop/Factory (BR1) is situated approximately 2.8km to the west of the Cloncreen Bog site. On the 4th of September 2015, prior to emergence surveys, bat droppings were observed at the top of the western wall of this factory (see Table 5-1, and Table 5-2 Appendix 5). During bat emergence surveys carried out at this location, nine bats were observed emerging from a void space underneath the sloped corrugated roof, and the top of the northern wall. During this survey, no bats were observed emerging from the other buildings within the site.

Within the Cloncreen Bog site, potential roost habitat available for bat species includes the Bord na Móna Tea House (BR2 (A)) towards the north central part of the site, approximately 500m to the north of the existing met mast. This site was investigated during the summer and winter survey periods (on the 16th of June 2015 and 16th of November 2016) (daytime visual surveys). No evidence of bats was observed during either of these surveys. During bat activity surveys at this location, no bat activity was observed at this location, nor was there bats observed emerging from this structure See Table 5-3, Appendix 5 for summary of survey and photographs of this site.

An old disused stone wall building (BR13) is situated approximately 5.3km to the northwest of the Cloncreen bog site. This is a two storey building and is somewhat dilapidated. The A roof is finished with slate, but some slates are missing from areas, and many voids/slates lifting in the existing roof. Some of the windows and doors have fallen away, with some having been boarded up for security. A great deal of the pointing in the stone work has deteriorated, and voids/crevices occur in the stonework. For health and safety reasons, and access issues to the site, the interior of the building was not investigated. During a bat emergence survey at this location, on the 21st of June 2015, eight Common pipistrelle bats were observed emerging from this structure. When this site was revisited on the 17th of September 2015, five Common pipistrelle bats were observed emerging from this building. On both occasions the bats were observed emerging from an upstairs window located on the eastern gable. During surveys at this location, bats were observed foraging and commuting along the good quality hedgerows that bound the adjacent grassland fields to the south, and the bounding R400 public road to the east of the building. Some mature treeline bounds the adjacent road, and the Grand Canal, situated approximately 40m to the north of the building. No bats were observed emerging from the adjacent Rhode Bridge (BR Site No.10), nor was there evidence of bats during daytime visual searches at this bridge. See Table 5-12, Appendix 5 for summary of survey, and photographs of this site.

A single masonry arch bridge (BR3) (spanning the Grand Canal) occurs approximately 1km downstream of Rhode Bridge (BR 10.). This site is approximately 5.5km to the northwest of the Cloncreen Bog. On the 10th of September, 2015, during the visual search of this structure, prior to the emergence survey, a single bat was observed in a crevice in the stone work, underneath the arch, on the southern side of the Grand Canal. The bat could be observed without the use of an endoscope. The endoscope was not used, as this potentially could have disturbed the bat. The bat could be seen moving within the void space (see Table 5-4, for summary of survey, and photographs of this site). During the emergence survey the bat did not exit the void space, and no other bats were observed emerging from the remaining voids/crevices at this bridge. Bat activity noted in the

general area during the emergence survey at this location included a single pass of a Daubenton's bat, Common pipistrelle, and Soprano pipistrelle. On the 16th of September, 2015, this site was revisited, with the bat still present. During winter roost surveys carried out in November, and December 2015, the bat was not present, or there was no evidence that bats were using the other crevices/void spaces at this structure.

During winter and summer (2014/15) bat roost surveys, there was no evidence that bats were using the remaining bridges adjacent/in close proximity to the site (see Table 15 above).

4.2.4.2 Potential Bat Roosts in Trees

Mature trees offer bat roost sites/resting places for different bat species. This varies between different bat species. Mature trees can provide roosting sites for Leisler's bats all year round. Other species that use trees, mostly during the summer months, include brown long-eared bat, Daubenton's bat, Natterer's bat, and pipistrelle species[19].

Within the Cloncreen bog site, mature trees are not present in large numbers, and where they do occur, they do not provide optimal habitat for roosting bats. One such location is just to the west of the Tea Centre, adjacent to the access area into the bog site (GPS: N58219, 26895). Six lodgepole pine trees (*Pinus contorta*) occur at this location. During surveys it was noted that there was no/little ivy (*Hedera hibernica*) growth present. Some holes occur, where limbs have broken away, however these holes are very open, making them unsuitable as roost sites. Also during surveys, it was noted that the location where these trees occur, is very open, which would make them susceptible to poor weather conditions.

During roost surveys adjacent to the site, it was noted that the number of mature trees potentially available to roosting bats was very limited. The woodland occurring within/adjacent to the site is not mature enough to provide optimum habitat for roosting bats (young trees, with no holes/crevices/peeling away bark). Some mature oak, ash, sycamore trees line the Local Road (L1003 running northwest/southeast), to the west of the site. Trees were investigated along this stretch of road. While some trees had some level of cover of ivy, no evidence of bats was observed. A treeline (GPS: N56585, 26105) running opposite to the local road (L1003), to the west of the site, into the Cloncreen Bog site was surveyed on the 16th of November 2015. Again no evidence of bats was observed. Broken stretches of treeline and some individual trees, line the local road (L5006) to the north east of the Cloncreen Bog site. During surveys at along this stretch of local road, on the 5th of December 2015, a light cover of ivy was noted on some of the trees; however the trees present were not very mature, and had no evidence of bats. A hazel (*Corylus avellana*)-alder (A*lnus glutinos*a)-birch treeline, line a sitka spruce (*Picea sitchensis*) plantation located adjacent to the northeastern boundary of the Cloncreen Bog site. Towards the eastern end of this treeline (GPS point: N60829, 27723), two of the more mature trees could potentially harbour bats (BR11A), with holes and cracks present on the trunk and limbs. A daytime visual survey was carried out on these trees on the 15th of December 2015. This survey, which included investigating the void spaces with an endoscope, did not find any evidence of bats using these trees. See Table 5-11 for summary of survey, and photographs of this site.

[19] http://www.batconservationireland.org/wp-content/uploads/2013/09/BCI_Guidelines_waterways.pdf

Bat roost survey locations, associated with the Cloncreen Bog study area can be viewed in Figure 6 below. Description of bat roost surveys carried out at each site can be viewed in Appendix 5.

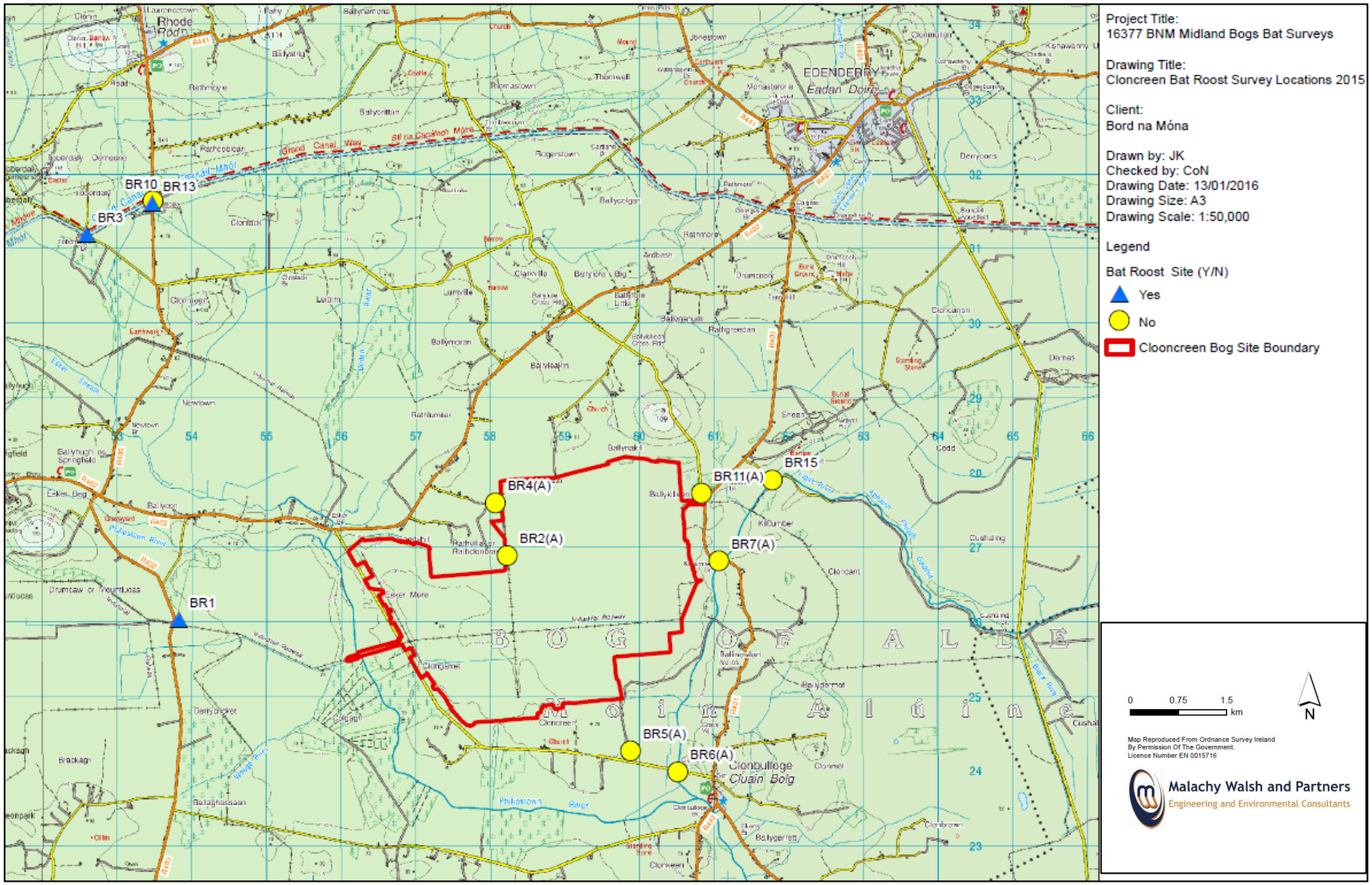


Figure 6: Bat roosts survey locations

4.2.5 Other Species

While carrying out bat surveys at the study area other species of note were recorded. The following table (Table 16) lists, and describes other species observations encountered during bat surveys at the study area;

Table 16: Other species observed during bat surveys at the study area

Other species				
Common name	**Scientific name**	**Date**	**Location**	**Comments**
Bird				
Whooper swan	*Cygnus cygnus*	16/11/2015	N57670, 24807	Adult and juvenile birds foraging and loafing in standing water towards the western end of the bog.
Cormorant	*Phalacrocorax carbo*	2/09/2015	N58111, 27774	Adult bird commuting west to east over northeastern part of site. Landed in pond in Nature Area adjacent to the site. (<10m 40S) (10m-20m 20S)
Mammal				
Pine martin	*Martes martes*	21/07/2015	N58559, 26833	Droppings on bare ground between pond at gravel borrow pit and willow scrub.
		15/12/2015	N52590, 31196	Dropping underneath single arch bridge (BR Site No.3).
Red squirell	*(Sciurus vulgaris)*	19/08/2015	N58192, 22741	An adult observed on road verge and entered woodland. Approximately 2km to the south of the Cloncreen site.
Fish				
Roach	*Rutilus rutilus*	10/09/2015	N52588, 31184	Observed rising in Grand Canal during bat roost survey at Bat Roost Site No.3
Perch	*Perca fluvialtilis*	10/09/2015	N52588, 31184	Observed rising in Grand Canal during bat roost survey at Bat Roost Site No.3
Moth				
Large Emerald	*Geometra papilionaria*	21/07/2015	N56288, 26968	Observed during bat transects towards north western end of bog site (Transect T2)

4.2.6 Discussion

Baseline bat surveys were carried out at the study area to identify the level of bat activity using the Cloncreen Bog site, and how the bat species encountered are using the habitat types present at the study area. The dominant habitat by far, is open cutover bog. Linear strips of vegetation and drainage ditches often separate the bog fields. The vegetated, scrubby fringes of the site are sometimes forming semi-natural wooded areas. Some planted wooded areas, also occur at the perimeter of the site, with hedgerow and treeline bounding the grassland fields, and the public roads outside the site.

Bat transects described in Section 4.2.1 above, were carried out at the site to give a snapshot of the level of bat activity along chosen routes at a particular time, with the survey phases (3 phases)

spread throughout the optimal survey period, and survey nights. The automated monitoring (outlined in Section 4.2.2 and Section 4.2.3 above), allowed for surveys to be carried out over extended periods of time, and results gave a more complete level of bat usage at three locations at ground level, as well as the level of bat activity over the site, at the Cloncreen Met Mast. The combination of these survey methods provides a more detailed picture of the level of bat usage at the site.

The species recorded during bat surveys in 2015 at the Cloncreen Bog site included Common pipistrelle, Soprano pipistrelle, Leisler's bat, Natterers bats and Myotis species. Previous surveys at the Cloncreen Bog site identified Common pipistrelle, Myotis species (whiskered/Brandt's bat) and Leisler's bat (Inis, 2013). During bat emergence surveys, a single pass of a Daubenton's bat was recorded.

The results of the passive monitoring system yielded the highest amount of bat passes, due to the greater survey effort using this system. The passive survey at Site No.3, by far had the most bat activity, with a total of 300 bat passes, over the five nights of survey. The birch and willow scrub to the north of this location provides good commuting and foraging habitat for bat species. It must be noted that while 300 bat passes were recorded, many of the passes occurred within a very short time frame, which would suggest that a good number of the bat passes were from an individual bat, or a small number of bats. The passive monitoring survey at Site No. 1, and Site No. 2 had similar results, with 87 bat passes at both locations throughout the survey periods. Again these units were deployed in vegetated areas, with Site No. 2 more centrally located within the bog site, with open cutover bog extending to the north and to the south of the linear vegetated bank. Prior to the survey at Site No. 1, located towards the southern end of the site, one would expect a higher level of bat activity, with good foraging and commuting habitat at this location. The weather during time of survey was also within the optimal conditions for bats. However, the results show that the bat usage at this location was relatively low during time of survey. The pattern of the bat passes throughout each of the passive monitoring survey nights gives a better understanding of the bat movements through the site, at each of the passive monitoring locations. Single bat passes were more frequently recorded towards the beginning and end of each of the night's surveys, indicating commuting bats. For the most part, bat activity began approximately one hour after sunset, and ceased approximately one hour before sunrise. On a number of occasions there were periods of high levels of bat activity, recorded within a short time frame. This activity and sonogram analysis would indicate foraging bat activity at these locations. During the passive monitoring bat survey, this activity predominantly occurred at site No.3, mainly on night two and night five, with the level of this activity decreasing towards the central (Site No.2), and southern parts of the site (Site No.1). Results of the passive bat survey show, that during time of survey, all three locations were used by foraging and commuting bats, with a higher level of foraging bat activity at Site No.3, towards the northern end of the Cloncreen Bog site.

Leisler's bat is classified as a high risk species in relation to wind turbines, as it is a high flying bat (Carlin and Mitchell-Jones 2009). Leisler's bat travels considerable distances between roosts and foraging areas. Distances of up to 13.4km have been recorded in Ireland (Shiel et al. 1999). This species is also known for fast flying speeds (Dietz et al. 2007). Therefore, the species is less manoeuvrable as a result. Throughout the 55 nights of automated surveys from height, from the top of the met mast, one bat pass of a Leisler's bat was recorded. This would indicate that during the

survey period, there was a minimal level of bat activity, over the Cloncreen site, at the met mast. Passive bat surveys from ground level, which were carried out at the same time as the survey from height (Site No. 1, approximately 1.2km to the southeast of the mast), indicated that there was low level of bat activity at ground level at this location, during that survey period. Overall, Leisler's bat was the third most common species recorded during activity and passive bat surveys at the site. Single bat passes of this species were recorded during passive bat surveys, indicating commuting bats. During activity surveys, this species was observed foraging, in a scrub area, lining a railway track towards the centre of the site. Even though both baseline bat surveys at the site indicated low levels of Leisler's bat activity, including some foraging and commuting behaviour, any proposed development would have to consider any potential impacts on high flying bats.

During bat activity surveys the majority of the bat activity was towards the vegetated fringes of the site, with very little bat activity/to no bat activity, within the open cutover bogland. The majority of the activity encountered during transects at the study area, was outside the site boundary, to the northwest of the site. The well developed hedgerows and some broken treeline adjacent to the local country road (Transect No. 2), provides good foraging and commuting habitat for bat species. No bat activity was encountered along transect No.1, which leads out into open bogland to the west of Transect No.2. While some bat activity was recorded along the vegetated banks, which follow rail lines within the site and separate open cutover bog fields, these were limited to the infrequent single bat passes. Surprisingly, no bat activity was encountered at the pond towards the centre of the site, which has formed as a result of gravel extraction. The perimeter of the pond is surrounded by willow and birch scrub, and provides excellent foraging habitat for bats. Although not directly connected to any linear vegetated feature, peat mounds and vegetated linear banks in close proximity to this area would provide access routes for bats.

Overall bat activity was relatively low within the Cloncreen Bog site, during passive and activity surveys carried out in 2015. These results confirm previous baseline bat survey results at the site. The scrub, hedgerows and woodland edges towards the fringes of the bog site, moreover the hedgerows/treeline bounding the L1003 Local road, just to the northwest of the Cloncreen Bog site (outside the Cloncreen Bog site), exhibited a higher level of activity at times during the survey period, showing their significance for bat species. These habitats provide some good foraging and commuting habitats for bats, and are important for the populations of bats in the greater area. Some low level bat activity was recorded within the vegetated linear strips/banks that occur within the bog site. These vegetated liner strips that traverse through the site, sometimes with adjacent drainage ditches, often begin towards the more vegetated margins/fringes of the site, allowing bats to take advantage, and commute and forage through the site, albeit in low numbers. It must be noted that these linear vegetated banks that traverse through the site, separating open cutover bogland, would be subjected more to the elements, in turn, reducing the quality of the habitat for bats.

Consultations with BCI identified seven bat roost sites within 10km of the Cloncreen Bog site. The closest of these to the Cloncreen Bog site is located at Edenderry, approximately 5.5km to the northwest. Previous bat roost surveys at the site identified one significant roost for Soprano pipistrelle, near Clonsast bog. This roost is located within a private dwelling, less than 500 metres outside Bord na Móna lands at Clonsast Bog, which is situated approximately 2.5km to the southwest of the southern end of the Cloncreen Bog.

There is very little potential for bats to roost within the Cloncreen bog site. The Bord na Mona Tea Centre, within the site would provide optimal temperatures to harbour bats, however the building is well sealed, and no evidence of bats was observed during visual daytime searches at this location. Communications with Bord na Móna personnel, that work at the Cloncreen Bog site, did not highlight any bat activity at this location. During activity surveys at this location, no bats were observed entering, or exiting the structure. During roost surveys at the bridges that are situated immediately adjacent of the Cloncreen Bog site, there was no evidence that bat species were using these structures during the survey period, with one bat observed using a bridge further to the northeast of the site.

Table 2 Section 2.4.3 above, shows the level of significance that may be given to bat roosts that may occur at any particular site. Previous baseline surveys, and the results of surveys included in this report, highlight the potential for buildings in the general area of Cloncreen Bog site, including commercial and private dwellings/farmhouses, to provide roost sites for bats. The bat roost at the Ballycon Factory (BR1) (9 bats during emergence survey), and the disused building (BR13) (8 bats during emergence survey), over 5km to the northwest of the Cloncreen Bog, were active during the summer months, and are potentially maternity roost sites. Bat roost Site No.3, is likely a temporary/commuting roost that is used periodically by a Daubentons bat. The conclusions of both baseline bat surveys and consultations carried out with BCI/NPWS highlight that any proposed development would have to consider any potential impact to buildings, and bridges in the proximity of the study area.

4.3 CONCLUSION

- The following species were identified during secondary baseline bat surveys carried out at the Cloncreen Bog Site; Common pipistrelle, Soprano pipistrelle, Leisler's bat, Natterers bats, Daubenton's bat and Myotis species.
- Baseline bat surveys did not identify any large populations of bats using the Cloncreen Bog site.
- Overall the level of bat activity at the Cloncreen Bog site was low, with the majority of the bat activity occurring towards the vegetated fringes of the site.
- Automated bat surveys from height did not identify a high level of bat activity over the site at the Cloncreen Met Mast.
- The vegetated linear banks that cut through the bog site are used by foraging and commuting bats, albeit in low numbers.
- Bat activity decreased in the open cutover bogland habitat at the site. This altered habitat is by far the dominant habitat type at the study area.
- Within the Cloncreen bog site, there is little potential for roosting bats.
- The trees within the wooded areas that bound the Cloncreen Bog do not provide optimal conditions, to harbour bats.
- Previous bat roost surveys, and roost surveys carried out as part of this report, identified three bat roost sites in buildings, and one bat roost located in a bridge within 5km of the Cloncreen Bog site.
- No bat roosts were identified within the Cloncreen Bog site.

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Appendix 1

Consultations with BCI

Consultation letter (Data Request)

Bat Conservation Ireland Ltd., Ulex House, Drumheel,
Lisduff, Virginia, County Cavan

www.batconservationireland.org info@batconservationireland.org

Bat Conservation Ireland Data Sharing Agreement

Name and address of 3rd party Company/Organisation:

Malachy Walsh and Partners, Reen Point, Blennerville, Tralee, County Kerry.

What they intend to use the data for:

To inform on a proposed windfarm (Cloncreen Windfarm in County Offaly.

Data requested (please list Irish Grid References or Counties/Landscape area):

Location of project; The site is located approximately 7.5 km to the south/southwest of Edenderry and approximately 12km to the east of Daingean in County Offaly. [ITM co-ordinates; X, 659006E, Y, 726534N] [ING co-ordinates; N59068, 26506, (ING full co-ordinates; 259068, 226506)].

A 10km radius search of the co-ordinates above.

The site is situated within OSI 10km grid squares N52 and N62.

Contact name and telephone details:

Caoimhin O'Neill (Tel No. 066-71-23404) (Mobile No. 087-0523312).

This person will take responsibility for

- The appropriate use of data for the stated duration of the project.
- The **return of the bat data collated** on completion of the project for BCIreland database.
- A declaration that such data covered by the agreement is removed from all databases directly or indirectly relating to the project.

The data covered by the Bat Conservation Ireland Data Sharing Agreement will be removed from all databases directly or indirectly related to the project on completion of the project.

Print: Caoimhin O'Neill

Sign:

Date: 21/10/2015

Correspondences with BCI (Data Request)

Morning,
I will get this processed for you asap.
THanks
Tina .

Bat Conservation Ireland Ltd.
Company Registration No. 494343

Ulex House, Drumheel,
Lisduff, Virginia, Co. Cavan

www.batconservationireland.org
info@batconservationireland.org
00353 (0) 86 4049468

Subject: Data request

Hi Tina,

We are doing the second year of baseline bat surveys for Bord na Mona's Ballydermot - Derrygreenagh Bogs. I am contacting you in order to request any records/bat roosts Bat Conservation Ireland may have for the area surrounding (10km radius) one particular site (Cloncreen bog).

Attached, please find the signed data request form.

Billing:
Can you invoice for the fees as follows:
under project number 16377

Our Office Administrator will raise Purchase Orders at this end so that payment can be made.

Our billing address :
Malachy Walsh and Partners, of Reen Point, Blennerville, Tralee, County Kerry.

Best regards,
Caoimhin O'Neill
Ecologist

Appendix 2

Qualifying Interests of nearby designated sites

Site Name (Site Code)	Qualifying Interests	Proximity to the study at its closest point
Grand Canal pNHA (002104)	• Bog/ calcareous grassland/ reed/ • scrub/woodland/diversity of spps • Hedgerow/ calcareous grassland/ • reed fringe/ open water/ • scrub/woodland	Approximately 3.45km to the north
The Long Derries, Edenderry SAC and pNHA (000925)	• Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210]	Approximately 4.9km to the northeast
Black Castle Bog NHA (000570)	• Peatlands [4]	Approximately 6.3km to the north
Daingean Bog NHA (002033)	• Peatlands [4]	Approximately 10km to the west
Carbury Bog NHA (001388)	• Peatlands [4]	Approximately 10.90km to the northeast
Raheen Lough pNHA (000917)[20]	• Lake/ wildfowl/ • waders/typical marshland • veg/scrub/ woodland/ • Warblers/ birds	Approximately 11.55km to the southwest
River Barrow and River Nore SAC (002162)	• Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • *Salicornia* and other annuals colonising mud and sand [1310] • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] • Mediterranean salt meadows (*Juncetalia maritimi*) [1410] • Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] • European dry heaths [4030] • Hydrophilous tall herb fringe communities of plains and of	Approximately 12.5km to the south

[20] A Review of Natural Heritage Area Protection in Ireland (An Taisce)

Site Name (Site Code)	Qualifying Interests	Proximity to the study at its closest point
	the montane to alpine levels [6430] • Petrifying springs with tufa formation (*Cratoneurion*) [7220] • Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] • Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (A*lno-Padion, Alnion incanae, Salicion albae*) [91E0] • *Vertigo moulinsiana* (Desmoulin's Whorl Snail) [1016] • *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] • *Austropotamobius pallipes* (White-clawed Crayfish) [1092] • *Petromyzon marinus* (Sea Lamprey) [1095] • *Lampetra planeri* (Brook Lamprey) [1096] • *Lampetra fluviatilis* (River Lamprey) [1099] • *Alosa fallax fallax* (Twaite Shad) [1103] • *Salmo salar* (Salmon) [1106] • *Lutra lutra (*Otter) [1355] • *Trichomanes speciosum* (Killarney Fern) [1421] • *Margaritifera durrovensis* (Nore Pearl Mussel) [1990]	
Raheenmore Bog SAC and pNHA (000582)	• Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the *Rhynchosporion* [7150]	Approximately 12.5km to the northwest

Appendix 3

Bat activity data during passive bat surveys

Table 3-1: Bat activity during passive bat survey

Site 1		
Date	Time	Bat activity
Night 1		
21/07/2015	22.47.38	NYLE
21/07/2015	22.53.34	PIPI
21/07/2015	22.53.45	PIPI
21/07/2015	23.21.46	PIPI
21/07/2015	23.26.55	MYsp
21/07/2015	23.27.03	MYsp
21/07/2015	23.27.24	PIPI
21/07/2015	23.43.10	PIPY
21/07/2015	23.49.34	MYNA
22/07/2015	00.13.37	PIPI
22/07/2015	03.41.57	PIPY
Night 2		
22/07/2015	22.44.27	NYLE
22/07/2015	22.54.27	PIPI
22/07/2015	23.16.56	PIPI
23/07/2015	02.20.53	MYNA
23/07/2015	03.16.16	NYLE
23/07/2015	04.22.34	PIPY
23/07/2015	04.22.49	PIPY
23/07/2015	04.55.41	NYLE
Night 3		
23/07/2015	22.39.36	PIPI
23/07/2015	22.44.06	NYLE
23/07/2015	22.44.21	NYLE
23/07/2015	22.45.24	PIPI
23/07/2015	22.46.42	NYLE
23/07/2015	22.57.57	PIPI
23/07/2015	22.59.30	NYLE
23/07/2015	23.02.45	PIPI
23/07/2015	23.03.02	NYLE
23/07/2015	23.03.51	PIPI
23/07/2015	23.04.37	PIPI
23/07/2015	23.07.17	PIPI
23/07/2015	23.10.54	PIPY
23/07/2015	23.12.48	PIPI
23/07/2015	23.18.09	PIPY
23/07/2015	23.27.12	PIPI
23/07/2015	23.27.34	PIPI

Site 1		
23/07/2015	23.33.04	PIPI
23/07/2015	23.36.43	PIPY
23/07/2015	23.45.29	PIPY
23/07/2015	23.49.53	MYsp
23/07/2015	23.54.06	MYsp
23/07/2015	23.54.22	MYsp
23/07/2015	23.59.51	PIPY
24/07/2015	01.03.22	NYLE
24/07/2015	01.36.53	MYsp
24/07/2015	02.23.39	MYsp
24/07/2015	02.37.47	PIPI
24/07/2015	03.08.57	PIPI
24/07/2015	03.10.47	PIPI
24/07/2015	03.10.58	PIPI
24/07/2015	03.32.23	NYLE
24/07/2015	03.35.33	PIPI
24/07/2015	03.43.03	PIPI
24/07/2015	03.51.15	PIPI
24/07/2015	03.51.23	PIPI
24/07/2015	03.55.27	PIPY
24/07/2015	03.55.41	PIPY
24/07/2015	03.57.53	PIPY
24/07/2015	03.58.56	PIPY
24/07/2015	04.30.17	PIPI
24/07/2015	04.30.39	PIPI
24/07/2015	04.33.41	PIPI
24/07/2015	04.33.49	PIPI
24/07/2015	04.34.10	PIPI
Night 4		
24/07/2015	22.33.55	PIsp
24/07/2015	22.35.36	PIsp
24/07/2015	22.40.02	PIPI
24/07/2015	22.51.51	PIPI
24/07/2015	23.56.30	MYsp
25/07/2015	00.19.19	PIPY
25/07/2015	00.26.23	MYsp (MYNA)
25/07/2015	00.59.36	PIPI
25/07/2015	00.59.49	PIPI
25/07/2015	01.25.45	NYLE
25/07/2015	01.39.13	PIPY
Night 5		
25/07/2015	22.26.00	PIPI

Site 1		
25/07/2015	22.44.33	NYLE
25/07/2015	22.47.13	NYLE
26/07/2015	00.14.19	PIPY
26/07/2015	00.51.45	PIPI
26/07/2015	01.02.59	NYLE
26/07/2015	01.19.51	Mysp.
26/07/2015	03.01.10	MYNA
26/07/2015	03.01.25	MYNA

Site 2		
Date	Time	Bat activity
Night 1		
02/09/2015	20.56.03	PIPI
02/09/2015	20.56.18	PIPI
02/09/2015	21.58.11	PIPI
02/09/2015	22.21.00	PIPI
03/09/2015	05.11.03	PIPI
Night 2		
03/09/2015	21.37.14	PIPI
03/09/2015	22.15.28	MYsp
03/09/2015	23.25.13	PIPI
04/09/2015	00.08.45	MYsp
00.10.51	00.10.51	MYsp
04/09/2015	04.52.53	PIPY
04/09/2015	04.53.24	PIPY
04/09/2015	04.53.34	PIPY
04/09/2015	04.53.50	PIPY
04/09/2015	04.57.43	PIPY
04/09/2015	04.57.58	PIPY
04/09/2015	04.59.45	PIPI
04/09/2015	04.59.58	PIPI
04/09/2015	05.11.39	PIPI
04/09/2015	05.19.19	PIPY
Night 3		
04/09/2015	21.47.12	PIPI
Night 4		
05/09/2015	21.00.06	PIPI
05/09/2015	21.01.47	PIPI
05/09/2015	21.55.08	NYLE
05/09/2015	21.58.32	PIPI
05/09/2015	22.04.03	PIPI

Site 2		
05/09/2015	23.44.35	NYLE
05/09/2015	23.44.42	NYLE
06/09/2015	00.03.34	PIPI
06/09/2015	05.25.17	NoID
Night 5		
06/09/2015	20.48.28	PIPY
06/09/2015	20.52.22	PIPI
06/09/2015	21.11.28	NYLE
06/09/2015	21.11.34	NYLE
06/09/2015	21.36.17	PIPI
06/09/2015	21.41.51	PIPY
06/09/2015	21.45.15	PIPY
06/09/2015	22.03.14	PIPY
06/09/2015	22.07.09	PIPI
06/09/2015	22.18.53	PIPY
06/09/2015	22.20.17	PIPY
06/09/2015	23.10.08	PIPY
07/09/2015	00.53.49	PIPY
07/09/2015	00.54.31	PIPY
07/09/2015	00.54.45	PIPY
07/09/2015	00.55.08	PIPY
07/09/2015	00.56.14	PIPY
07/09/2015	00.59.55	PIPY
07/09/2015	01.00.08	PIPY
07/09/2015	01.00.18	PIPY
07/09/2015	01.01.31	PIPY
07/09/2015	01.03.16	PIPY
07/09/2015	01.04.31	PIPY
07/09/2015	01.06.18	PIPY
07/09/2015	01.11.12	PIPY
07/09/2015	03.05.52	PIPY
07/09/2015	03.29.45	PIPI
07/09/2015	03.40.55	PIPI
07/09/2015	03.43.38	PIPI
07/09/2015	03.45.47	PIPI
07/09/2015	03.58.48	PIPI
07/09/2015	04.09.12	PIPI
07/09/2015	04.47.12	PIPY
07/09/2015	04.48.06	PIPY
07/09/2015	04.48.40	PIPY
07/09/2015	04.48.52	PIPY
07/09/2015	04.49.37	PIPY

Site 2		
07/09/2015	04.49.48	PIPY
07/09/2015	05.12.57	PIPY
07/09/2015	05.13.07	PIPY
07/09/2015	05.18.03	PIPI
07/09/2015	05.21.23	PIPY
07/09/2015	05.25.11	PIPY
07/09/2015	05.29.02	PIPY
07/09/2015	05.29.11	PIPY
07/09/2015	05.34.42	PIPI
07/09/2015	05.46.02	PIPI
07/09/2015	05.46.36	PIPY
07/09/2015	05.50.16	PIPI
07/09/2015	05.50.33	PIPI
07/09/2015	05.50.54	PIPI
07/09/2015	05.51.18	PIPI
07/09/2015	05.51.43	PIPI
07/09/2015	05.52.20	PIPI
07/09/2015	05.52.45	PIPY
07/09/2015	05.54.18	PIPY
07/09/2015	06.02.13	PIPY

Site 3		
Date	**Time**	**Bat activity**
Night 1		
02/09/2015	20.29.49	NYLE
02/09/2015	20.30.04	NYLE
02/09/2015	20.30.20	NYLE
02/09/2015	21.23.49	NYLE
02/09/2015	21.36.10	PIPY
02/09/2015	21.47.31	PIPY
02/09/2015	21.56.29	PIPI
02/09/2015	22.00.35	PIPI
02/09/2015	22.11.50	MYsp
02/09/2015	22.11.58	MYsp
02/09/2015	22.16.12	MYNA
02/09/2015	22.18.02	MYNA
02/09/2015	22.33.52	NYLE
03/09/2015	02.26.30	MYNA
03/09/2015	02.26.34	MYNA
03/09/2015	02.26.54	MYNA
03/09/2015	02.27.19	MYNA
03/09/2015	02.51.37	PIPI

Site 3		
03/09/2015	03.26.17	MYNA
03/09/2015	04.02.55	MYNA
03/09/2015	04.24.37	MYsp
03/09/2015	05.24.51	PIPY
03/09/2015	06.12.57	NYLE
03/09/2015	06.14.37	NYLE
Night 2		
03/09/2015	21.10.55	NYLE
03/09/2015	21.30.14	PIPI
03/09/2015	21.49.51	NYLE
03/09/2015	23.54.03	MYNA
03/09/2015	23.54.25	MYNA
04/09/2015	00.14.09	MYsp
04/09/2015	00.14.26	MY sp
04/09/2015	01.46.50	MY sp
04/09/2015	02.52.24	MY sp
04/09/2015	03.06.04	PIPI
04/09/2015	03.06.44	PIPI
04/09/2015	03.07.08	PIPI
04/09/2015	03.07.38	PIPI
04/09/2015	03.08.01	PIPI
04/09/2015	03.09.26	PIPI
04/09/2015	03.09.46	PIPI
04/09/2015	03.10.10	PIPI
04/09/2015	03.11.02	PIPI
04/09/2015	03.46.01	PIPI
04/09/2015	04.02.27	PIPI
04/09/2015	04.02.46	PIPI
04/09/2015	04.03.15	PIPI
04/09/2015	04.03.43	PIPI
04/09/2015	04.04.02	PIPI
04/09/2015	04.04.22	PIPI
04/09/2015	04.08.05	PIPI
04/09/2015	04.08.37	PIPI
04/09/2015	04.10.10	PIPI
04/09/2015	04.10.59	PIPI
04/09/2015	04.11.36	PIPI
04/09/2015	04.11.57	PIPI
04/09/2015	04.12.10	PIPI
04/09/2015	04.12.30	PIPI
04/09/2015	04.18.51	PIPI
04/09/2015	04.19.14	PIPI

Site 3		
04/09/2015	04.19.38	PIPI
04/09/2015	04.20.10	PIPI
04/09/2015	04.20.30	PIPI
04/09/2015	04.20.49	PIPI
04/09/2015	04.21.19	PIPI
04/09/2015	04.21.40	PIPI
04/09/2015	04.21.52	PIPI
04/09/2015	04.22.13	PIPI
04/09/2015	04.24.48	PIPI
04/09/2015	04.24.57	PIPI
04/09/2015	04.25.15	PIPI
04/09/2015	04.25.49	PIPI
04/09/2015	04.26.09	PIPI
04/09/2015	04.26.39	PIPI
04/09/2015	04.28.07	PIPI
04/09/2015	04.28.30	PIPI
04/09/2015	04.29.09	PIPI
04/09/2015	04.29.27	PIPI
04/09/2015	04.29.44	PIPI
04/09/2015	04.43.32	PIPI
04/09/2015	04.44.34	PIPI
04/09/2015	04.45.39	PIPI
04/09/2015	04.46.03	PIPI
04/09/2015	04.47.32	PIPI
04/09/2015	04.47.44	PIPI
04/09/2015	04.48.34	PIPI
04/09/2015	04.49.38	PIPI
04/09/2015	04.51.42	PIPI
04/09/2015	04.52.02	PIPI
04/09/2015	04.53.02	PIPI
04/09/2015	04.53.21	PIPI
04/09/2015	04.54.08	PIPI
04/09/2015	04.54.18	PIPI
04/09/2015	04.54.33	PIPI
04/09/2015	04.55.01	PIPI
04/09/2015	04.56.38	PIPI
04/09/2015	04.57.17	PIPI
04/09/2015	04.57.57	PIPI
04/09/2015	04.58.34	PIPI
04/09/2015	04.58.51	PIPI
04/09/2015	04.59.03	PIPI
04/09/2015	04.59.58	PIPI

Site 3		
04/09/2015	05.00.52	PIPI
04/09/2015	05.02.44	PIPI
04/09/2015	05.03.17	PIPI
04/09/2015	05.08.02	PIPI
04/09/2015	05.08.12	PIPI
04/09/2015	05.08.30	PIPI
04/09/2015	05.08.40	PIPI
04/09/2015	06.12.48	NYLE
04/09/2015	06.18.14	NYLE
04/09/2015	06.19.01	NYLE
04/09/2015	06.19.30	NYLE
Night 3		
04/09/2015	20.50.26	NYLE
04/09/2015	21.02.22	PIPI
04/09/2015	21.12.07	PIPY
04/09/2015	21.38.53	PIPY
Night 4		
05/09/2015	21.01.03	PIPI
05/09/2015	21.01.58	PIPI
05/09/2015	21.02.08	PIPI
05/09/2015	21.02.22	PIPI
05/09/2015	21.12.07	PIPY
05/09/2015	21.16.29	PIPI
05/09/2015	21.25.46	PIPY
05/09/2015	21.32.57	PIPI
05/09/2015	21.37.00	NYLE
05/09/2015	21.41.27	PIPY
05/09/2015	21.51.55	MYNA
05/09/2015	22.59.56	MYNA
05/09/2015	23.00.11	MYNA
06/09/2015	03.36.21	MYsp
Night 5		
06/09/2015	20.34.12	NYLE
06/09/2015	20.42.01	NYLE
06/09/2015	20.42.29	PIPI
06/09/2015	20.53.32	NYLE
06/09/2015	21.01.55	PIPI
06/09/2015	21.06.08	PIPY
06/09/2015	21.38.44	PIPI
06/09/2015	21.47.43	NYLE
06/09/2015	22.02.01	PIPI
06/09/2015	22.02.25	PIPI

Site 3		
06/09/2015	22.03.11	PIPI
06/09/2015	22.03.36	PIPI
06/09/2015	22.04.32	PIPI
06/09/2015	22.05.51	PIPI
06/09/2015	22.06.45	PIPI
06/09/2015	22.07.08	PIPI
06/09/2015	22.08.02	PIPI
06/09/2015	22.08.27	PIPI
06/09/2015	22.09.01	PIPI
06/09/2015	22.11.35	PIPI
06/09/2015	22.11.52	PIPI
06/09/2015	22.12.40	PIPI
06/09/2015	22.13.07	PIPI
06/09/2015	22.14.35	PIPI
06/09/2015	22.16.23	PIPI
06/09/2015	22.16.58	PIPI
06/09/2015	22.17.21	PIPI
06/09/2015	22.39.31	PIPI
06/09/2015	22.41.04	PIPI
06/09/2015	23.47.09	PIPI
06/09/2015	23.47.30	PIPI
06/09/2015	23.47.41	PIPI
06/09/2015	23.47.58	PIPI
06/09/2015	23.48.12	PIPI
06/09/2015	23.50.45	PIPI
06/09/2015	23.50.52	PIPI
06/09/2015	23.51.10	PIPI
06/09/2015	23.51.38	PIPI
06/09/2015	23.51.58	PIPI
06/09/2015	23.52.25	PIPI
06/09/2015	23.52.53	PIPI
06/09/2015	23.53.18	PIPI
06/09/2015	23.53.45	PIPI
06/09/2015	23.54.12	PIPI
06/09/2015	23.54.41	PIPI
06/09/2015	23.55.10	PIPI
06/09/2015	23.55.55	PIPI
06/09/2015	23.56.23	PIPI
06/09/2015	23.57.30	PIPI
07/09/2015	00.03.32	MYsp
07/09/2015	00.03.59	PIPI
07/09/2015	00.09.21	PIPI

Site 3		
07/09/2015	00.20.04	PIPI
07/09/2015	00.20.33	PIPI
07/09/2015	00.21.02	PIPI
07/09/2015	00.22.01	PIPI
07/09/2015	00.22.32	PIPI
07/09/2015	00.22.54	PIPI
07/09/2015	00.23.08	PIPI
07/09/2015	00.23.47	PIPI
07/09/2015	00.24.35	PIPI
07/09/2015	00.25.02	PIPI
07/09/2015	00.25.05	PIPI
07/09/2015	00.25.25	PIPI
07/09/2015	00.26.19	PIPI
07/09/2015	00.27.17	PIPI
07/09/2015	00.27.51	PIPI
07/09/2015	00.28.18	PIPI
07/09/2015	00.29.16	PIPI
07/09/2015	00.30.09	PIPI
07/09/2015	00.30.25	PIPI
07/09/2015	00.30.33	PIPI
07/09/2015	00.31.04	PIPI
07/09/2015	01.00.28	MYsp
07/09/2015	01.45.31	PIPI
07/09/2015	01.45.46	PIPI
07/09/2015	01.46.09	PIPI
07/09/2015	01.46.42	PIPI
07/09/2015	01.47.33	PIPI
07/09/2015	01.48.25	PIPI
07/09/2015	01.48.59	PIPI
07/09/2015	01.50.01	PIPI
07/09/2015	02.24.31	PIPI
07/09/2015	02.25.35	PIPI
07/09/2015	02.26.01	PIPI
07/09/2015	02.26.43	PIPI
07/09/2015	02.27.20	PIPI
07/09/2015	02.27.47	PIPI
07/09/2015	02.28.13	PIPI
07/09/2015	02.28.35	PIPI
07/09/2015	03.53.17	PIPI
07/09/2015	03.54.50	PIPI
07/09/2015	03.55.16	PIPI
07/09/2015	03.55.47	PIPI

Site 3		
07/09/2015	03.56.33	PIPI
07/09/2015	03.56.10	PIPI
07/09/2015	03.57.32	PIPI
07/09/2015	03.57.54	PIPI
07/09/2015	03.58.23	PIPI
07/09/2015	03.58.46	PIPI
07/09/2015	03.59.06	PIPI
07/09/2015	04.00.18	PIPI
07/09/2015	04.00.34	PIPI
07/09/2015	04.00.55	PIPI
07/09/2015	04.01.17	PIPI
07/09/2015	04.02.06	PIPI
07/09/2015	04.02.25	PIPI
07/09/2015	04.02.46	PIPI
07/09/2015	04.03.05	PIPI
07/09/2015	04.03.43	PIPI
07/09/2015	04.04.30	PIPI
07/09/2015	04.04.49	PIPI
07/09/2015	04.05.04	PIPI
07/09/2015	04.05.25	PIPI
07/09/2015	04.07.39	PIPI
07/09/2015	04.07.58	PIPI
07/09/2015	04.08.37	PIPI
07/09/2015	04.09.11	PIPI
07/09/2015	04.09.31	PIPI
07/09/2015	04.09.51	PIPI
07/09/2015	04.10.12	PIPI
07/09/2015	04.10.31	PIPI
07/09/2015	04.11.05	PIPI
07/09/2015	04.11.30	PIPI
07/09/2015	04.12.06	PIPI
07/09/2015	04.12.31	PIPI
07/09/2015	04.12.53	PIPI
07/09/2015	04.13.17	PIPI
07/09/2015	04.14.04	PIPI
07/09/2015	04.14.44	PIPI
07/09/2015	04.15.05	PIPI
07/09/2015	04.15.28	PIPI
07/09/2015	04.15.50	PIPI
07/09/2015	04.16.13	PIPI
07/09/2015	04.16.34	PIPI
07/09/2015	04.17.10	PIPI

Site 3		
07/09/2015	04.20.33	PIPY
07/09/2015	04.24.29	MYNA
07/09/2015	04.24.48	PIPI
07/09/2015	04.25.42	PIPI
07/09/2015	04.26.16	PIPI
07/09/2015	04.26.39	PIPI
07/09/2015	04.26.57	PIPI
07/09/2015	04.27.16	PIPI
07/09/2015	04.27.44	PIPI
07/09/2015	04.28.25	PIPI
07/09/2015	04.28.51	PIPI
07/09/2015	04.29.11	PIPI
07/09/2015	04.29.32	PIPI
07/09/2015	04.29.51	PIPI
07/09/2015	04.30.25	PIPI
07/09/2015	04.30.51	PIPI
07/09/2015	04.32.32	PIPI
07/09/2015	04.32.54	MYsp
07/09/2015	04.33.40	PIPI
07/09/2015	04.45.03	PIPI
07/09/2015	04.45.36	PIPI
07/09/2015	04.46.09	PIPI
07/09/2015	04.46.28	PIPI
07/09/2015	04.47.10	PIPI
07/09/2015	04.47.14	MYsp
07/09/2015	04.47.29	MYsp
07/09/2015	04.47.46	PIPI
07/09/2015	04.48.44	PIPI
07/09/2015	04.48.56	PIPI
07/09/2015	04.49.18	PIPI
07/09/2015	05.00.18	PIPI
07/09/2015	05.11.37	PIPI
07/09/2015	05.20.00	MYsp
07/09/2015	05.33.45	PIPI
07/09/2015	05.46.12	PIPI
07/09/2015	05.46.43	PIPI
07/09/2015	05.47.06	PIPI
07/09/2015	05.47.53	PIPI
07/09/2015	05.48.20	PIPI
07/09/2015	05.49.56	PIPI
07/09/2015	05.50.25	PIPI
07/09/2015	05.51.03	PIPI

Site 3		
07/09/2015	05.57.06	PIPY
07/09/2015	05.57.19	PIPY
07/09/2015	05.57.28	PIPY

Appendix 4

Bat activity surveys (Figures)

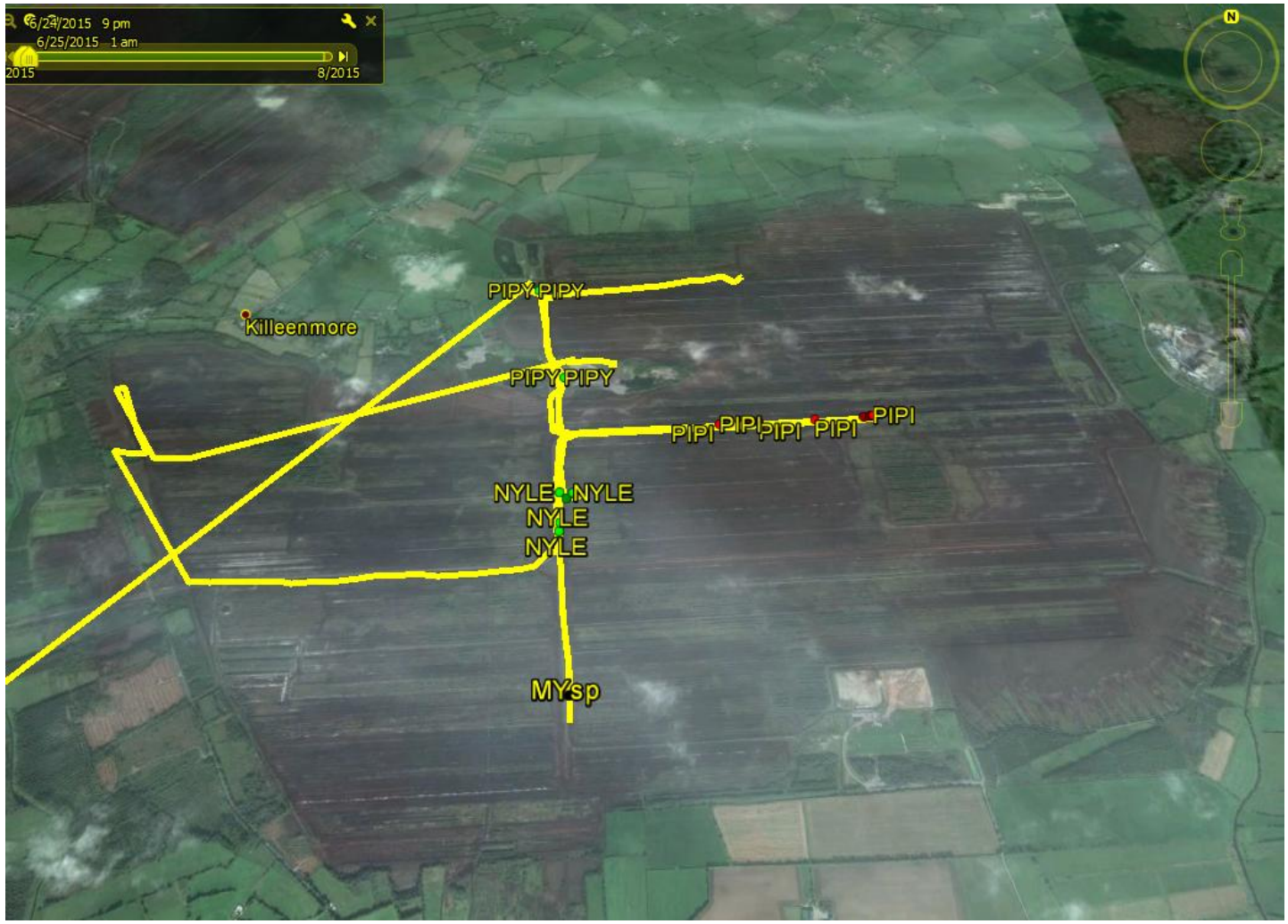


Figure 4-1: Bat activity Surveys Phase 1

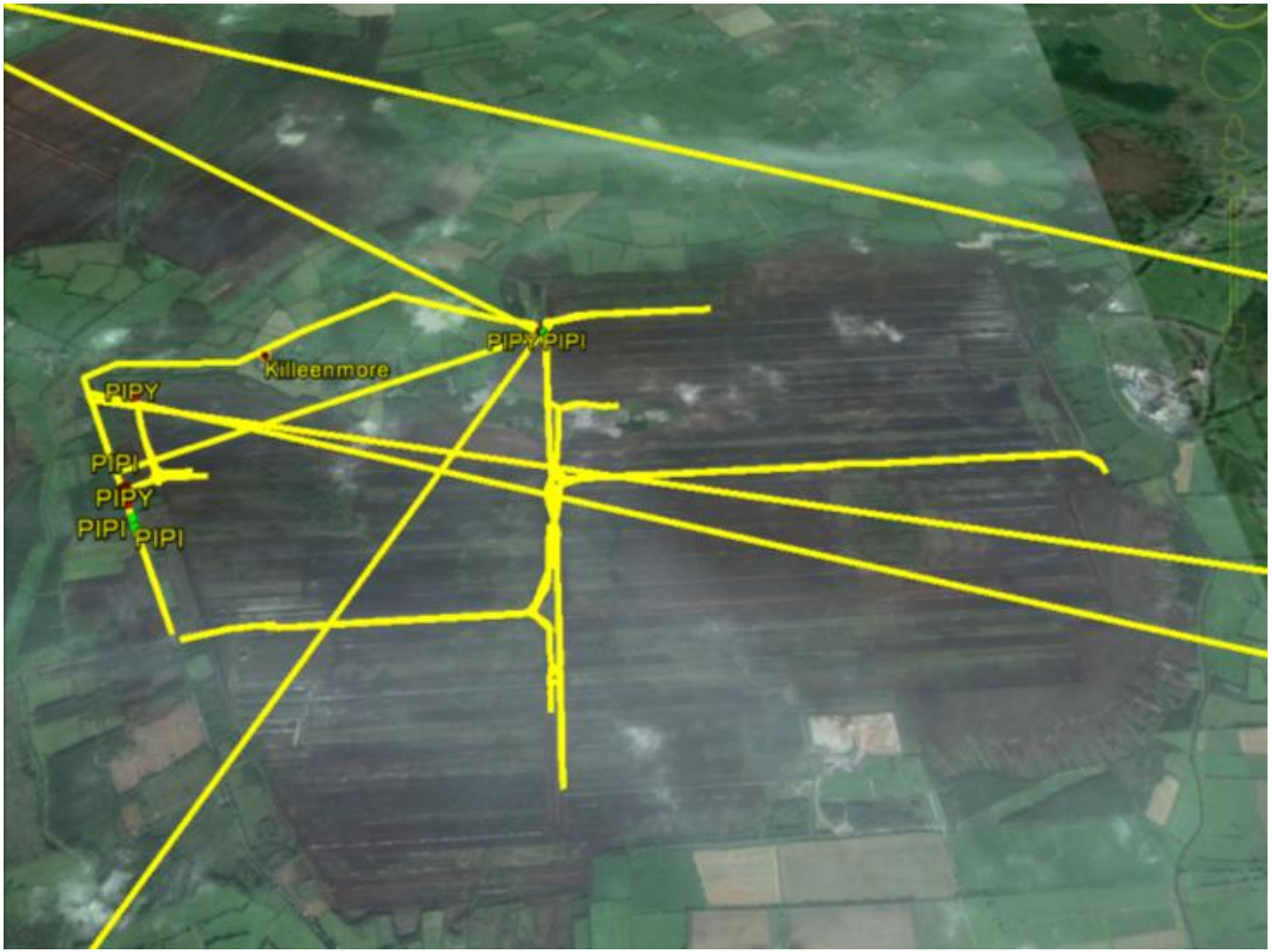


Figure 4-2: Bat activity Surveys Phase 2

Figure 4-3: Bat activity Surveys Phase 3

Appendix 5

Descriptions of potential bat roost sites

Table 5-1 (BR1)

<table>
<tr><th colspan="4">(BR1) Roost survey: Ballycon BnM Workshop/Factory</th></tr>
<tr><td>GPS:</td><td>Date</td><td>Weather During emergence survey</td><td>Site Description</td></tr>
<tr><td rowspan="4">N53823 26027</td><td>26/03/2015</td><td rowspan="4">12°C, dry, F-1 W/NW, 8/8 cloud cover</td><td rowspan="4">Ballycon BnM Factory used by for maintenance of machinery and equipment, adjacent to the R400 road. Two additional open buildings used for repair and storage of railway line etc.</td></tr>
<tr><td>07/08/2015</td></tr>
<tr><td>04/09/2015</td></tr>
<tr><td>15/12/2015</td></tr>
<tr><td colspan="4">Habitats present</td></tr>
<tr><td colspan="4">Open compound area with three buildings. The more easterly buildings are open to elements, with the main building closed, with large doors allowing access from the east. The northern end of the main building consists of one storey sloped roof structure. Good quality hedgerows line the adjacent regional road and the agricultural grassland to the east and south. Sections of mature conifer treeline and plantation bound the northern site of the large compound.</td></tr>
<tr><td colspan="4">Roost survey results</td></tr>
<tr><td colspan="4">All the buildings were investigated for evidence of bats during daytime surveys. The more easterly located open buildings are not optimal for roosting bats. During daytime visual searches bat droppings were observed on the northern wall just below the sloped corrugated roof. The interior of the building also had evidence of bats. During a bat emergence survey nine bats were observed exiting from the void spaces between the top of the northern wall and the corrugated roof.</td></tr>
<tr><td colspan="2"> </td><td colspan="2"> </td></tr>
<tr><td colspan="4">Conclusion: Leisler’s bat and Common pipistrelle present (9 bats). Potential maternity and hibernation roost.</td></tr>
</table>

Table 5-2 (BR1)

Bat droppings towards top of northern wall	Investigating void space on top of northern wall

Table 5-3 (BR2 (A))

<table>
<tr><th colspan="4">BR2(A) Roost survey: Bord na Móna Tea Center at Cloncreen Bog</th></tr>
<tr><td>GPS:</td><td>Date</td><td>Weather</td><td>Site Description</td></tr>
<tr><td rowspan="2">N58224, 26887</td><td>16/06/2015</td><td>14°C, dry, calm, 3/8 cloud cover</td><td rowspan="2">Building used by BnM workers; canteen area, toilets, change of gear, some small equipment</td></tr>
<tr><td>16/11/2015</td><td>11°C, dry, slight southerly breeze, 6/8 cloud cover</td></tr>
<tr><td colspan="4">Habitats present</td></tr>
<tr><td colspan="4">The building is situated on cutaway bog which would have been cutaway to the gravel, or gravel has been installed at the general location of the building. The building itself is a plastered single storey A roof structure, with single chimney on the eastern roof. The building is accessed via a wooden frame and door at the southern gable. The building has a number of wooden framed windows. The A roof consists of wooden beams, felt and corrugated iron sheets. The adjacent yard is used for equipment and machinery storage. To the west, the land area is used as borrow pit, which has resulted in small lake, which had water present throughout the survey period. Willow and bramble dominant scrub also occurs. To the west outside the site boundary, the land area is also used as quarry site, with small lake as result of excavations bounding the bog site. Grassland occurrs to the northeast, with the majority of the cloncreen bog best described as cutover bog.</td></tr>
<tr><td colspan="4">Roost survey results</td></tr>
<tr><td colspan="4">The windows/doors of the structure are well sealed and do not provide access for bats. The voids between the timber facia and the corrugated roof were examined, with no evidence of bats. Spider webs were present, indicating no usage by bats. The interior of the building aws investigated, also with no evidence of bats, droppings, streaking/staining etc.</td></tr>
<tr><td colspan="4"> </td></tr>
<tr><td colspan="4">Conclusion: No ecidence of bats during survey period. Considered not used as bat roost site. Bat contacts during transects/fixed point surveys at this location, included Soprano pipistrelle.</td></tr>
</table>

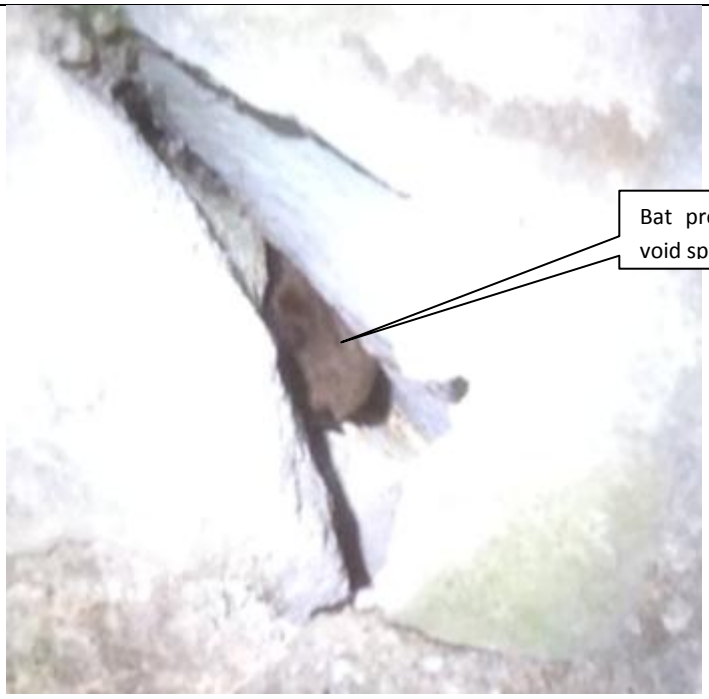
Table 5-4 (BR3)

BR3 Roost survey: Single span masonry bridge			
GPS:	**Date**	**Weather**	**Site Description**
N52588, 31184	22/06/2015 10/09/2015 15/12/2015	14°C, dry, F1 NW, 4/8 cloud cover	Single span masonry bridge spanning the Grand Canal. Located approximately 5.5km to the northwest.
Habitats present			
Masonry Bridge, spanning Grand Canal. Pointing works have been carried out on the stonework at the bridge, however some voids present throughout the bridge. Good quality hedgerows bounding agricultural grassland in all directions of bridge. Some treeline in front of conifer plantation to the south and lining the grand canal further to the east. A number of houses to the east, with one unused house to the southeast which could potentially harbour bats.			
Roost survey results			
Some cracks and voids present in the stonework of the bridge. Some pointing works has fallen away/deteriorated. A number of crevices/voids throughout the walls of the bridge. Three large crevices underneath the arch. During daytime visual survey a bat was observed in void on the southern bank of the watercourse. With the use of an endoscope the other voids present at the bridge were investigated for evidence of bats. During bat emergence survey, the bat did not exit, or no other bats were observed emerging from the bridge. It is likely that the bat was a Daubneton's bat, and used this location as temporary roost. During following visits to this site, the bat was observed in the void on one more occasion. The void is open to the elements and is not optimal as maternity roost. Bat activity at the general location of this site included pipistrelle species and Daubenton's bat. Roach and perch were observed rising in the canal and pine martin droppings were observed underneath the arch, on the southern bank of the canal.			
Conclusion: One bat observed using the bridge. Likely a temporary roost.			

Table 5-5 (BR3)

Void spaces underneath arch

Void spaces underneath arch



Bat present in somewhat open void space

Table 5-6 (BR4 (A))

BR4(A) Roost survey: Dilapidated/ruin house			
GPS:	**Date**	**Weather**	**Site Description**
N58065, 27592	16/06/2015	14°C, dry, calm, 3/8 cloud cover	A number of single storey, timber clad buildings associated with nature sanctuary adjacent to Cloncreen site
Habitats present			
A number of single storey, timber clad building situated on amenity grassland. Man made ponds installed at the property and area probably used to observe bird life. The A roof metal sheeting had some voids present, but otherwise, buildings well sealed. Hedgerow, some broken treeline/individual trees bounding agricultural grassland to the west and north. Cutover bog to southeast and east.			
Roost survey results			
Even though some voids present between the top of the walls and the metal clad roof, spider webs often occurred in the void spaces. Otherwise the builds are well sealed. The careful search of these buildings did not find bat droppings, staining or other evidence of bats at this structure. No bats observed during emergence survey at this site. During time of survey It is considered that this structure is not likely to be used as a bat roosting site..			
Conclusion: No ecidence of bats during survey period. Considered not used as bat roost site.			

Table 5-7 (BR5 (A))

BR5(A) Roost survey: Dilapidated/ruin house			
GPS:	**Date**	**Weather**	**Site Description**
N59830, 24303	16/06/2015	14°C, dry, calm, 3/8 cloud cover	Dilapidated/ruin single storey house in agricultural grassland approximately 1km to the south of the southern end of the site.
	17/11/2015	12°C, dry, slight southerly breeze, 6/8 cloud cover	
Habitats present			
The structure itself is considerable dilapidated. A number of slates have fallen away, moreover towards the eastern end of the house. The windows and doors have fallen away and frames of same are rotting away. The interior of the structure has plastered walls/pointing on some stone walls. The walls are solid stone and some concrete formed walls, with no cavity. Inside the structure the plaster on the walls remained and was getting mouldy. The ceilings were falling away with the attic space exposed. Some ivy growth present towards the eastern and southern end of the house. The structure is located on agricultural/arable land, which would have been harvestes sometime in September, 2015. Some hedgerow and treeline occurs, with the house in close proximity to the network of hedgerows, bounding the agricultural grassland.			
Roost survey results			
The careful search of this building did not find bat droppings or other evidence of bats at this structure. Due to the fact that no evidence of bats was observed at this location, along with the fact that this structure is considerably dilapidated (damp and draughty) it is considered that this structure is not likely to be used as a bat roosting site. The covering of ivy on section of the exterior walls may potentially act as temporary bat roost site, however no evidence of bats was observed during time of survey.			
Conclusion: No ecidence of bats during survey period. Considered not used as bat roost site.			

Table 5-8 (BR6 (A))

<table>
<tr><th colspan="4">BR6(A) Roost survey: Cloncreen Bridge</th></tr>
<tr><th>GPS:</th><th>Date</th><th>Weather</th><th>Site Description</th></tr>
<tr><td rowspan="2">N60511, 23992</td><td>21/06/2015</td><td>18°C, dry, calm, 2/8 cloud cover</td><td rowspan="2">Three arch stone bridge, spanning the River Figile. Located approximately 1.3km to the southeast of the southern boundary of the Cloncreen Bog.</td></tr>
<tr><td>16/11/2015</td><td>12°C, dry, slight southerly breeze, 6/8 cloud cover</td></tr>
<tr><td colspan="4">Habitats present</td></tr>
<tr><td colspan="4">This triple arch bridge has random stone/rubble construction. Semicircular profile arches with dressed stone voussoirs. Upstream V-cutwaters. For the most part the stonework has been pointed, with some pointing work done somewhat recently. From observations during surveys, it is likely that this is a spate river. Surrounding habitats include, hedgerow, small sections of treeline, agricultural grassland and conifer plantation.</td></tr>
<tr><td colspan="4">Roost survey results</td></tr>
<tr><td colspan="4">The majority of the stone work has been pointed. Some crevices present on the main walls of the bridge/handrail etc.The crevices present had no substantial void spaces. During surveys, no evidence of bat using these locations as roost sites was observed. There was no evidence that bats were entering or exiting from these crevices. No staining was present on the stone surfaces at crevices. The interior of the crevices had decaying leaves, fine soil and spider webs. When required, an endoscope was also used. The inside of the crevices were undisturbed, with no droppings/stains/remains of feeding observed. Some ivy growth on the downstream side of the eastern side of the bridge. This location was thoroughly inspected, with no evidence of bats.</td></tr>
<tr><td colspan="4"> </td></tr>
<tr><td colspan="4">Conclusion: Some crevices present, but no evidence of bats, during summer and autumn/winter surveys.</td></tr>
</table>

Table 5-9 (BR7 (A))

BR7(A) Roost survey: Kilcumber Bridge			
GPS:	**Date**	**Weather**	**Site Description**
N61061, 26817	21/06/2015	18°C, dry, calm, 2/8 cloud cover	Double arch bridge spanning the River Figile, approximately 1.7km to the southeast of the southern boundary of Cloncreen Bog.
	17/11/2015	12°C, dry, slight southerly breeze, 6/8 cloud cover	
Habitats present			
Double arch stone bridge, which would have been subject to large amount of repair works. For the most part the stonework would have pointing carried out. Some crevices/cracks do occur. Some ivy growth occurs on the western end of the downstream side of the bridge. Scrub occurs at the bridge, with some broken hedgerow leading up to the bridge, lining the R442 Regional road. Extending away from the bridge, grassland is the dominant habitat type, with some section of conifer plantation. The Bord na Móna, Edenderry Power Plant occurs to the north.			
Roost survey results			
The majority of the stone work has been pointed. Some crevives present on the main walls of the bridge/handrail etc. The crevices were checked with an endoscope and had no substantial void spaces. Also it was noted during surveys that there was very little clearance between the surface of the road and the top of the arch, which would make this location unsuitable for bats. During surveys, no evidence of bat using these locations as roost sites was observed. There was no evidence that bats were entering or exiting from these crevices. No staining was present on the stone surfaces at crevices. No droppings or remains of feeding observed. For the most part the inside of the crevices were undisturbed, with spider webs present, indicating no bat usage. Theivy growth on the downstream side of the eastern side of the bridge was investigated, with no evidence of bat usage.			
Conclusion: Some crevices present, but no evidence of bats, during summer and autumn/winter (2015) surveys.			

Table 5-10 (BR10)

BR10 Roost survey: Rhode Bridge			
GPS:	**Date**	**Weather**	**Site Description**
N53477, 31637	16/06/2015 17/09/2015 15/12/2015	14°C, dry, calm, 3/8 cloud cover, slight SW breeze, a lot of midge activity.	Single arch bridge spanning Grand Canal, approximately 5.3km to the northwest of Cloncreen Bog.
Habitats present			
Single arch stone bridge, which would have been subject to pointing repair works. Some voids/crevices present in stonework. Some ivy growth occurs on the parapet and Abutment walls. Treeline and hedgerow line the Gran Canal, adjacent public road and surrounding agricultural grassland. Two stone walls structures occur to the 30m northwest. These are used by the landowner for sorting livestock. An unused, somewhat dilapidated two storey house occurs approximately 20m to the south (BR Site No.13)..			
Roost survey results			
The majority of the bridge stonework has been pointed. Some crevices present on the parapet and abutment walls. Crevices were checked with an endoscope and had no substantial void spaces. Also it was noted during surveys that there was very little clearance between the surface of the road and the top of the arch, which would make this location less suitable for bats. The visual daytime and bat emergence surveys included the stone structures to the northwest. During surveys, no evidence of bat using these locations as roost sites was observed. There was no evidence that bats were entering, or exiting from these crevices. No staining was present on the stone surfaces at crevices. No bat droppings or remains of feeding observed. For the most part the inside of the crevices were undisturbed, with spider webs present, indicating no bat usage. The growth on the downstream side of the eastern side of the bridge was investigated, with no evidence of bat usage.			
Conclusion: Some crevices present, but no evidence of bats, during summer and autumn/winter (2015) bat roost surveys.			

Table 5-11 (BR11 (A))

BR11(A) Roost survey: Mature trees to east of Cloncreen Bog			
GPS:	**Date**	**Weather**	**Site Description**
N60829, 27723	15/12/2015	11°C, dry, calm, 8/8 cloud cover, slight NW breeze.	Two mature trees in treeline in front of conifer plantation adjacent to the northeast of the Cloncreen Windfarm.
Habitats present			
A hazel-alder-birch treeline, line a sitka spruce plantation located adjacent to the north eastern boundary of the Cloncreen Bog site. Towards the eastern end of this treeline (two of the more mature trees could potentially harbour bats, with holes and cracks present on the trunk and limbs. Hedgerow and broken treeline, and the agricultural grasslands further to the north and east. Cutover bog extends to the west.			
Roost survey results			
This survey, which included investigating the void spaces with an endoscope, did not find any evidence of bats using these trees.			
Conclusion: Some crevices present, but no evidence of bats, during summer and autumn/winter (2015) bat roost surveys.			

Table 5-12 (BR13)

BR13 Roost survey: Unused Two story house adjacent to Rhode Bridge			
GPS:	**Date**	**Weather**	**Site Description**
N53463, 31604	21/06/2015 17/09/2015 15/12/2015	14°C, dry, calm, 3/8 cloud cover, slight SW breeze, a lot of midge activity.	Single arch bridge spanning Grand Canal, approximately 5.3km to the northwest of Cloncreen Bog.
Habitats present			
An old unused stone wall building, somewhat dilapidated. Some mature treeline, bounds the adjacent road, and the Grand Canal, situated approximately 40m to the north of the building. Good quality hedgerow bounds the R400 road and nearby grasslands. Small section of conifer plantation to the northeast.			
Roost survey results			
A slate roof is finished with slate, but some slates are missing from areas, and many voids/slates lifting in the existing roof. Some of the windows and doors have fallen away, with some having been boarded up for security. A great deal of the pointing in the stone work has deteriorated, and voids/crevices occur in the stonework. For health and safety reasons, and access to the site, the interior of the building was not investigated. During a bat emergence survey at this location, on the 21st of June 2015, eight Common pipistrelle bats were observed emerging form this structure. When this site was revisited on the 17th of September 2015, five Common pipistrelle bats were observed emerging from this building. On both occasions the bats were observed emerging form an upstairs window located on the eastern gable. During surveys at this location, bats were observed foraging and commuting along the good quality hedgerows that bound the adjacent grassland fields to the south, and the R400 public road to the east of the building.			
Conclusion: Common pipistrelle observed emerging (8 bats). Potentially maternity and hibernation roost.			

Table 5-13 (BR15)

BR15 Roost survey: Double concrete culvert			
GPS:	**Date**	**Weather**	**Site Description**
N61776, 27899	15/12/2015	11°C, dry, calm, 8/8 cloud cover, slight NW breeze.	Double mass concrete culvert spanning the Figile River.
Habitats present			
Mass concrete double culvert. Conifer plantation to the southeast. Dominant habitat type includes agricultural grassland, with cutover bog to the west and south. mSome mature treeline, bounds the adjacent road, and the Grand Canal, situated approximately 40m to the north of the building. Good quality hedgerow bounds the R400 road and nearby grasslands. Small section of conifer plantation to the northeast.			
Roost survey results			
No cracks/crevices present on the culvert. Subjected to flooding. No optimal bat roost habitat present.			
Conclusion: No ecidence of bats during survey period. Considered not used as bat roost site.			

Appendix 6

Bat Criteria for Bat Roosts of National or International Importance

Lesser Horseshoe bats

In Ireland, the following bat population figures have been used as criteria for the designation of Special Areas of Conservation for the protection of lesser horseshoe bats.

(a) Maternity roost (summer): 100 individuals (approximately 1% of the Irish population)
(b) Hibernacula (winter): 50 individuals (approx. 0.5 % of the Irish population)

Internationally important roosts

There are no clear guidelines as to the nature of a bat roost of international importance. All of the largest roosts of lesser horseshoe bats in Ireland would be of international importance and it is anticipated that all large Leisler's bat roosts (in excess of 100) would also have international significance.

The following are working guidelines developed by the Bat Expert Panel of the Heritage Council in 2003 to provide a basis for comparing the importance of different building roosts nationally and internationally.

Species	Indicator	Significance
Lesser Horseshoe Bat	SAC	Very significant
	If present	Significant
Whiskered	>10	Very significant
	If present	Significant
Natterer's	>10	Very significant
	If present	Significant
Daubenton's	Maternity roost	Very significant
Leisler's	Maternity roost	Very significant
Common Pipistrelle	Maternity roost	Significant
Soprano Pipistrelle	Maternity roost	Significant
Brown Long-eared	Maternity roost	Significant

Annex 3

Assessment Criteria

Factors to consider when determining survey effort & site risk (taken from Hundt, 2012)

Quality of habitat & number of habitat features likely to affect bat mortality rates if altered by development*	Species likely to use the site*	Importance of roosts, of species likely to use site, which may be affected*	Potential risk level of development
No potential habitat for roosting, foraging or commuting bats	None	Local	Lowest
Small number of potential roost features, of low quality Low quality foraging habitat that could be used by small numbers of foraging bats Isolated site, not connected to the wider landscape by prominent linear features	Low number, single low risk species High number, several low risk species	Parish	Low
Buildings, trees or other structures with moderate-high potential as roost sites on or near the site Habitat could be used extensively by foraging bats Site is connected to the wider landscape by linear features such as scrub tree lines and streams	Low number, medium risk species High number, medium risk species	District County	Medium
Numerous suitable buildings, trees (particularly mature ancient woodland) or other structures with moderate/high potential on or near the site and/or confirmed roosts present close to or on the site Extensive and diverse habitat mosaic of high quality for foraging bats Site is connected to the wider landscape by a network of strong linear features such as rivers, blocks of woodland and mature hedgerows	High number, single high risk species High number, several high risk species High number, all high risk species	National International	High

Annex 4

Minimum Survey Standards

Minimum standards for bat surveys at proposed onshore wind turbine developments (taken from Hundt, 2012)

Survey criteria	Site risk level		
	Low	Medium	High
	Roost surveys		
Selection of roosts requiring further survey	If evidence of roosting by medium or high-risk species and or roosts of district importance and above is found, further survey should follow SNCO guidance & guidelines available in Chapter 8 (Hundt, 2012)		
	Activity surveys		
Survey period	Surveys should provide data for one survey as a minimum		
Survey area [1]	Up to 200 m + rotor radius from turbine locations or potential turbine locations		
Ground level transects	One visit per transect each season (spring, summer & autumn)	One visit per transect each month (April -October)	Up to two visits per transect each month (April – October)
Automated surveys at ground level	5 consecutive nights for each single[2] or pair of locations within the survey area, per season	5 consecutive nights for each single or pair of locations within the survey area, per month	Up to 2 sets of 5 consecutive nights for each single or pair of locations within the survey area, per month
Automated surveys at height	Situations where at-height survey may be appropriate are outlined in Chapter 10 (Hundt, 2012) For surveys undertaken from masts, survey effort is as outlined above for surveys at ground level.		

[1] Should include potential turbine locations plus the nearest habitat features likely to be used by bats.

[2] Single locations will be at potential turbine locations. It may not be necessary to survey potential turbine locations without suitable habitat for bats located within 100 m plus the rotor radius. See Chapter 10 in Hundt (2012) for further details.

Annex 5

Habitat Suitability Assessment

Guidelines for assessing the potential suitability of a site for bats, based on the presence of habitat features (taken from Collins, 2016)

Suitability	Roosting Habitats	Commuting and Foraging Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[1] and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats, i.e. unlikely to be suitable for maternity or hibernation[2]. A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential[3].	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only - the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

[1] For example, in terms of temperature, humidity, height above ground, light levels or levels of disturbance.

[2] Larger numbers of Common pipistrelle may be present during autumn and winter in large buildings in highly urbanised areas, based on evidence from the Netherlands (Korsten et al. 2015).

[3] Categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

Annex 6

Manual Transect Survey Results

Date	Time	Easting	Northing	Species	No.	Notes
28/04/2016	21:54	259314	225409	Unidentified bat	1	Not echolocating
26/05/2016	00:01	257954	225858	Common pipistrelle	1	
26/05/2016	00:03	258026	225864	Common pipistrelle	1	Foraging
26/05/2016	00:04	258941	226621	Common pipistrelle	1	Faint call
26/05/2016	22:20	260881	225759	Common pipistrelle	1	Commuting
26/05/2016	22:21	258632	224888	Common pipistrelle	1	Commuting
26/05/2016	22:28	260881	225759	Pipistrelle sp.	1	Commuting
26/05/2016	22:36	260678	225842	Common pipistrelle	1	Feeding
26/05/2016	22:38	257951	224706	Common pipistrelle	1	Commuting & feeding
26/05/2016	22:43	227842	224699	Common pipistrelle	2	Foraging along peat bank
26/05/2016	22:46	227842	224699	Common pipistrelle	1	Foraging along peat bank
26/05/2016	22:48	257739	224691	Common pipistrelle	1	
26/05/2016	22:48	260531	226416	Common pipistrelle	1	
26/05/2016	22:53	257510	224847	Brown Long-eared Bat	1	Foraging among Birch trees
26/05/2016	22:54	257510	224847	Common pipistrelle	1	Commuting
26/05/2016	22:59	260615	226513	Common pipistrelle	1	
26/05/2016	23:02	257413	225002	Common pipistrelle	1	Commuting
26/05/2016	23:06	260674	226787	Common pipistrelle	1	Faint call
26/05/2016	23:11	257115	225409	Leisler's bat	1	Commuting
26/05/2016	23:12	257078	225488	Common pipistrelle	1	
26/05/2016	23:13	260607	226749	Common pipistrelle	1	
26/05/2016	23:15	260607	226749	Common pipistrelle	1	
26/05/2016	23:22	260244	226717	Common pipistrelle	1	Faint call
26/05/2016	23:27	260013	226698	Common pipistrelle	1	Feeding
26/05/2016	23:32	226245	225556	Leisler's bat	1	Commuting
26/05/2016	23:40	256824	225722	Common pipistrelle	1	
26/05/2016	23:41	259809	2266880	Pipistrelle sp.	1	Commuting
26/05/2016	23:45	257228	225802	Common pipistrelle	3	Commuting & foraging
26/05/2016	23:45	259680	226680	Common pipistrelle	1	Commuting
26/05/2016	23:51	259459	226662	Common pipistrelle	2	Commuting & feeding
26/05/2016	23:53	257544	225827	Common pipistrelle	2	Commuting
26/05/2016	23:55	257676	225836	Common pipistrelle	1	Foraging
26/05/2016	23:58	257844	225850	Common pipistrelle	2	
26/05/2016	23:58	259325	226650	Leisler's bat	1	
26/05/2016	23:58	259325	226650	Pipistrelle sp.	1	
27/05/2016	04:05	258226	226738	Common pipistrelle	1	
27/05/2016	04:13	257814	226878	Common pipistrelle	1	
27/05/2016	04:16	257771	226906	Common pipistrelle	3	
27/05/2016	04:19	258603	226930	Common pipistrelle	1	
27/05/2016	04:21	258603	226930	Leisler's bat	1	
27/05/2016	04:38	259047	226986	Leisler's bat	1	
30/06/2016	22:31	260591	227259	Soprano pipistrelle	1	Commuting
30/06/2016	22:45	260520	227996	Soprano pipistrelle	1	Commuting
30/06/2016	22:56	259878	228067	Common pipistrelle	1	Foraging
30/06/2016	23:03	259468	228037	Common pipistrelle	1	Commuting
30/06/2016	23:08	259198	227990	Common pipistrelle	1	
30/06/2016	23:10	259207	227889	Common pipistrelle	1	Foraging
30/06/2016	23:14	259068	227746	Common pipistrelle	1	
01/07/2016						
28/07/2016	22:16	257884	224721	Soprano pipistrelle	2	Feeding
28/07/2016	22:24	260473	228121	Soprano pipistrelle	3	Feeding
28/07/2016	22:31	260522	227943	Soprano pipistrelle	1	Feeding
28/07/2016	22:35	260525	227890	Soprano pipistrelle	1	
28/07/2016	22:38	260532	227756	Soprano pipistrelle	2	
28/07/2016	22:39	260537	227725	Soprano pipistrelle	2	
28/07/2016	22:45	260643	27605	Soprano pipistrelle	1	

Date	Time	Easting	Northing	Species	No.	Notes
28/07/2016	22:53	260584	227302	Soprano pipistrelle	1	Commuting
28/07/2016	23:37	258237	226798	Common pipistrelle	1	
29/07/2016	04:10	258237	226798	Soprano pipistrelle	1	Commuting
23/08/2016	21:15	258392	225104	Soprano pipistrelle	1	Commuting
23/08/2016	21:29	258136	224767	Common pipistrelle	1	
23/08/2016	21:33	258137	224727	Unidentified bat	1	
23/08/2016	21:39	258021	224714	Common pipistrelle	1	Feeding by earth bank
23/08/2016	21:45	257637	224690	Common pipistrelle	1	
23/08/2016	22:06	257003	225632	Pipistrelle sp.	1	
23/08/2016	22:24	257548	225809	Leisler's bat	1	
23/08/2016	22:34	257885	225834	Common pipistrelle	1	Commuting
23/08/2016	22:36	257934	225840	Common pipistrelle	1	
23/08/2016	22:49	258255	226460	Common pipistrelle	1	
23/08/2016	22:51	258267	226565	Soprano pipistrelle	1	
23/08/2016				Soprano pipistrelle	1	
24/08/2016	05:10	258230	226893	Soprano pipistrelle	1	

Annex 7

Fixed Point Survey Results

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	30/04/2016	21:29:38	Pipistrelle sp.	FP-1	30/04/2016	22:26:27	Common pipistrell	FP-1	30/04/2016	23:06:57	Soprano pipistrelle	FP-1	30/04/2016	23:20:10	Common pipistrelle
FP-1	30/04/2016	21:34:07	Soprano pipistrelle	FP-1	30/04/2016	22:26:35	Common pipistrell	FP-1	30/04/2016	23:07:14	Pipistrelle sp.	FP-1	30/04/2016	23:20:28	Pipistrelle sp.
FP-1	30/04/2016	21:36:17	Leisler's bat	FP-1	30/04/2016	22:26:46	Pipistrelle sp.	FP-1	30/04/2016	23:07:32	Soprano pipistrelle	FP-1	30/04/2016	23:20:46	Soprano pipistrelle
FP-1	30/04/2016	21:36:17	Pipistrelle sp.	FP-1	30/04/2016	22:26:58	Pipistrelle sp.	FP-1	30/04/2016	23:07:41	Soprano pipistrelle	FP-1	30/04/2016	23:20:57	Pipistrelle sp.
FP-1	30/04/2016	21:36:39	Pipistrelle sp.	FP-1	30/04/2016	22:27:20	Soprano pipistrelle	FP-1	30/04/2016	23:07:50	Soprano pipistrelle	FP-1	30/04/2016	23:21:04	Pipistrelle sp.
FP-1	30/04/2016	21:37:29	Pipistrelle sp.	FP-1	30/04/2016	22:27:32	Soprano pipistrelle	FP-1	30/04/2016	23:08:13	Pipistrelle sp.	FP-1	30/04/2016	23:21:11	Common pipistrelle
FP-1	30/04/2016	21:38:09	Soprano pipistrelle	FP-1	30/04/2016	22:29:46	Pipistrelle sp.	FP-1	30/04/2016	23:08:34	Pipistrelle sp.	FP-1	30/04/2016	23:21:21	Common pipistrelle
FP-1	30/04/2016	21:38:21	Common pipistrell	FP-1	30/04/2016	22:33:54	Common pipistrell	FP-1	30/04/2016	23:08:52	Soprano pipistrelle	FP-1	30/04/2016	23:21:49	Common pipistrelle
FP-1	30/04/2016	21:38:21	Soprano pipistrelle	FP-1	30/04/2016	22:34:08	Common pipistrell	FP-1	30/04/2016	23:09:05	Common pipistrell	FP-1	30/04/2016	23:22:10	Common pipistrelle
FP-1	30/04/2016	21:39:25	Pipistrelle sp.	FP-1	30/04/2016	22:35:37	Soprano pipistrelle	FP-1	30/04/2016	23:10:05	Soprano pipistrelle	FP-1	30/04/2016	23:22:38	Common pipistrelle
FP-1	30/04/2016	21:44:05	Common pipistrell	FP-1	30/04/2016	22:37:40	Soprano pipistrelle	FP-1	30/04/2016	23:10:12	Soprano pipistrelle	FP-1	30/04/2016	23:23:07	Common pipistrelle
FP-1	30/04/2016	21:46:43	Common pipistrell	FP-1	30/04/2016	22:39:36	Common pipistrell	FP-1	30/04/2016	23:10:24	Pipistrelle sp.	FP-1	30/04/2016	23:23:30	Common pipistrelle
FP-1	30/04/2016	21:49:09	Soprano pipistrelle	FP-1	30/04/2016	22:40:01	Common pipistrell	FP-1	30/04/2016	23:10:33	Soprano pipistrelle	FP-1	30/04/2016	23:24:54	Common pipistrelle
FP-1	30/04/2016	21:49:20	Common pipistrell	FP-1	30/04/2016	22:44:01	Soprano pipistrelle	FP-1	30/04/2016	23:10:47	Soprano pipistrelle	FP-1	30/04/2016	23:24:54	Soprano pipistrelle
FP-1	30/04/2016	21:50:00	Common pipistrell	FP-1	30/04/2016	22:44:32	Soprano pipistrelle	FP-1	30/04/2016	23:11:07	Pipistrelle sp.	FP-1	30/04/2016	23:25:20	Common pipistrelle
FP-1	30/04/2016	21:51:07	Common pipistrell	FP-1	30/04/2016	22:44:50	Soprano pipistrelle	FP-1	30/04/2016	23:11:16	Pipistrelle sp.	FP-1	30/04/2016	23:25:38	Pipistrelle sp.
FP-1	30/04/2016	21:57:44	Soprano pipistrelle	FP-1	30/04/2016	22:45:17	Soprano pipistrelle	FP-1	30/04/2016	23:11:28	Soprano pipistrelle	FP-1	30/04/2016	23:25:59	Soprano pipistrelle
FP-1	30/04/2016	21:58:30	Soprano pipistrelle	FP-1	30/04/2016	22:45:55	Soprano pipistrelle	FP-1	30/04/2016	23:11:45	Soprano pipistrelle	FP-1	30/04/2016	23:26:25	Pipistrelle sp.
FP-1	30/04/2016	21:59:01	Soprano pipistrelle	FP-1	30/04/2016	22:46:19	Soprano pipistrelle	FP-1	30/04/2016	23:12:04	Soprano pipistrelle	FP-1	30/04/2016	23:27:22	Pipistrelle sp.
FP-1	30/04/2016	21:59:23	Common pipistrell	FP-1	30/04/2016	22:46:28	Common pipistrell	FP-1	30/04/2016	23:12:18	Pipistrelle sp.	FP-1	30/04/2016	23:27:30	Soprano pipistrelle
FP-1	30/04/2016	21:59:30	Common pipistrell	FP-1	30/04/2016	22:46:41	Common pipistrell	FP-1	30/04/2016	23:12:30	Soprano pipistrelle	FP-1	30/04/2016	23:27:41	Common pipistrelle
FP-1	30/04/2016	22:00:13	Common pipistrell	FP-1	30/04/2016	22:46:41	Soprano pipistrelle	FP-1	30/04/2016	23:12:43	Soprano pipistrelle	FP-1	30/04/2016	23:27:57	Common pipistrelle
FP-1	30/04/2016	22:01:35	Common pipistrell	FP-1	30/04/2016	22:47:20	Soprano pipistrelle	FP-1	30/04/2016	23:12:53	Soprano pipistrelle	FP-1	30/04/2016	23:28:15	Pipistrelle sp.
FP-1	30/04/2016	22:01:56	Common pipistrell	FP-1	30/04/2016	22:49:40	Soprano pipistrelle	FP-1	30/04/2016	23:13:13	Soprano pipistrelle	FP-1	30/04/2016	23:28:28	Pipistrelle sp.
FP-1	30/04/2016	22:02:14	Common pipistrell	FP-1	30/04/2016	22:50:17	Soprano pipistrelle	FP-1	30/04/2016	23:13:35	Soprano pipistrelle	FP-1	30/04/2016	23:28:43	Soprano pipistrelle
FP-1	30/04/2016	22:02:42	Common pipistrell	FP-1	30/04/2016	22:50:28	Soprano pipistrelle	FP-1	30/04/2016	23:14:05	Pipistrelle sp.	FP-1	30/04/2016	23:28:58	Soprano pipistrelle
FP-1	30/04/2016	22:02:42	Soprano pipistrelle	FP-1	30/04/2016	22:50:36	Soprano pipistrelle	FP-1	30/04/2016	23:14:36	Pipistrelle sp.	FP-1	30/04/2016	23:29:14	Soprano pipistrelle
FP-1	30/04/2016	22:03:01	Common pipistrell	FP-1	30/04/2016	22:50:46	Soprano pipistrelle	FP-1	30/04/2016	23:14:53	Common pipistrell	FP-1	30/04/2016	23:29:31	Soprano pipistrelle
FP-1	30/04/2016	22:05:10	Soprano pipistrelle	FP-1	30/04/2016	22:50:56	Soprano pipistrelle	FP-1	30/04/2016	23:15:46	Soprano pipistrelle	FP-1	30/04/2016	23:29:41	Common pipistrelle
FP-1	30/04/2016	22:06:35	Pipistrelle sp.	FP-1	30/04/2016	22:51:46	Common pipistrell	FP-1	30/04/2016	23:16:03	Myotis sp.	FP-1	30/04/2016	23:29:41	Soprano pipistrelle
FP-1	30/04/2016	22:07:32	Soprano pipistrelle	FP-1	30/04/2016	22:52:05	Soprano pipistrelle	FP-1	30/04/2016	23:16:03	Soprano pipistrelle	FP-1	30/04/2016	23:30:00	Common pipistrelle
FP-1	30/04/2016	22:08:22	Soprano pipistrelle	FP-1	30/04/2016	22:52:20	Soprano pipistrelle	FP-1	30/04/2016	23:16:47	Pipistrelle sp.	FP-1	30/04/2016	23:30:52	Pipistrelle sp.
FP-1	30/04/2016	22:09:41	Pipistrelle sp.	FP-1	30/04/2016	22:52:33	Soprano pipistrelle	FP-1	30/04/2016	23:16:58	Pipistrelle sp.	FP-1	30/04/2016	23:31:08	Soprano pipistrelle
FP-1	30/04/2016	22:14:13	Soprano pipistrelle	FP-1	30/04/2016	22:53:55	Pipistrelle sp.	FP-1	30/04/2016	23:17:18	Soprano pipistrelle	FP-1	30/04/2016	23:31:32	Soprano pipistrelle
FP-1	30/04/2016	22:17:28	Common pipistrell	FP-1	30/04/2016	22:54:20	Soprano pipistrelle	FP-1	30/04/2016	23:17:32	Soprano pipistrelle	FP-1	30/04/2016	23:31:59	Soprano pipistrelle
FP-1	30/04/2016	22:17:28	Soprano pipistrelle	FP-1	30/04/2016	22:54:30	Soprano pipistrelle	FP-1	30/04/2016	23:17:41	Soprano pipistrelle	FP-1	30/04/2016	23:32:35	Common pipistrelle
FP-1	30/04/2016	22:18:03	Common pipistrell	FP-1	30/04/2016	22:56:03	Common pipistrell	FP-1	30/04/2016	23:17:53	Soprano pipistrelle	FP-1	30/04/2016	23:32:35	Soprano pipistrelle
FP-1	30/04/2016	22:22:20	Common pipistrell	FP-1	30/04/2016	22:56:20	Soprano pipistrelle	FP-1	30/04/2016	23:18:06	Soprano pipistrelle	FP-1	30/04/2016	23:33:06	Soprano pipistrelle
FP-1	30/04/2016	22:22:35	Common pipistrell	FP-1	30/04/2016	22:56:38	Soprano pipistrelle	FP-1	30/04/2016	23:18:15	Soprano pipistrelle	FP-1	30/04/2016	23:33:17	Soprano pipistrelle
FP-1	30/04/2016	22:22:45	Common pipistrell	FP-1	30/04/2016	23:04:54	Soprano pipistrelle	FP-1	30/04/2016	23:18:37	Common pipistrell	FP-1	30/04/2016	23:33:30	Common pipistrelle
FP-1	30/04/2016	22:22:53	Common pipistrell	FP-1	30/04/2016	23:05:06	Soprano pipistrelle	FP-1	30/04/2016	23:18:37	Soprano pipistrelle	FP-1	30/04/2016	23:33:30	Soprano pipistrelle
FP-1	30/04/2016	22:25:13	Soprano pipistrelle	FP-1	30/04/2016	23:05:22	Soprano pipistrelle	FP-1	30/04/2016	23:19:31	Common pipistrell	FP-1	30/04/2016	23:33:48	Common pipistrelle
FP-1	30/04/2016	22:25:31	Soprano pipistrelle	FP-1	30/04/2016	23:05:33	Soprano pipistrelle	FP-1	30/04/2016	23:19:31	Soprano pipistrelle	FP-1	30/04/2016	23:33:59	Soprano pipistrelle
FP-1	30/04/2016	22:26:09	Pipistrelle sp.	FP-1	30/04/2016	23:06:40	Soprano pipistrelle	FP-1	30/04/2016	23:19:49	Soprano pipistrelle	FP-1	30/04/2016	23:34:08	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	30/04/2016	23:34:08	Soprano pipistrelle	FP-1	30/04/2016	23:48:29	Soprano pipistrelle	FP-1	01/05/2016	00:01:32	Common pipistrell	FP-1	01/05/2016	00:23:31	Soprano pipistrelle
FP-1	30/04/2016	23:34:21	Soprano pipistrelle	FP-1	30/04/2016	23:48:47	Common pipistrell	FP-1	01/05/2016	00:02:44	Common pipistrell	FP-1	01/05/2016	00:23:56	Soprano pipistrelle
FP-1	30/04/2016	23:34:36	Common pipistrell	FP-1	30/04/2016	23:49:00	Common pipistrell	FP-1	01/05/2016	00:02:44	Soprano pipistrelle	FP-1	01/05/2016	00:44:52	Common pipistrelle
FP-1	30/04/2016	23:36:38	Common pipistrell	FP-1	30/04/2016	23:49:25	Common pipistrell	FP-1	01/05/2016	00:05:08	Soprano pipistrelle	FP-1	01/05/2016	00:48:33	Common pipistrelle
FP-1	30/04/2016	23:37:24	Pipistrelle sp.	FP-1	30/04/2016	23:49:41	Common pipistrell	FP-1	01/05/2016	00:05:24	Soprano pipistrelle	FP-1	01/05/2016	00:48:45	Common pipistrelle
FP-1	30/04/2016	23:37:42	Pipistrelle sp.	FP-1	30/04/2016	23:49:54	Common pipistrell	FP-1	01/05/2016	00:05:49	Soprano pipistrelle	FP-1	01/05/2016	00:48:57	Common pipistrelle
FP-1	30/04/2016	23:38:12	Pipistrelle sp.	FP-1	30/04/2016	23:50:19	Common pipistrell	FP-1	01/05/2016	00:06:25	Soprano pipistrelle	FP-1	01/05/2016	00:49:15	Common pipistrelle
FP-1	30/04/2016	23:38:55	Soprano pipistrelle	FP-1	30/04/2016	23:50:30	Common pipistrell	FP-1	01/05/2016	00:06:44	Soprano pipistrelle	FP-1	01/05/2016	00:49:29	Common pipistrelle
FP-1	30/04/2016	23:39:08	Soprano pipistrelle	FP-1	30/04/2016	23:50:53	Common pipistrell	FP-1	01/05/2016	00:07:02	Common pipistrell	FP-1	01/05/2016	00:49:41	Common pipistrelle
FP-1	30/04/2016	23:39:28	Soprano pipistrelle	FP-1	30/04/2016	23:51:07	Common pipistrell	FP-1	01/05/2016	00:07:31	Common pipistrell	FP-1	01/05/2016	00:50:02	Common pipistrelle
FP-1	30/04/2016	23:39:51	Pipistrelle sp.	FP-1	30/04/2016	23:51:25	Common pipistrell	FP-1	01/05/2016	00:08:37	Pipistrelle sp.	FP-1	01/05/2016	00:50:24	Common pipistrelle
FP-1	30/04/2016	23:40:02	Pipistrelle sp.	FP-1	30/04/2016	23:51:25	Soprano pipistrelle	FP-1	01/05/2016	00:08:55	Soprano pipistrelle	FP-1	01/05/2016	00:50:38	Common pipistrelle
FP-1	30/04/2016	23:41:20	Pipistrelle sp.	FP-1	30/04/2016	23:51:41	Soprano pipistrelle	FP-1	01/05/2016	00:09:09	Pipistrelle sp.	FP-1	01/05/2016	00:50:53	Common pipistrelle
FP-1	30/04/2016	23:41:28	Soprano pipistrelle	FP-1	30/04/2016	23:51:52	Soprano pipistrelle	FP-1	01/05/2016	00:09:21	Pipistrelle sp.	FP-1	01/05/2016	00:51:12	Common pipistrelle
FP-1	30/04/2016	23:41:46	Soprano pipistrelle	FP-1	30/04/2016	23:52:10	Soprano pipistrelle	FP-1	01/05/2016	00:09:28	Pipistrelle sp.	FP-1	01/05/2016	00:51:32	Common pipistrelle
FP-1	30/04/2016	23:42:00	Soprano pipistrelle	FP-1	30/04/2016	23:52:18	Common pipistrell	FP-1	01/05/2016	00:09:50	Soprano pipistrelle	FP-1	01/05/2016	00:51:52	Common pipistrelle
FP-1	30/04/2016	23:42:13	Soprano pipistrelle	FP-1	30/04/2016	23:52:18	Soprano pipistrelle	FP-1	01/05/2016	00:10:09	Pipistrelle sp.	FP-1	01/05/2016	00:52:17	Common pipistrelle
FP-1	30/04/2016	23:42:24	Common pipistrell	FP-1	30/04/2016	23:52:36	Soprano pipistrelle	FP-1	01/05/2016	00:10:25	Common pipistrell	FP-1	01/05/2016	00:52:37	Common pipistrelle
FP-1	30/04/2016	23:42:24	Soprano pipistrelle	FP-1	30/04/2016	23:52:56	Common pipistrell	FP-1	01/05/2016	00:10:36	Common pipistrell	FP-1	01/05/2016	00:52:57	Common pipistrelle
FP-1	30/04/2016	23:42:42	Pipistrelle sp.	FP-1	30/04/2016	23:53:06	Common pipistrell	FP-1	01/05/2016	00:10:36	Soprano pipistrelle	FP-1	01/05/2016	00:53:18	Common pipistrelle
FP-1	30/04/2016	23:42:53	Soprano pipistrelle	FP-1	30/04/2016	23:53:28	Common pipistrell	FP-1	01/05/2016	00:10:55	Common pipistrell	FP-1	01/05/2016	00:53:39	Common pipistrelle
FP-1	30/04/2016	23:43:11	Soprano pipistrelle	FP-1	30/04/2016	23:53:47	Pipistrelle sp.	FP-1	01/05/2016	00:11:04	Common pipistrell	FP-1	01/05/2016	00:54:02	Common pipistrelle
FP-1	30/04/2016	23:43:31	Soprano pipistrelle	FP-1	30/04/2016	23:53:54	Soprano pipistrelle	FP-1	01/05/2016	00:11:15	Myotis sp.	FP-1	01/05/2016	00:54:22	Common pipistrelle
FP-1	30/04/2016	23:43:43	Soprano pipistrelle	FP-1	30/04/2016	23:54:06	Soprano pipistrelle	FP-1	01/05/2016	00:11:25	Soprano pipistrelle	FP-1	01/05/2016	00:54:40	Common pipistrelle
FP-1	30/04/2016	23:44:01	Soprano pipistrelle	FP-1	30/04/2016	23:54:33	Common pipistrell	FP-1	01/05/2016	00:11:37	Soprano pipistrelle	FP-1	01/05/2016	00:55:03	Common pipistrelle
FP-1	30/04/2016	23:44:14	Common pipistrell	FP-1	30/04/2016	23:55:08	Common pipistrell	FP-1	01/05/2016	00:11:52	Soprano pipistrelle	FP-1	01/05/2016	00:55:24	Common pipistrelle
FP-1	30/04/2016	23:44:14	Soprano pipistrelle	FP-1	30/04/2016	23:55:28	Common pipistrell	FP-1	01/05/2016	00:12:20	Common pipistrell	FP-1	01/05/2016	00:55:43	Common pipistrelle
FP-1	30/04/2016	23:44:32	Soprano pipistrelle	FP-1	30/04/2016	23:55:46	Common pipistrell	FP-1	01/05/2016	00:12:44	Common pipistrell	FP-1	01/05/2016	00:56:04	Common pipistrelle
FP-1	30/04/2016	23:44:57	Pipistrelle sp.	FP-1	30/04/2016	23:56:24	Common pipistrell	FP-1	01/05/2016	00:13:04	Common pipistrell	FP-1	01/05/2016	00:56:18	Common pipistrelle
FP-1	30/04/2016	23:45:07	Soprano pipistrelle	FP-1	30/04/2016	23:56:33	Common pipistrell	FP-1	01/05/2016	00:14:00	Soprano pipistrelle	FP-1	01/05/2016	00:56:37	Common pipistrelle
FP-1	30/04/2016	23:45:19	Soprano pipistrelle	FP-1	30/04/2016	23:56:33	Soprano pipistrelle	FP-1	01/05/2016	00:14:20	Common pipistrell	FP-1	01/05/2016	00:57:00	Common pipistrelle
FP-1	30/04/2016	23:45:42	Soprano pipistrelle	FP-1	30/04/2016	23:56:56	Soprano pipistrelle	FP-1	01/05/2016	00:14:20	Soprano pipistrelle	FP-1	01/05/2016	00:57:13	Common pipistrelle
FP-1	30/04/2016	23:45:51	Common pipistrell	FP-1	30/04/2016	23:57:05	Common pipistrell	FP-1	01/05/2016	00:14:55	Soprano pipistrelle	FP-1	01/05/2016	00:57:29	Common pipistrelle
FP-1	30/04/2016	23:45:51	Soprano pipistrelle	FP-1	30/04/2016	23:57:05	Soprano pipistrelle	FP-1	01/05/2016	00:16:13	Soprano pipistrelle	FP-1	01/05/2016	00:57:49	Common pipistrelle
FP-1	30/04/2016	23:46:15	Common pipistrell	FP-1	30/04/2016	23:57:30	Common pipistrell	FP-1	01/05/2016	00:16:32	Soprano pipistrelle	FP-1	01/05/2016	00:58:04	Common pipistrelle
FP-1	30/04/2016	23:46:15	Soprano pipistrelle	FP-1	30/04/2016	23:57:30	Soprano pipistrelle	FP-1	01/05/2016	00:17:13	Pipistrelle sp.	FP-1	01/05/2016	00:58:26	Common pipistrelle
FP-1	30/04/2016	23:46:38	Soprano pipistrelle	FP-1	30/04/2016	23:58:36	Common pipistrell	FP-1	01/05/2016	00:17:29	Soprano pipistrelle	FP-1	01/05/2016	00:58:48	Common pipistrelle
FP-1	30/04/2016	23:46:46	Pipistrelle sp.	FP-1	30/04/2016	23:59:18	Pipistrelle sp.	FP-1	01/05/2016	00:17:55	Soprano pipistrelle	FP-1	01/05/2016	00:59:11	Common pipistrelle
FP-1	30/04/2016	23:47:20	Soprano pipistrelle	FP-1	30/04/2016	23:59:26	Soprano pipistrelle	FP-1	01/05/2016	00:18:41	Soprano pipistrelle	FP-1	01/05/2016	00:59:24	Common pipistrelle
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FP-1	30/04/2016	23:48:29	Common pipistrell	FP-1	01/05/2016	00:01:21	Common pipistrell	FP-1	01/05/2016	00:23:00	Soprano pipistrelle	FP-1	01/05/2016	01:00:46	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	01/05/2016	01:01:17	Common pipistrell	FP-1	01/05/2016	02:01:03	Soprano pipistrelle	FP-1	01/05/2016	02:46:26	Soprano pipistrelle	FP-1	01/05/2016	21:47:47	Pipistrelle sp.
FP-1	01/05/2016	01:01:37	Common pipistrell	FP-1	01/05/2016	02:01:33	Soprano pipistrelle	FP-1	01/05/2016	02:46:46	Soprano pipistrelle	FP-1	01/05/2016	21:48:48	Common pipistrelle
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FP-1	01/05/2016	01:05:25	Common pipistrell	FP-1	01/05/2016	02:14:52	Soprano pipistrelle	FP-1	01/05/2016	02:57:34	Soprano pipistrelle	FP-1	01/05/2016	21:59:16	Common pipistrelle
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FP-1	01/05/2016	01:05:47	Common pipistrell	FP-1	01/05/2016	02:16:12	Soprano pipistrelle	FP-1	01/05/2016	02:58:47	Soprano pipistrelle	FP-1	01/05/2016	22:05:02	Common pipistrelle
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FP-1	01/05/2016	01:06:06	Soprano pipistrelle	FP-1	01/05/2016	02:22:21	Soprano pipistrelle	FP-1	01/05/2016	03:01:40	Myotis sp.	FP-1	01/05/2016	22:10:38	Pipistrelle sp.
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FP-1	01/05/2016	01:07:46	Soprano pipistrelle	FP-1	01/05/2016	02:25:10	Soprano pipistrelle	FP-1	01/05/2016	21:28:59	Leisler's bat	FP-1	01/05/2016	22:26:19	Soprano pipistrelle
FP-1	01/05/2016	01:32:55	Soprano pipistrelle	FP-1	01/05/2016	02:29:00	Pipistrelle sp.	FP-1	01/05/2016	21:28:59	Soprano pipistrelle	FP-1	01/05/2016	22:35:55	Soprano pipistrelle
FP-1	01/05/2016	01:48:16	Common pipistrell	FP-1	01/05/2016	02:31:29	Soprano pipistrelle	FP-1	01/05/2016	21:29:11	Pipistrelle sp.	FP-1	01/05/2016	22:42:28	Soprano pipistrelle
FP-1	01/05/2016	01:48:35	Common pipistrell	FP-1	01/05/2016	02:33:32	Soprano pipistrelle	FP-1	01/05/2016	21:30:39	Pipistrelle sp.	FP-1	01/05/2016	22:52:53	Pipistrelle sp.
FP-1	01/05/2016	01:48:44	Common pipistrell	FP-1	01/05/2016	02:33:41	Soprano pipistrelle	FP-1	01/05/2016	21:31:36	Pipistrelle sp.	FP-1	01/05/2016	22:53:52	Soprano pipistrelle
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FP-1	01/05/2016	01:55:00	Pipistrelle sp.	FP-1	01/05/2016	02:42:54	Soprano pipistrelle	FP-1	01/05/2016	21:43:56	Soprano pipistrelle	FP-1	01/05/2016	23:10:23	Soprano pipistrelle
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FP-1	01/05/2016	01:57:14	Soprano pipistrelle	FP-1	01/05/2016	02:43:58	Soprano pipistrelle	FP-1	01/05/2016	21:45:17	Common pipistrell	FP-1	01/05/2016	23:12:09	Soprano pipistrelle
FP-1	01/05/2016	01:58:49	Soprano pipistrelle	FP-1	01/05/2016	02:44:14	Pipistrelle sp.	FP-1	01/05/2016	21:45:34	Common pipistrell	FP-1	01/05/2016	23:12:27	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	01/05/2016	23:12:46	Soprano pipistrelle	FP-1	01/05/2016	23:25:27	Soprano pipistrelle	FP-1	01/05/2016	23:59:22	Common pipistrelle	FP-1	02/05/2016	00:19:01	Common pipistrelle
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FP-1	01/05/2016	23:18:47	Common pipistrelle	FP-1	01/05/2016	23:38:28	Soprano pipistrelle	FP-1	02/05/2016	00:11:47	Common pipistrelle	FP-1	02/05/2016	00:25:16	Soprano pipistrelle
FP-1	01/05/2016	23:19:05	Common pipistrelle	FP-1	01/05/2016	23:38:44	Pipistrelle sp.	FP-1	02/05/2016	00:12:32	Common pipistrelle	FP-1	02/05/2016	00:25:29	Soprano pipistrelle
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FP-1	01/05/2016	23:21:20	Common pipistrelle	FP-1	01/05/2016	23:47:03	Common pipistrelle	FP-1	02/05/2016	00:14:53	Common pipistrelle	FP-1	02/05/2016	00:28:44	Common pipistrelle
FP-1	01/05/2016	23:21:38	Common pipistrelle	FP-1	01/05/2016	23:47:21	Common pipistrelle	FP-1	02/05/2016	00:15:11	Common pipistrelle	FP-1	02/05/2016	00:29:42	Soprano pipistrelle
FP-1	01/05/2016	23:21:56	Common pipistrelle	FP-1	01/05/2016	23:47:55	Common pipistrelle	FP-1	02/05/2016	00:15:29	Common pipistrelle	FP-1	02/05/2016	00:30:04	Soprano pipistrelle
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FP-1	01/05/2016	23:22:31	Common pipistrelle	FP-1	01/05/2016	23:48:26	Common pipistrelle	FP-1	02/05/2016	00:16:05	Common pipistrelle	FP-1	02/05/2016	00:31:11	Soprano pipistrelle
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FP-1	01/05/2016	23:23:07	Common pipistrelle	FP-1	01/05/2016	23:50:24	Common pipistrelle	FP-1	02/05/2016	00:17:00	Common pipistrelle	FP-1	02/05/2016	00:31:54	Soprano pipistrelle
FP-1	01/05/2016	23:23:25	Common pipistrelle	FP-1	01/05/2016	23:50:42	Common pipistrelle	FP-1	02/05/2016	00:17:00	Soprano pipistrelle	FP-1	02/05/2016	00:34:24	Common pipistrelle
FP-1	01/05/2016	23:23:46	Common pipistrelle	FP-1	01/05/2016	23:51:00	Common pipistrelle	FP-1	02/05/2016	00:17:18	Common pipistrelle	FP-1	02/05/2016	00:34:37	Common pipistrelle
FP-1	01/05/2016	23:24:04	Common pipistrelle	FP-1	01/05/2016	23:51:18	Common pipistrelle	FP-1	02/05/2016	00:17:36	Common pipistrelle	FP-1	02/05/2016	00:34:55	Common pipistrelle
FP-1	01/05/2016	23:24:22	Common pipistrelle	FP-1	01/05/2016	23:51:28	Common pipistrelle	FP-1	02/05/2016	00:18:00	Common pipistrelle	FP-1	02/05/2016	00:35:13	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	02/05/2016	00:35:32	Common pipistrell	FP-1	02/05/2016	00:53:59	Common pipistrell	FP-1	02/05/2016	01:27:53	Common pipistrell	FP-1	02/05/2016	01:52:53	Common pipistrelle
FP-1	02/05/2016	00:35:50	Common pipistrell	FP-1	02/05/2016	00:54:06	Pipistrelle sp.	FP-1	02/05/2016	01:28:17	Common pipistrell	FP-1	02/05/2016	01:53:11	Common pipistrelle
FP-1	02/05/2016	00:36:08	Common pipistrell	FP-1	02/05/2016	00:54:24	Pipistrelle sp.	FP-1	02/05/2016	01:28:35	Common pipistrell	FP-1	02/05/2016	01:53:29	Common pipistrelle
FP-1	02/05/2016	00:36:26	Common pipistrell	FP-1	02/05/2016	00:54:42	Common pipistrell	FP-1	02/05/2016	01:28:53	Common pipistrell	FP-1	02/05/2016	01:53:47	Common pipistrelle
FP-1	02/05/2016	00:36:44	Common pipistrell	FP-1	02/05/2016	00:55:52	Common pipistrell	FP-1	02/05/2016	01:29:12	Common pipistrell	FP-1	02/05/2016	01:54:05	Common pipistrelle
FP-1	02/05/2016	00:37:02	Common pipistrell	FP-1	02/05/2016	00:56:10	Common pipistrell	FP-1	02/05/2016	01:29:24	Common pipistrell	FP-1	02/05/2016	01:54:23	Common pipistrelle
FP-1	02/05/2016	00:37:20	Common pipistrell	FP-1	02/05/2016	00:56:42	Common pipistrell	FP-1	02/05/2016	01:29:42	Common pipistrell	FP-1	02/05/2016	01:54:30	Common pipistrelle
FP-1	02/05/2016	00:37:38	Common pipistrell	FP-1	02/05/2016	00:57:00	Common pipistrell	FP-1	02/05/2016	01:29:53	Common pipistrell	FP-1	02/05/2016	01:54:48	Common pipistrelle
FP-1	02/05/2016	00:37:56	Common pipistrell	FP-1	02/05/2016	00:58:46	Common pipistrell	FP-1	02/05/2016	01:30:11	Common pipistrell	FP-1	02/05/2016	01:55:06	Common pipistrelle
FP-1	02/05/2016	00:38:14	Common pipistrell	FP-1	02/05/2016	00:59:05	Common pipistrell	FP-1	02/05/2016	01:30:29	Common pipistrell	FP-1	02/05/2016	01:55:30	Common pipistrelle
FP-1	02/05/2016	00:38:50	Common pipistrell	FP-1	02/05/2016	00:59:23	Common pipistrell	FP-1	02/05/2016	01:30:47	Common pipistrell	FP-1	02/05/2016	01:55:48	Common pipistrelle
FP-1	02/05/2016	00:39:08	Common pipistrell	FP-1	02/05/2016	01:06:37	Common pipistrell	FP-1	02/05/2016	01:31:04	Common pipistrell	FP-1	02/05/2016	01:56:06	Common pipistrelle
FP-1	02/05/2016	00:43:17	Soprano pipistrelle	FP-1	02/05/2016	01:06:57	Common pipistrell	FP-1	02/05/2016	01:31:22	Common pipistrell	FP-1	02/05/2016	01:56:14	Common pipistrelle
FP-1	02/05/2016	00:43:36	Soprano pipistrelle	FP-1	02/05/2016	01:14:17	Common pipistrell	FP-1	02/05/2016	01:31:41	Common pipistrell	FP-1	02/05/2016	01:56:32	Common pipistrelle
FP-1	02/05/2016	00:43:55	Soprano pipistrelle	FP-1	02/05/2016	01:14:36	Common pipistrell	FP-1	02/05/2016	01:31:51	Common pipistrell	FP-1	02/05/2016	01:56:49	Common pipistrelle
FP-1	02/05/2016	00:44:13	Soprano pipistrelle	FP-1	02/05/2016	01:14:45	Common pipistrell	FP-1	02/05/2016	01:32:09	Common pipistrell	FP-1	02/05/2016	01:57:08	Common pipistrelle
FP-1	02/05/2016	00:44:22	Soprano pipistrelle	FP-1	02/05/2016	01:15:03	Common pipistrell	FP-1	02/05/2016	01:32:27	Common pipistrell	FP-1	02/05/2016	01:57:26	Common pipistrelle
FP-1	02/05/2016	00:44:41	Soprano pipistrelle	FP-1	02/05/2016	01:15:21	Common pipistrell	FP-1	02/05/2016	01:32:45	Common pipistrell	FP-1	02/05/2016	01:58:26	Common pipistrelle
FP-1	02/05/2016	00:44:59	Soprano pipistrelle	FP-1	02/05/2016	01:15:46	Common pipistrell	FP-1	02/05/2016	01:33:03	Common pipistrell	FP-1	02/05/2016	01:58:45	Common pipistrelle
FP-1	02/05/2016	00:45:14	Pipistrelle sp.	FP-1	02/05/2016	01:16:05	Common pipistrell	FP-1	02/05/2016	01:33:21	Common pipistrell	FP-1	02/05/2016	01:59:03	Common pipistrelle
FP-1	02/05/2016	00:45:21	Soprano pipistrelle	FP-1	02/05/2016	01:16:34	Common pipistrell	FP-1	02/05/2016	01:33:39	Common pipistrell	FP-1	02/05/2016	01:59:22	Common pipistrelle
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FP-1	02/05/2016	00:45:49	Soprano pipistrelle	FP-1	02/05/2016	01:17:44	Common pipistrell	FP-1	02/05/2016	01:34:10	Common pipistrell	FP-1	02/05/2016	02:01:45	Common pipistrelle
FP-1	02/05/2016	00:46:14	Soprano pipistrelle	FP-1	02/05/2016	01:18:02	Common pipistrell	FP-1	02/05/2016	01:36:13	Common pipistrell	FP-1	02/05/2016	02:02:03	Common pipistrelle
FP-1	02/05/2016	00:46:46	Soprano pipistrelle	FP-1	02/05/2016	01:18:20	Common pipistrell	FP-1	02/05/2016	01:36:29	Common pipistrell	FP-1	02/05/2016	02:04:24	Common pipistrelle
FP-1	02/05/2016	00:47:20	Pipistrelle sp.	FP-1	02/05/2016	01:18:38	Common pipistrell	FP-1	02/05/2016	01:36:48	Common pipistrell	FP-1	02/05/2016	02:04:43	Soprano pipistrelle
FP-1	02/05/2016	00:47:39	Pipistrelle sp.	FP-1	02/05/2016	01:18:56	Common pipistrell	FP-1	02/05/2016	01:37:06	Common pipistrell	FP-1	02/05/2016	02:04:54	Common pipistrelle
FP-1	02/05/2016	00:47:57	Pipistrelle sp.	FP-1	02/05/2016	01:19:14	Common pipistrell	FP-1	02/05/2016	01:37:24	Common pipistrell	FP-1	02/05/2016	02:10:10	Common pipistrelle
FP-1	02/05/2016	00:48:15	Pipistrelle sp.	FP-1	02/05/2016	01:19:32	Common pipistrell	FP-1	02/05/2016	01:38:10	Common pipistrell	FP-1	02/05/2016	02:10:28	Common pipistrelle
FP-1	02/05/2016	00:48:24	Pipistrelle sp.	FP-1	02/05/2016	01:19:50	Common pipistrell	FP-1	02/05/2016	01:41:11	Common pipistrell	FP-1	02/05/2016	02:10:35	Common pipistrelle
FP-1	02/05/2016	00:48:42	Common pipistrell	FP-1	02/05/2016	01:20:08	Common pipistrell	FP-1	02/05/2016	01:41:30	Common pipistrell	FP-1	02/05/2016	02:10:53	Common pipistrelle
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FP-1	02/05/2016	00:49:18	Common pipistrell	FP-1	02/05/2016	01:24:17	Common pipistrell	FP-1	02/05/2016	01:42:06	Common pipistrell	FP-1	02/05/2016	02:11:29	Common pipistrelle
FP-1	02/05/2016	00:49:36	Common pipistrell	FP-1	02/05/2016	01:24:35	Common pipistrell	FP-1	02/05/2016	01:42:25	Common pipistrell	FP-1	02/05/2016	02:11:47	Common pipistrelle
FP-1	02/05/2016	00:49:48	Pipistrelle sp.	FP-1	02/05/2016	01:24:53	Common pipistrell	FP-1	02/05/2016	01:42:42	Common pipistrell	FP-1	02/05/2016	02:14:01	Common pipistrelle
FP-1	02/05/2016	00:50:06	Common pipistrell	FP-1	02/05/2016	01:25:11	Common pipistrell	FP-1	02/05/2016	01:43:00	Common pipistrell	FP-1	02/05/2016	02:14:20	Common pipistrelle
FP-1	02/05/2016	00:50:25	Common pipistrell	FP-1	02/05/2016	01:25:29	Common pipistrell	FP-1	02/05/2016	01:43:18	Common pipistrell	FP-1	02/05/2016	02:14:38	Common pipistrelle
FP-1	02/05/2016	00:50:33	Pipistrelle sp.	FP-1	02/05/2016	01:25:47	Common pipistrell	FP-1	02/05/2016	01:43:37	Common pipistrell	FP-1	02/05/2016	02:14:57	Common pipistrelle
FP-1	02/05/2016	00:50:51	Pipistrelle sp.	FP-1	02/05/2016	01:26:05	Common pipistrell	FP-1	02/05/2016	01:43:49	Common pipistrell	FP-1	02/05/2016	02:17:01	Common pipistrelle
FP-1	02/05/2016	00:51:11	Pipistrelle sp.	FP-1	02/05/2016	01:26:23	Common pipistrell	FP-1	02/05/2016	01:44:07	Common pipistrell	FP-1	02/05/2016	02:17:19	Common pipistrelle
FP-1	02/05/2016	00:51:30	Pipistrelle sp.	FP-1	02/05/2016	01:26:41	Common pipistrell	FP-1	02/05/2016	01:44:25	Common pipistrell	FP-1	02/05/2016	02:17:38	Common pipistrelle
FP-1	02/05/2016	00:51:45	Common pipistrell	FP-1	02/05/2016	01:26:59	Common pipistrell	FP-1	02/05/2016	01:44:43	Common pipistrell	FP-1	02/05/2016	02:17:56	Common pipistrelle
FP-1	02/05/2016	00:52:04	Common pipistrell	FP-1	02/05/2016	01:27:17	Common pipistrell	FP-1	02/05/2016	01:45:01	Common pipistrell	FP-1	02/05/2016	02:18:14	Common pipistrelle
FP-1	02/05/2016	00:53:40	Pipistrelle sp.	FP-1	02/05/2016	01:27:35	Common pipistrell	FP-1	02/05/2016	01:45:19	Common pipistrell	FP-1	02/05/2016	02:20:57	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	02/05/2016	02:21:23	Common pipistrell	FP-1	02/05/2016	02:43:48	Common pipistrell	FP-1	02/05/2016	02:56:11	Common pipistrell	FP-1	02/05/2016	03:08:26	Common pipistrelle
FP-1	02/05/2016	02:21:41	Common pipistrell	FP-1	02/05/2016	02:43:59	Common pipistrell	FP-1	02/05/2016	02:56:33	Common pipistrell	FP-1	02/05/2016	03:08:44	Common pipistrelle
FP-1	02/05/2016	02:22:26	Common pipistrell	FP-1	02/05/2016	02:44:17	Common pipistrell	FP-1	02/05/2016	02:56:52	Common pipistrell	FP-1	02/05/2016	03:09:02	Common pipistrelle
FP-1	02/05/2016	02:22:39	Common pipistrell	FP-1	02/05/2016	02:44:35	Common pipistrell	FP-1	02/05/2016	02:57:03	Common pipistrell	FP-1	02/05/2016	03:09:20	Common pipistrelle
FP-1	02/05/2016	02:22:52	Common pipistrell	FP-1	02/05/2016	02:44:53	Common pipistrell	FP-1	02/05/2016	02:57:22	Common pipistrell	FP-1	02/05/2016	03:09:38	Common pipistrelle
FP-1	02/05/2016	02:23:10	Common pipistrell	FP-1	02/05/2016	02:45:11	Common pipistrell	FP-1	02/05/2016	02:57:42	Common pipistrell	FP-1	02/05/2016	03:09:48	Common pipistrelle
FP-1	02/05/2016	02:23:29	Common pipistrell	FP-1	02/05/2016	02:45:22	Common pipistrell	FP-1	02/05/2016	02:57:56	Common pipistrell	FP-1	02/05/2016	03:10:06	Common pipistrelle
FP-1	02/05/2016	02:23:47	Common pipistrell	FP-1	02/05/2016	02:45:32	Common pipistrell	FP-1	02/05/2016	02:58:14	Common pipistrell	FP-1	02/05/2016	03:10:24	Common pipistrelle
FP-1	02/05/2016	02:24:05	Common pipistrell	FP-1	02/05/2016	02:45:50	Common pipistrell	FP-1	02/05/2016	02:58:27	Common pipistrell	FP-1	02/05/2016	03:10:51	Common pipistrelle
FP-1	02/05/2016	02:25:14	Common pipistrell	FP-1	02/05/2016	02:46:08	Common pipistrell	FP-1	02/05/2016	02:58:46	Common pipistrell	FP-1	02/05/2016	03:11:10	Common pipistrelle
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FP-1	02/05/2016	02:25:51	Common pipistrell	FP-1	02/05/2016	02:46:44	Common pipistrell	FP-1	02/05/2016	02:59:22	Common pipistrell	FP-1	02/05/2016	03:11:46	Common pipistrelle
FP-1	02/05/2016	02:26:29	Common pipistrell	FP-1	02/05/2016	02:47:02	Common pipistrell	FP-1	02/05/2016	02:59:40	Common pipistrell	FP-1	02/05/2016	03:12:04	Common pipistrelle
FP-1	02/05/2016	02:26:47	Common pipistrell	FP-1	02/05/2016	02:47:20	Common pipistrell	FP-1	02/05/2016	02:59:51	Common pipistrell	FP-1	02/05/2016	03:12:22	Common pipistrelle
FP-1	02/05/2016	02:27:05	Common pipistrell	FP-1	02/05/2016	02:47:28	Common pipistrell	FP-1	02/05/2016	03:00:09	Common pipistrell	FP-1	02/05/2016	03:12:40	Common pipistrelle
FP-1	02/05/2016	02:29:49	Pipistrelle sp.	FP-1	02/05/2016	02:47:46	Common pipistrell	FP-1	02/05/2016	03:00:27	Common pipistrell	FP-1	02/05/2016	03:12:58	Common pipistrelle
FP-1	02/05/2016	02:36:08	Common pipistrell	FP-1	02/05/2016	02:48:04	Common pipistrell	FP-1	02/05/2016	03:00:45	Common pipistrell	FP-1	02/05/2016	03:13:16	Common pipistrelle
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FP-1	02/05/2016	02:36:45	Common pipistrell	FP-1	02/05/2016	02:48:35	Common pipistrell	FP-1	02/05/2016	03:01:21	Common pipistrell	FP-1	02/05/2016	03:13:53	Common pipistrelle
FP-1	02/05/2016	02:37:03	Common pipistrell	FP-1	02/05/2016	02:48:53	Common pipistrell	FP-1	02/05/2016	03:01:39	Common pipistrell	FP-1	02/05/2016	03:14:11	Common pipistrelle
FP-1	02/05/2016	02:37:20	Common pipistrell	FP-1	02/05/2016	02:49:12	Common pipistrell	FP-1	02/05/2016	03:01:57	Common pipistrell	FP-1	02/05/2016	03:14:29	Common pipistrelle
FP-1	02/05/2016	02:37:38	Common pipistrell	FP-1	02/05/2016	02:49:30	Common pipistrell	FP-1	02/05/2016	03:02:03	Common pipistrell	FP-1	02/05/2016	03:14:47	Common pipistrelle
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FP-1	02/05/2016	02:38:14	Common pipistrell	FP-1	02/05/2016	02:50:03	Common pipistrell	FP-1	02/05/2016	03:02:40	Common pipistrell	FP-1	02/05/2016	03:15:17	Common pipistrelle
FP-1	02/05/2016	02:38:34	Common pipistrell	FP-1	02/05/2016	02:50:17	Common pipistrell	FP-1	02/05/2016	03:02:58	Common pipistrell	FP-1	02/05/2016	03:15:35	Common pipistrelle
FP-1	02/05/2016	02:38:53	Common pipistrell	FP-1	02/05/2016	02:50:35	Common pipistrell	FP-1	02/05/2016	03:03:13	Common pipistrell	FP-1	02/05/2016	03:15:53	Common pipistrelle
FP-1	02/05/2016	02:39:02	Common pipistrell	FP-1	02/05/2016	02:50:53	Common pipistrell	FP-1	02/05/2016	03:03:31	Common pipistrell	FP-1	02/05/2016	03:16:09	Common pipistrelle
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FP-1	02/05/2016	02:39:38	Common pipistrell	FP-1	02/05/2016	02:51:29	Common pipistrell	FP-1	02/05/2016	03:04:04	Common pipistrell	FP-1	02/05/2016	03:16:42	Common pipistrelle
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FP-1	02/05/2016	02:40:23	Common pipistrell	FP-1	02/05/2016	02:52:39	Common pipistrell	FP-1	02/05/2016	03:04:59	Common pipistrell	FP-1	02/05/2016	03:17:48	Common pipistrelle
FP-1	02/05/2016	02:40:41	Common pipistrell	FP-1	02/05/2016	02:52:57	Common pipistrell	FP-1	02/05/2016	03:05:18	Common pipistrell	FP-1	02/05/2016	03:18:06	Common pipistrelle
FP-1	02/05/2016	02:40:59	Common pipistrell	FP-1	02/05/2016	02:53:15	Common pipistrell	FP-1	02/05/2016	03:05:31	Common pipistrell	FP-1	02/05/2016	03:18:24	Common pipistrelle
FP-1	02/05/2016	02:41:17	Common pipistrell	FP-1	02/05/2016	02:53:33	Common pipistrell	FP-1	02/05/2016	03:05:40	Common pipistrell	FP-1	02/05/2016	03:18:42	Common pipistrelle
FP-1	02/05/2016	02:41:26	Common pipistrell	FP-1	02/05/2016	02:53:51	Common pipistrell	FP-1	02/05/2016	03:05:58	Common pipistrell	FP-1	02/05/2016	03:19:00	Common pipistrelle
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FP-1	02/05/2016	02:42:02	Common pipistrell	FP-1	02/05/2016	02:54:20	Common pipistrell	FP-1	02/05/2016	03:06:34	Common pipistrell	FP-1	02/05/2016	03:19:37	Common pipistrelle
FP-1	02/05/2016	02:42:20	Common pipistrell	FP-1	02/05/2016	02:54:30	Common pipistrell	FP-1	02/05/2016	03:06:45	Common pipistrell	FP-1	02/05/2016	03:19:56	Common pipistrelle
FP-1	02/05/2016	02:42:39	Common pipistrell	FP-1	02/05/2016	02:54:48	Common pipistrell	FP-1	02/05/2016	03:07:03	Common pipistrell	FP-1	02/05/2016	03:20:15	Common pipistrelle
FP-1	02/05/2016	02:42:53	Common pipistrell	FP-1	02/05/2016	02:55:06	Common pipistrell	FP-1	02/05/2016	03:07:22	Common pipistrell	FP-1	02/05/2016	03:20:33	Common pipistrelle
FP-1	02/05/2016	02:43:10	Common pipistrell	FP-1	02/05/2016	02:55:17	Common pipistrell	FP-1	02/05/2016	03:07:41	Common pipistrell	FP-1	02/05/2016	03:20:51	Common pipistrelle
FP-1	02/05/2016	02:43:26	Common pipistrell	FP-1	02/05/2016	02:55:35	Common pipistrell	FP-1	02/05/2016	03:07:59	Common pipistrell	FP-1	02/05/2016	03:21:02	Common pipistrelle
FP-1	02/05/2016	02:43:40	Common pipistrell	FP-1	02/05/2016	02:55:53	Common pipistrell	FP-1	02/05/2016	03:08:08	Common pipistrell	FP-1	02/05/2016	03:21:11	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	02/05/2016	03:21:48	Common pipistrell	FP-1	02/05/2016	03:35:02	Common pipistrell	FP-1	02/05/2016	03:47:54	Soprano pipistrelle	FP-1	02/05/2016	22:12:49	Common pipistrelle
FP-1	02/05/2016	03:22:06	Common pipistrell	FP-1	02/05/2016	03:35:20	Common pipistrell	FP-1	02/05/2016	03:48:12	Soprano pipistrelle	FP-1	02/05/2016	22:14:32	Common pipistrelle
FP-1	02/05/2016	03:22:24	Common pipistrell	FP-1	02/05/2016	03:35:38	Common pipistrell	FP-1	02/05/2016	03:48:30	Soprano pipistrelle	FP-1	02/05/2016	22:15:02	Common pipistrelle
FP-1	02/05/2016	03:22:42	Common pipistrell	FP-1	02/05/2016	03:35:55	Common pipistrell	FP-1	02/05/2016	03:48:52	Soprano pipistrelle	FP-1	02/05/2016	22:16:28	Soprano pipistrelle
FP-1	02/05/2016	03:23:00	Common pipistrell	FP-1	02/05/2016	03:36:13	Common pipistrell	FP-1	02/05/2016	03:49:13	Common pipistrell	FP-1	02/05/2016	22:17:02	Soprano pipistrelle
FP-1	02/05/2016	03:23:18	Common pipistrell	FP-1	02/05/2016	03:36:31	Common pipistrell	FP-1	02/05/2016	03:49:32	Common pipistrell	FP-1	02/05/2016	22:17:29	Soprano pipistrelle
FP-1	02/05/2016	03:23:36	Common pipistrell	FP-1	02/05/2016	03:36:49	Common pipistrell	FP-1	02/05/2016	03:49:50	Common pipistrell	FP-1	02/05/2016	22:18:51	Soprano pipistrelle
FP-1	02/05/2016	03:23:47	Common pipistrell	FP-1	02/05/2016	03:37:07	Common pipistrell	FP-1	02/05/2016	03:49:59	Common pipistrell	FP-1	02/05/2016	22:19:11	Soprano pipistrelle
FP-1	02/05/2016	03:24:05	Common pipistrell	FP-1	02/05/2016	03:37:25	Common pipistrell	FP-1	02/05/2016	03:50:10	Common pipistrell	FP-1	02/05/2016	22:30:36	Soprano pipistrelle
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FP-1	02/05/2016	03:24:55	Common pipistrell	FP-1	02/05/2016	03:37:57	Common pipistrell	FP-1	02/05/2016	03:50:51	Common pipistrell	FP-1	03/05/2016	21:59:34	Soprano pipistrelle
FP-1	02/05/2016	03:25:14	Common pipistrell	FP-1	02/05/2016	03:38:15	Common pipistrell	FP-1	02/05/2016	03:51:57	Common pipistrell	FP-1	03/05/2016	22:01:17	Soprano pipistrelle
FP-1	02/05/2016	03:25:32	Common pipistrell	FP-1	02/05/2016	03:38:27	Common pipistrell	FP-1	02/05/2016	03:52:56	Soprano pipistrelle	FP-1	03/05/2016	22:02:15	Soprano pipistrelle
FP-1	02/05/2016	03:25:50	Common pipistrell	FP-1	02/05/2016	03:38:45	Common pipistrell	FP-1	02/05/2016	03:53:10	Soprano pipistrelle	FP-1	03/05/2016	22:02:45	Soprano pipistrelle
FP-1	02/05/2016	03:26:08	Common pipistrell	FP-1	02/05/2016	03:39:03	Common pipistrell	FP-1	02/05/2016	03:53:23	Soprano pipistrelle	FP-1	03/05/2016	22:05:14	Soprano pipistrelle
FP-1	02/05/2016	03:26:26	Common pipistrell	FP-1	02/05/2016	03:39:21	Common pipistrell	FP-1	02/05/2016	03:53:58	Soprano pipistrelle	FP-1	03/05/2016	22:05:20	Pipistrelle sp.
FP-1	02/05/2016	03:26:44	Common pipistrell	FP-1	02/05/2016	03:39:39	Common pipistrell	FP-1	02/05/2016	03:54:09	Soprano pipistrelle	FP-1	03/05/2016	22:05:54	Soprano pipistrelle
FP-1	02/05/2016	03:27:02	Common pipistrell	FP-1	02/05/2016	03:39:57	Common pipistrell	FP-1	02/05/2016	03:54:15	Soprano pipistrelle	FP-1	03/05/2016	22:06:12	Soprano pipistrelle
FP-1	02/05/2016	03:27:21	Common pipistrell	FP-1	02/05/2016	03:40:15	Common pipistrell	FP-1	02/05/2016	03:54:30	Soprano pipistrelle	FP-1	03/05/2016	22:06:44	Pipistrelle sp.
FP-1	02/05/2016	03:27:36	Common pipistrell	FP-1	02/05/2016	03:40:33	Common pipistrell	FP-1	02/05/2016	03:56:19	Myotis sp.	FP-1	03/05/2016	22:11:41	Common pipistrelle
FP-1	02/05/2016	03:27:54	Common pipistrell	FP-1	02/05/2016	03:40:51	Common pipistrell	FP-1	02/05/2016	04:00:55	Soprano pipistrelle	FP-1	03/05/2016	22:19:24	Common pipistrelle
FP-1	02/05/2016	03:28:12	Common pipistrell	FP-1	02/05/2016	03:41:09	Common pipistrell	FP-1	02/05/2016	04:07:20	Soprano pipistrelle	FP-1	03/05/2016	22:19:54	Common pipistrelle
FP-1	02/05/2016	03:28:21	Common pipistrell	FP-1	02/05/2016	03:41:27	Common pipistrell	FP-1	02/05/2016	21:36:23	Soprano pipistrelle	FP-1	03/05/2016	22:20:42	Common pipistrelle
FP-1	02/05/2016	03:28:39	Common pipistrell	FP-1	02/05/2016	03:41:45	Common pipistrell	FP-1	02/05/2016	21:38:08	Soprano pipistrelle	FP-1	03/05/2016	22:21:16	Common pipistrelle
FP-1	02/05/2016	03:28:55	Common pipistrell	FP-1	02/05/2016	03:42:03	Common pipistrell	FP-1	02/05/2016	21:38:33	Leisler's bat	FP-1	03/05/2016	22:21:28	Common pipistrelle
FP-1	02/05/2016	03:29:13	Common pipistrell	FP-1	02/05/2016	03:42:22	Common pipistrell	FP-1	02/05/2016	21:43:03	Common pipistrell	FP-1	03/05/2016	22:22:36	Common pipistrelle
FP-1	02/05/2016	03:29:33	Common pipistrell	FP-1	02/05/2016	03:42:35	Common pipistrell	FP-1	02/05/2016	21:45:07	Pipistrelle sp.	FP-1	03/05/2016	22:23:00	Common pipistrelle
FP-1	02/05/2016	03:29:52	Common pipistrell	FP-1	02/05/2016	03:43:10	Common pipistrell	FP-1	02/05/2016	21:50:01	Soprano pipistrelle	FP-1	03/05/2016	22:23:38	Common pipistrelle
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FP-1	02/05/2016	03:32:20	Common pipistrell	FP-1	02/05/2016	03:45:51	Common pipistrell	FP-1	02/05/2016	22:00:15	Leisler's bat	FP-1	03/05/2016	22:27:22	Common pipistrelle
FP-1	02/05/2016	03:32:38	Common pipistrell	FP-1	02/05/2016	03:46:09	Common pipistrell	FP-1	02/05/2016	22:01:13	Common pipistrell	FP-1	03/05/2016	22:27:57	Pipistrelle sp.
FP-1	02/05/2016	03:32:54	Common pipistrell	FP-1	02/05/2016	03:46:27	Common pipistrell	FP-1	02/05/2016	22:04:44	Common pipistrell	FP-1	03/05/2016	22:28:15	Pipistrelle sp.
FP-1	02/05/2016	03:33:13	Common pipistrell	FP-1	02/05/2016	03:46:44	Common pipistrell	FP-1	02/05/2016	22:04:58	Common pipistrell	FP-1	03/05/2016	22:28:24	Common pipistrelle
FP-1	02/05/2016	03:33:31	Common pipistrell	FP-1	02/05/2016	03:47:02	Common pipistrell	FP-1	02/05/2016	22:06:46	Common pipistrell	FP-1	03/05/2016	22:28:44	Common pipistrelle
FP-1	02/05/2016	03:34:16	Common pipistrell	FP-1	02/05/2016	03:47:20	Common pipistrell	FP-1	02/05/2016	22:08:31	Soprano pipistrelle	FP-1	03/05/2016	22:29:34	Common pipistrelle
FP-1	02/05/2016	03:34:35	Common pipistrell	FP-1	02/05/2016	03:47:38	Common pipistrell	FP-1	02/05/2016	22:10:56	Common pipistrell	FP-1	03/05/2016	22:29:55	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	03/05/2016	22:29:55	Soprano pipistrelle	FP-1	03/05/2016	22:49:47	Common pipistrell	FP-1	03/05/2016	23:05:03	Common pipistrell	FP-1	03/05/2016	23:29:46	Common pipistrelle
FP-1	03/05/2016	22:30:14	Common pipistrell	FP-1	03/05/2016	22:49:47	Soprano pipistrelle	FP-1	03/05/2016	23:05:15	Common pipistrell	FP-1	03/05/2016	23:32:00	Common pipistrelle
FP-1	03/05/2016	22:30:43	Common pipistrell	FP-1	03/05/2016	22:50:05	Common pipistrell	FP-1	03/05/2016	23:07:04	Pipistrelle sp.	FP-1	03/05/2016	23:32:09	Common pipistrelle
FP-1	03/05/2016	22:31:30	Common pipistrell	FP-1	03/05/2016	22:50:05	Soprano pipistrelle	FP-1	03/05/2016	23:07:29	Common pipistrell	FP-1	03/05/2016	23:32:59	Common pipistrelle
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FP-1	03/05/2016	22:32:33	Common pipistrell	FP-1	03/05/2016	22:50:33	Common pipistrell	FP-1	03/05/2016	23:09:28	Common pipistrell	FP-1	03/05/2016	23:36:22	Common pipistrelle
FP-1	03/05/2016	22:32:55	Common pipistrell	FP-1	03/05/2016	22:51:48	Common pipistrell	FP-1	03/05/2016	23:09:56	Common pipistrell	FP-1	03/05/2016	23:36:52	Common pipistrelle
FP-1	03/05/2016	22:33:12	Common pipistrell	FP-1	03/05/2016	22:52:04	Common pipistrell	FP-1	03/05/2016	23:11:10	Common pipistrell	FP-1	03/05/2016	23:38:03	Common pipistrelle
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FP-1	03/05/2016	22:33:55	Soprano pipistrelle	FP-1	03/05/2016	22:52:35	Soprano pipistrelle	FP-1	03/05/2016	23:13:28	Pipistrelle sp.	FP-1	03/05/2016	23:39:27	Common pipistrelle
FP-1	03/05/2016	22:34:11	Soprano pipistrelle	FP-1	03/05/2016	22:52:50	Common pipistrell	FP-1	03/05/2016	23:13:35	Common pipistrell	FP-1	03/05/2016	23:40:17	Common pipistrelle
FP-1	03/05/2016	22:34:49	Common pipistrell	FP-1	03/05/2016	22:52:50	Soprano pipistrelle	FP-1	03/05/2016	23:13:54	Common pipistrell	FP-1	03/05/2016	23:40:27	Common pipistrelle
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FP-1	03/05/2016	22:37:24	Common pipistrell	FP-1	03/05/2016	22:53:09	Soprano pipistrelle	FP-1	03/05/2016	23:14:33	Common pipistrell	FP-1	03/05/2016	23:40:40	Myotis sp.
FP-1	03/05/2016	22:37:41	Common pipistrell	FP-1	03/05/2016	22:53:33	Common pipistrell	FP-1	03/05/2016	23:14:49	Common pipistrell	FP-1	03/05/2016	23:40:40	Soprano pipistrelle
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FP-1	03/05/2016	22:42:27	Common pipistrell	FP-1	03/05/2016	22:58:43	Common pipistrell	FP-1	03/05/2016	23:22:36	Common pipistrell	FP-1	03/05/2016	23:46:27	Common pipistrelle
FP-1	03/05/2016	22:42:51	Common pipistrell	FP-1	03/05/2016	22:58:56	Common pipistrell	FP-1	03/05/2016	23:22:54	Common pipistrell	FP-1	03/05/2016	23:47:40	Common pipistrelle
FP-1	03/05/2016	22:43:26	Common pipistrell	FP-1	03/05/2016	22:59:06	Common pipistrell	FP-1	03/05/2016	23:23:36	Common pipistrell	FP-1	03/05/2016	23:48:47	Pipistrelle sp.
FP-1	03/05/2016	22:43:43	Common pipistrell	FP-1	03/05/2016	22:59:06	Soprano pipistrelle	FP-1	03/05/2016	23:24:23	Common pipistrell	FP-1	03/05/2016	23:48:59	Pipistrelle sp.
FP-1	03/05/2016	22:43:57	Pipistrelle sp.	FP-1	03/05/2016	22:59:31	Common pipistrell	FP-1	03/05/2016	23:24:39	Common pipistrell	FP-1	03/05/2016	23:49:24	Common pipistrelle
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FP-1	03/05/2016	22:44:26	Common pipistrell	FP-1	03/05/2016	23:00:17	Common pipistrell	FP-1	03/05/2016	23:25:05	Soprano pipistrelle	FP-1	03/05/2016	23:49:54	Common pipistrelle
FP-1	03/05/2016	22:44:35	Common pipistrell	FP-1	03/05/2016	23:00:45	Common pipistrell	FP-1	03/05/2016	23:25:48	Common pipistrell	FP-1	03/05/2016	23:50:29	Common pipistrelle
FP-1	03/05/2016	22:44:52	Common pipistrell	FP-1	03/05/2016	23:00:58	Common pipistrell	FP-1	03/05/2016	23:26:01	Common pipistrell	FP-1	03/05/2016	23:51:26	Common pipistrelle
FP-1	03/05/2016	22:45:11	Common pipistrell	FP-1	03/05/2016	23:01:14	Common pipistrell	FP-1	03/05/2016	23:26:01	Soprano pipistrelle	FP-1	03/05/2016	23:52:08	Common pipistrelle
FP-1	03/05/2016	22:45:37	Common pipistrell	FP-1	03/05/2016	23:01:35	Common pipistrell	FP-1	03/05/2016	23:26:17	Common pipistrell	FP-1	03/05/2016	23:55:41	Common pipistrelle
FP-1	03/05/2016	22:46:01	Common pipistrell	FP-1	03/05/2016	23:01:55	Common pipistrell	FP-1	03/05/2016	23:26:35	Common pipistrell	FP-1	03/05/2016	23:55:56	Soprano pipistrelle
FP-1	03/05/2016	22:48:22	Pipistrelle sp.	FP-1	03/05/2016	23:02:15	Common pipistrell	FP-1	03/05/2016	23:26:52	Common pipistrell	FP-1	03/05/2016	23:56:06	Soprano pipistrelle
FP-1	03/05/2016	22:48:41	Common pipistrell	FP-1	03/05/2016	23:02:45	Common pipistrell	FP-1	03/05/2016	23:28:00	Soprano pipistrelle	FP-1	03/05/2016	23:56:23	Common pipistrelle
FP-1	03/05/2016	22:49:13	Common pipistrell	FP-1	03/05/2016	23:03:33	Common pipistrell	FP-1	03/05/2016	23:29:10	Common pipistrell	FP-1	03/05/2016	23:56:23	Soprano pipistrelle
FP-1	03/05/2016	22:49:31	Common pipistrell	FP-1	03/05/2016	23:03:58	Common pipistrell	FP-1	03/05/2016	23:29:21	Common pipistrell	FP-1	03/05/2016	23:56:33	Common pipistrelle
FP-1	03/05/2016	22:49:31	Soprano pipistrelle	FP-1	03/05/2016	23:04:54	Pipistrelle sp.	FP-1	03/05/2016	23:29:32	Common pipistrell	FP-1	03/05/2016	23:56:56	Soprano pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	03/05/2016	23:57:49	Common pipistrelle	FP-1	04/05/2016	00:15:49	Soprano pipistrelle	FP-1	04/05/2016	00:28:25	Common pipistrelle	FP-1	04/05/2016	00:39:02	Common pipistrelle
FP-1	03/05/2016	23:58:10	Pipistrelle sp.	FP-1	04/05/2016	00:16:07	Soprano pipistrelle	FP-1	04/05/2016	00:28:42	Common pipistrelle	FP-1	04/05/2016	00:39:02	Soprano pipistrelle
FP-1	03/05/2016	23:58:30	Pipistrelle sp.	FP-1	04/05/2016	00:16:15	Soprano pipistrelle	FP-1	04/05/2016	00:28:55	Common pipistrelle	FP-1	04/05/2016	00:39:20	Common pipistrelle
FP-1	03/05/2016	23:58:47	Pipistrelle sp.	FP-1	04/05/2016	00:16:29	Soprano pipistrelle	FP-1	04/05/2016	00:29:07	Common pipistrelle	FP-1	04/05/2016	00:39:20	Soprano pipistrelle
FP-1	03/05/2016	23:59:11	Soprano pipistrelle	FP-1	04/05/2016	00:17:46	Pipistrelle sp.	FP-1	04/05/2016	00:29:23	Common pipistrelle	FP-1	04/05/2016	00:39:38	Common pipistrelle
FP-1	03/05/2016	23:59:29	Pipistrelle sp.	FP-1	04/05/2016	00:18:26	Soprano pipistrelle	FP-1	04/05/2016	00:29:35	Common pipistrelle	FP-1	04/05/2016	00:39:38	Soprano pipistrelle
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FP-1	04/05/2016	00:02:20	Soprano pipistrelle	FP-1	04/05/2016	00:20:36	Common pipistrelle	FP-1	04/05/2016	00:31:53	Common pipistrelle	FP-1	04/05/2016	00:41:35	Common pipistrelle
FP-1	04/05/2016	00:02:29	Soprano pipistrelle	FP-1	04/05/2016	00:20:43	Soprano pipistrelle	FP-1	04/05/2016	00:32:02	Common pipistrelle	FP-1	04/05/2016	00:41:52	Common pipistrelle
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FP-1	04/05/2016	00:59:14	Soprano pipistrelle	FP-1	04/05/2016	01:21:30	Soprano pipistrelle	FP-1	04/05/2016	02:17:48	Common pipistrell	FP-1	04/05/2016	02:35:54	Common pipistrelle
FP-1	04/05/2016	00:59:43	Common pipistrell	FP-1	04/05/2016	01:21:44	Soprano pipistrelle	FP-1	04/05/2016	02:18:02	Common pipistrell	FP-1	04/05/2016	02:36:12	Common pipistrelle
FP-1	04/05/2016	01:00:01	Pipistrelle sp.	FP-1	04/05/2016	01:22:02	Soprano pipistrelle	FP-1	04/05/2016	02:18:25	Pipistrelle sp.	FP-1	04/05/2016	02:36:37	Common pipistrelle
FP-1	04/05/2016	01:00:12	Common pipistrell	FP-1	04/05/2016	01:22:20	Soprano pipistrelle	FP-1	04/05/2016	02:18:54	Soprano pipistrelle	FP-1	04/05/2016	02:36:55	Common pipistrelle
FP-1	04/05/2016	01:00:12	Soprano pipistrelle	FP-1	04/05/2016	01:22:33	Soprano pipistrelle	FP-1	04/05/2016	02:19:22	Common pipistrell	FP-1	04/05/2016	02:37:13	Common pipistrelle
FP-1	04/05/2016	01:00:44	Soprano pipistrelle	FP-1	04/05/2016	01:22:41	Myotis sp.	FP-1	04/05/2016	02:19:40	Common pipistrell	FP-1	04/05/2016	02:37:32	Common pipistrelle
FP-1	04/05/2016	01:01:04	Soprano pipistrelle	FP-1	04/05/2016	01:22:41	Soprano pipistrelle	FP-1	04/05/2016	02:19:56	Common pipistrell	FP-1	04/05/2016	02:37:51	Common pipistrelle
FP-1	04/05/2016	01:03:22	Pipistrelle sp.	FP-1	04/05/2016	01:23:02	Soprano pipistrelle	FP-1	04/05/2016	02:20:43	Common pipistrell	FP-1	04/05/2016	02:38:05	Common pipistrelle
FP-1	04/05/2016	01:03:34	Pipistrelle sp.	FP-1	04/05/2016	01:25:03	Soprano pipistrelle	FP-1	04/05/2016	02:21:34	Pipistrelle sp.	FP-1	04/05/2016	02:38:18	Common pipistrelle
FP-1	04/05/2016	01:03:49	Pipistrelle sp.	FP-1	04/05/2016	01:26:23	Soprano pipistrelle	FP-1	04/05/2016	02:22:06	Pipistrelle sp.	FP-1	04/05/2016	02:38:36	Common pipistrelle
FP-1	04/05/2016	01:03:58	Pipistrelle sp.	FP-1	04/05/2016	01:30:42	Pipistrelle sp.	FP-1	04/05/2016	02:22:32	Soprano pipistrelle	FP-1	04/05/2016	02:38:54	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	04/05/2016	02:39:12	Common pipistrell	FP-1	04/05/2016	03:03:48	Pipistrelle sp.	FP-1	04/05/2016	03:27:12	Common pipistrell	FP-1	04/05/2016	03:43:27	Common pipistrelle
FP-1	04/05/2016	02:40:03	Common pipistrell	FP-1	04/05/2016	03:06:09	Soprano pipistrelle	FP-1	04/05/2016	03:27:34	Common pipistrell	FP-1	04/05/2016	03:45:13	Pipistrelle sp.
FP-1	04/05/2016	02:40:17	Common pipistrell	FP-1	04/05/2016	03:06:26	Pipistrelle sp.	FP-1	04/05/2016	03:28:07	Common pipistrell	FP-1	04/05/2016	03:47:52	Pipistrelle sp.
FP-1	04/05/2016	02:40:42	Common pipistrell	FP-1	04/05/2016	03:08:17	Soprano pipistrelle	FP-1	04/05/2016	03:28:33	Common pipistrell	FP-1	04/05/2016	03:48:34	Pipistrelle sp.
FP-1	04/05/2016	02:41:10	Common pipistrell	FP-1	04/05/2016	03:09:05	Pipistrelle sp.	FP-1	04/05/2016	03:28:44	Common pipistrell	FP-1	04/05/2016	03:51:26	Pipistrelle sp.
FP-1	04/05/2016	02:43:04	Common pipistrell	FP-1	04/05/2016	03:09:29	Pipistrelle sp.	FP-1	04/05/2016	03:28:59	Common pipistrell	FP-1	04/05/2016	03:52:44	Common pipistrelle
FP-1	04/05/2016	02:43:23	Common pipistrell	FP-1	04/05/2016	03:09:57	Pipistrelle sp.	FP-1	04/05/2016	03:29:18	Common pipistrell	FP-1	04/05/2016	03:53:05	Common pipistrelle
FP-1	04/05/2016	02:44:09	Soprano pipistrelle	FP-1	04/05/2016	03:10:23	Pipistrelle sp.	FP-1	04/05/2016	03:29:27	Common pipistrell	FP-1	04/05/2016	03:53:23	Common pipistrelle
FP-1	04/05/2016	02:44:37	Soprano pipistrelle	FP-1	04/05/2016	03:10:40	Pipistrelle sp.	FP-1	04/05/2016	03:30:33	Common pipistrell	FP-1	04/05/2016	03:53:32	Common pipistrelle
FP-1	04/05/2016	02:45:02	Common pipistrell	FP-1	04/05/2016	03:11:36	Pipistrelle sp.	FP-1	04/05/2016	03:30:49	Common pipistrell	FP-1	04/05/2016	03:53:45	Common pipistrelle
FP-1	04/05/2016	02:45:21	Common pipistrell	FP-1	04/05/2016	03:12:33	Pipistrelle sp.	FP-1	04/05/2016	03:31:00	Common pipistrell	FP-1	04/05/2016	03:54:03	Common pipistrelle
FP-1	04/05/2016	02:45:40	Common pipistrell	FP-1	04/05/2016	03:14:07	Common pipistrell	FP-1	04/05/2016	03:31:18	Common pipistrell	FP-1	04/05/2016	03:54:18	Common pipistrelle
FP-1	04/05/2016	02:45:58	Common pipistrell	FP-1	04/05/2016	03:14:19	Common pipistrell	FP-1	04/05/2016	03:31:28	Common pipistrell	FP-1	04/05/2016	03:54:36	Common pipistrelle
FP-1	04/05/2016	02:46:16	Common pipistrell	FP-1	04/05/2016	03:14:29	Common pipistrell	FP-1	04/05/2016	03:31:47	Common pipistrell	FP-1	04/05/2016	03:54:54	Common pipistrelle
FP-1	04/05/2016	02:46:34	Common pipistrell	FP-1	04/05/2016	03:16:09	Common pipistrell	FP-1	04/05/2016	03:31:54	Common pipistrell	FP-1	04/05/2016	03:55:52	Common pipistrelle
FP-1	04/05/2016	02:46:45	Common pipistrell	FP-1	04/05/2016	03:16:27	Common pipistrell	FP-1	04/05/2016	03:32:12	Common pipistrell	FP-1	04/05/2016	03:56:18	Common pipistrelle
FP-1	04/05/2016	02:47:03	Common pipistrell	FP-1	04/05/2016	03:16:55	Soprano pipistrelle	FP-1	04/05/2016	03:32:21	Common pipistrell	FP-1	04/05/2016	03:56:49	Common pipistrelle
FP-1	04/05/2016	02:47:17	Common pipistrell	FP-1	04/05/2016	03:18:05	Soprano pipistrelle	FP-1	04/05/2016	03:32:41	Common pipistrell	FP-1	04/05/2016	03:57:08	Common pipistrelle
FP-1	04/05/2016	02:47:36	Common pipistrell	FP-1	04/05/2016	03:19:30	Common pipistrell	FP-1	04/05/2016	03:32:59	Common pipistrell	FP-1	04/05/2016	03:57:23	Common pipistrelle
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FP-1	04/05/2016	02:49:59	Common pipistrell	FP-1	04/05/2016	03:20:37	Common pipistrell	FP-1	04/05/2016	03:34:55	Pipistrelle sp.	FP-1	04/05/2016	03:58:45	Common pipistrelle
FP-1	04/05/2016	02:50:17	Common pipistrell	FP-1	04/05/2016	03:20:37	Soprano pipistrelle	FP-1	04/05/2016	03:35:22	Pipistrelle sp.	FP-1	04/05/2016	03:58:59	Pipistrelle sp.
FP-1	04/05/2016	02:50:35	Common pipistrell	FP-1	04/05/2016	03:20:55	Common pipistrell	FP-1	04/05/2016	03:35:54	Pipistrelle sp.	FP-1	04/05/2016	03:59:07	Common pipistrelle
FP-1	04/05/2016	02:50:50	Common pipistrell	FP-1	04/05/2016	03:21:21	Common pipistrell	FP-1	04/05/2016	03:36:56	Pipistrelle sp.	FP-1	04/05/2016	03:59:25	Common pipistrelle
FP-1	04/05/2016	02:53:00	Common pipistrell	FP-1	04/05/2016	03:21:40	Common pipistrell	FP-1	04/05/2016	03:37:15	Pipistrelle sp.	FP-1	04/05/2016	03:59:47	Common pipistrelle
FP-1	04/05/2016	02:53:00	Soprano pipistrelle	FP-1	04/05/2016	03:21:58	Common pipistrell	FP-1	04/05/2016	03:38:24	Common pipistrell	FP-1	04/05/2016	04:00:02	Common pipistrelle
FP-1	04/05/2016	02:53:19	Common pipistrell	FP-1	04/05/2016	03:22:09	Common pipistrell	FP-1	04/05/2016	03:38:24	Soprano pipistrelle	FP-1	04/05/2016	04:00:20	Common pipistrelle
FP-1	04/05/2016	02:53:27	Common pipistrell	FP-1	04/05/2016	03:22:28	Common pipistrell	FP-1	04/05/2016	03:38:47	Common pipistrell	FP-1	04/05/2016	04:00:40	Common pipistrelle
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FP-1	04/05/2016	02:54:03	Common pipistrell	FP-1	04/05/2016	03:22:57	Common pipistrell	FP-1	04/05/2016	03:39:21	Common pipistrell	FP-1	04/05/2016	04:01:08	Common pipistrelle
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FP-1	04/05/2016	02:54:38	Pipistrelle sp.	FP-1	04/05/2016	03:23:24	Common pipistrell	FP-1	04/05/2016	03:39:54	Common pipistrell	FP-1	04/05/2016	04:01:28	Common pipistrelle
FP-1	04/05/2016	02:55:02	Pipistrelle sp.	FP-1	04/05/2016	03:23:46	Common pipistrell	FP-1	04/05/2016	03:40:13	Common pipistrell	FP-1	04/05/2016	04:01:47	Common pipistrelle
FP-1	04/05/2016	02:56:52	Pipistrelle sp.	FP-1	04/05/2016	03:24:01	Common pipistrell	FP-1	04/05/2016	03:40:23	Common pipistrell	FP-1	04/05/2016	04:01:59	Common pipistrelle
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FP-1	04/05/2016	02:58:33	Soprano pipistrelle	FP-1	04/05/2016	03:25:15	Common pipistrell	FP-1	04/05/2016	03:42:35	Common pipistrell	FP-1	04/05/2016	04:03:11	Common pipistrelle
FP-1	04/05/2016	02:59:39	Soprano pipistrelle	FP-1	04/05/2016	03:25:25	Common pipistrell	FP-1	04/05/2016	03:42:35	Soprano pipistrelle	FP-1	04/05/2016	04:03:29	Common pipistrelle
FP-1	04/05/2016	03:00:00	Pipistrelle sp.	FP-1	04/05/2016	03:25:43	Common pipistrell	FP-1	04/05/2016	03:42:53	Common pipistrell	FP-1	04/05/2016	04:03:38	Common pipistrelle
FP-1	04/05/2016	03:00:41	Soprano pipistrelle	FP-1	04/05/2016	03:26:09	Common pipistrell	FP-1	04/05/2016	03:43:00	Common pipistrell	FP-1	04/05/2016	04:03:51	Common pipistrelle
FP-1	04/05/2016	03:02:04	Soprano pipistrelle	FP-1	04/05/2016	03:26:27	Common pipistrell	FP-1	04/05/2016	03:43:09	Common pipistrell	FP-1	04/05/2016	04:03:51	Soprano pipistrelle
FP-1	04/05/2016	03:03:20	Pipistrelle sp.	FP-1	04/05/2016	03:26:54	Common pipistrell	FP-1	04/05/2016	03:43:09	Soprano pipistrelle	FP-1	04/05/2016	04:04:16	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	04/05/2016	04:04:34	Common pipistrell	FP-1	04/05/2016	04:43:37	Pipistrelle sp.	FP-1	04/05/2016	21:41:54	Leisler's bat	FP-1	04/05/2016	22:05:12	Common pipistrelle
FP-1	04/05/2016	04:04:44	Common pipistrell	FP-1	04/05/2016	04:43:57	Pipistrelle sp.	FP-1	04/05/2016	21:42:11	Pipistrelle sp.	FP-1	04/05/2016	22:05:30	Soprano pipistrelle
FP-1	04/05/2016	04:05:03	Soprano pipistrelle	FP-1	04/05/2016	04:44:08	Soprano pipistrelle	FP-1	04/05/2016	21:42:29	Soprano pipistrelle	FP-1	04/05/2016	22:05:37	Soprano pipistrelle
FP-1	04/05/2016	04:06:13	Pipistrelle sp.	FP-1	04/05/2016	04:44:20	Pipistrelle sp.	FP-1	04/05/2016	21:42:55	Soprano pipistrelle	FP-1	04/05/2016	22:06:03	Common pipistrelle
FP-1	04/05/2016	04:07:20	Pipistrelle sp.	FP-1	04/05/2016	04:45:06	Common pipistrell	FP-1	04/05/2016	21:44:05	Soprano pipistrelle	FP-1	04/05/2016	22:06:15	Common pipistrelle
FP-1	04/05/2016	04:08:12	Pipistrelle sp.	FP-1	04/05/2016	04:45:24	Common pipistrell	FP-1	04/05/2016	21:44:16	Common pipistrell	FP-1	04/05/2016	22:07:28	Soprano pipistrelle
FP-1	04/05/2016	04:09:08	Common pipistrell	FP-1	04/05/2016	04:45:31	Pipistrelle sp.	FP-1	04/05/2016	21:44:29	Common pipistrell	FP-1	04/05/2016	22:07:50	Soprano pipistrelle
FP-1	04/05/2016	04:09:26	Common pipistrell	FP-1	04/05/2016	04:45:49	Soprano pipistrelle	FP-1	04/05/2016	21:44:38	Common pipistrell	FP-1	04/05/2016	22:26:39	Soprano pipistrelle
FP-1	04/05/2016	04:12:28	Pipistrelle sp.	FP-1	04/05/2016	04:46:20	Pipistrelle sp.	FP-1	04/05/2016	21:44:45	Common pipistrell	FP-1	04/05/2016	22:32:37	Soprano pipistrelle
FP-1	04/05/2016	04:13:21	Common pipistrell	FP-1	04/05/2016	04:47:48	Soprano pipistrelle	FP-1	04/05/2016	21:45:03	Common pipistrell	FP-1	04/05/2016	22:32:46	Soprano pipistrelle
FP-1	04/05/2016	04:13:40	Common pipistrell	FP-1	04/05/2016	04:48:22	Pipistrelle sp.	FP-1	04/05/2016	21:45:09	Common pipistrell	FP-1	04/05/2016	22:32:56	Pipistrelle sp.
FP-1	04/05/2016	04:13:40	Soprano pipistrelle	FP-1	04/05/2016	04:48:44	Pipistrelle sp.	FP-1	04/05/2016	21:45:09	Soprano pipistrelle	FP-1	04/05/2016	22:33:02	Soprano pipistrelle
FP-1	04/05/2016	04:16:00	Pipistrelle sp.	FP-1	04/05/2016	04:48:56	Pipistrelle sp.	FP-1	04/05/2016	21:45:32	Common pipistrell	FP-1	04/05/2016	22:33:18	Soprano pipistrelle
FP-1	04/05/2016	04:22:57	Soprano pipistrelle	FP-1	04/05/2016	04:49:20	Pipistrelle sp.	FP-1	04/05/2016	21:46:08	Common pipistrell	FP-1	04/05/2016	22:33:38	Soprano pipistrelle
FP-1	04/05/2016	04:24:18	Soprano pipistrelle	FP-1	04/05/2016	04:49:37	Pipistrelle sp.	FP-1	04/05/2016	21:46:23	Common pipistrell	FP-1	04/05/2016	22:33:56	Soprano pipistrelle
FP-1	04/05/2016	04:25:00	Pipistrelle sp.	FP-1	04/05/2016	04:49:51	Soprano pipistrelle	FP-1	04/05/2016	21:46:41	Common pipistrell	FP-1	04/05/2016	22:34:12	Soprano pipistrelle
FP-1	04/05/2016	04:26:48	Soprano pipistrelle	FP-1	04/05/2016	04:50:20	Pipistrelle sp.	FP-1	04/05/2016	21:47:13	Soprano pipistrelle	FP-1	04/05/2016	22:34:31	Soprano pipistrelle
FP-1	04/05/2016	04:27:15	Soprano pipistrelle	FP-1	04/05/2016	04:50:43	Pipistrelle sp.	FP-1	04/05/2016	21:47:44	Soprano pipistrelle	FP-1	04/05/2016	22:34:42	Soprano pipistrelle
FP-1	04/05/2016	04:27:33	Common pipistrell	FP-1	04/05/2016	04:51:05	Pipistrelle sp.	FP-1	04/05/2016	21:48:06	Common pipistrell	FP-1	04/05/2016	22:35:00	Soprano pipistrelle
FP-1	04/05/2016	04:27:33	Soprano pipistrelle	FP-1	04/05/2016	04:51:16	Pipistrelle sp.	FP-1	04/05/2016	21:48:06	Soprano pipistrelle	FP-1	04/05/2016	22:35:18	Soprano pipistrelle
FP-1	04/05/2016	04:27:53	Soprano pipistrelle	FP-1	04/05/2016	04:51:31	Pipistrelle sp.	FP-1	04/05/2016	21:48:19	Common pipistrell	FP-1	04/05/2016	22:35:49	Soprano pipistrelle
FP-1	04/05/2016	04:28:09	Soprano pipistrelle	FP-1	04/05/2016	04:51:59	Pipistrelle sp.	FP-1	04/05/2016	21:48:19	Soprano pipistrelle	FP-1	04/05/2016	22:35:58	Soprano pipistrelle
FP-1	04/05/2016	04:29:11	Pipistrelle sp.	FP-1	04/05/2016	04:52:16	Pipistrelle sp.	FP-1	04/05/2016	21:48:32	Common pipistrell	FP-1	04/05/2016	22:36:12	Soprano pipistrelle
FP-1	04/05/2016	04:31:15	Common pipistrell	FP-1	04/05/2016	04:52:34	Pipistrelle sp.	FP-1	04/05/2016	21:50:24	Common pipistrell	FP-1	04/05/2016	22:36:21	Soprano pipistrelle
FP-1	04/05/2016	04:32:11	Soprano pipistrelle	FP-1	04/05/2016	04:52:51	Pipistrelle sp.	FP-1	04/05/2016	21:50:36	Common pipistrell	FP-1	04/05/2016	22:42:58	Pipistrelle sp.
FP-1	04/05/2016	04:33:15	Common pipistrell	FP-1	04/05/2016	04:53:13	Pipistrelle sp.	FP-1	04/05/2016	21:51:00	Pipistrelle sp.	FP-1	04/05/2016	22:43:12	Soprano pipistrelle
FP-1	04/05/2016	04:33:35	Soprano pipistrelle	FP-1	04/05/2016	04:53:32	Pipistrelle sp.	FP-1	04/05/2016	21:51:15	Common pipistrell	FP-1	04/05/2016	22:43:34	Soprano pipistrelle
FP-1	04/05/2016	04:34:35	Soprano pipistrelle	FP-1	04/05/2016	04:53:54	Pipistrelle sp.	FP-1	04/05/2016	21:51:27	Common pipistrell	FP-1	04/05/2016	22:43:43	Soprano pipistrelle
FP-1	04/05/2016	04:34:50	Pipistrelle sp.	FP-1	04/05/2016	04:56:09	Pipistrelle sp.	FP-1	04/05/2016	21:51:46	Common pipistrell	FP-1	04/05/2016	22:43:58	Soprano pipistrelle
FP-1	04/05/2016	04:36:30	Pipistrelle sp.	FP-1	04/05/2016	04:56:18	Pipistrelle sp.	FP-1	04/05/2016	21:51:59	Pipistrelle sp.	FP-1	04/05/2016	22:44:27	Soprano pipistrelle
FP-1	04/05/2016	04:39:11	Common pipistrell	FP-1	04/05/2016	04:56:37	Pipistrelle sp.	FP-1	04/05/2016	21:52:45	Soprano pipistrelle	FP-1	04/05/2016	22:44:45	Pipistrelle sp.
FP-1	04/05/2016	04:39:51	Pipistrelle sp.	FP-1	04/05/2016	04:57:13	Pipistrelle sp.	FP-1	04/05/2016	21:53:54	Common pipistrell	FP-1	04/05/2016	22:44:53	Soprano pipistrelle
FP-1	04/05/2016	04:40:09	Pipistrelle sp.	FP-1	04/05/2016	04:57:38	Pipistrelle sp.	FP-1	04/05/2016	21:58:31	Common pipistrell	FP-1	04/05/2016	22:45:07	Soprano pipistrelle
FP-1	04/05/2016	04:40:27	Pipistrelle sp.	FP-1	04/05/2016	04:57:49	Pipistrelle sp.	FP-1	04/05/2016	21:58:50	Common pipistrell	FP-1	04/05/2016	22:45:21	Pipistrelle sp.
FP-1	04/05/2016	04:40:36	Pipistrelle sp.	FP-1	04/05/2016	04:58:24	Pipistrelle sp.	FP-1	04/05/2016	21:59:09	Common pipistrell	FP-1	04/05/2016	22:47:58	Common pipistrelle
FP-1	04/05/2016	04:40:54	Pipistrelle sp.	FP-1	04/05/2016	04:58:41	Pipistrelle sp.	FP-1	04/05/2016	21:59:29	Common pipistrell	FP-1	04/05/2016	22:48:52	Soprano pipistrelle
FP-1	04/05/2016	04:41:12	Pipistrelle sp.	FP-1	04/05/2016	04:58:54	Pipistrelle sp.	FP-1	04/05/2016	21:59:42	Common pipistrell	FP-1	04/05/2016	22:49:10	Soprano pipistrelle
FP-1	04/05/2016	04:41:29	Pipistrelle sp.	FP-1	04/05/2016	04:59:12	Pipistrelle sp.	FP-1	04/05/2016	22:00:00	Soprano pipistrelle	FP-1	04/05/2016	22:49:22	Soprano pipistrelle
FP-1	04/05/2016	04:41:48	Pipistrelle sp.	FP-1	04/05/2016	04:59:46	Pipistrelle sp.	FP-1	04/05/2016	22:01:23	Common pipistrell	FP-1	04/05/2016	22:50:27	Soprano pipistrelle
FP-1	04/05/2016	04:42:07	Pipistrelle sp.	FP-1	04/05/2016	05:00:05	Pipistrelle sp.	FP-1	04/05/2016	22:01:43	Soprano pipistrelle	FP-1	04/05/2016	22:54:06	Common pipistrelle
FP-1	04/05/2016	04:42:28	Soprano pipistrelle	FP-1	04/05/2016	05:00:22	Pipistrelle sp.	FP-1	04/05/2016	22:02:57	Common pipistrell	FP-1	04/05/2016	22:54:20	Common pipistrelle
FP-1	04/05/2016	04:42:47	Pipistrelle sp.	FP-1	04/05/2016	05:00:34	Pipistrelle sp.	FP-1	04/05/2016	22:03:12	Soprano pipistrelle	FP-1	04/05/2016	22:54:31	Common pipistrelle
FP-1	04/05/2016	04:43:02	Pipistrelle sp.	FP-1	04/05/2016	21:34:57	Soprano pipistrelle	FP-1	04/05/2016	22:03:55	Soprano pipistrelle	FP-1	04/05/2016	22:54:50	Common pipistrelle
FP-1	04/05/2016	04:43:22	Pipistrelle sp.	FP-1	04/05/2016	21:39:48	Pipistrelle sp.	FP-1	04/05/2016	22:04:46	Common pipistrell	FP-1	04/05/2016	22:55:08	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	04/05/2016	22:55:26	Common pipistrell	FP-1	04/05/2016	23:37:00	Common pipistrell	FP-1	04/05/2016	23:55:05	Soprano pipistrelle	FP-1	05/05/2016	00:07:35	Soprano pipistrelle
FP-1	04/05/2016	22:57:36	Common pipistrell	FP-1	04/05/2016	23:37:21	Common pipistrell	FP-1	04/05/2016	23:55:13	Soprano pipistrelle	FP-1	05/05/2016	00:07:53	Soprano pipistrelle
FP-1	04/05/2016	22:57:54	Common pipistrell	FP-1	04/05/2016	23:37:46	Common pipistrell	FP-1	04/05/2016	23:55:31	Soprano pipistrelle	FP-1	05/05/2016	00:08:12	Soprano pipistrelle
FP-1	04/05/2016	22:58:01	Common pipistrell	FP-1	04/05/2016	23:38:04	Common pipistrell	FP-1	04/05/2016	23:55:42	Soprano pipistrelle	FP-1	05/05/2016	00:08:26	Soprano pipistrelle
FP-1	04/05/2016	22:58:17	Common pipistrell	FP-1	04/05/2016	23:38:50	Common pipistrell	FP-1	04/05/2016	23:55:52	Soprano pipistrelle	FP-1	05/05/2016	00:08:44	Soprano pipistrelle
FP-1	04/05/2016	22:58:30	Common pipistrell	FP-1	04/05/2016	23:39:08	Common pipistrell	FP-1	04/05/2016	23:56:08	Soprano pipistrelle	FP-1	05/05/2016	00:08:53	Common pipistrelle
FP-1	04/05/2016	23:02:49	Soprano pipistrelle	FP-1	04/05/2016	23:39:20	Common pipistrell	FP-1	04/05/2016	23:56:24	Common pipistrell	FP-1	05/05/2016	00:08:53	Soprano pipistrelle
FP-1	04/05/2016	23:03:15	Soprano pipistrelle	FP-1	04/05/2016	23:39:45	Common pipistrell	FP-1	04/05/2016	23:56:24	Soprano pipistrelle	FP-1	05/05/2016	00:09:10	Soprano pipistrelle
FP-1	04/05/2016	23:03:30	Soprano pipistrelle	FP-1	04/05/2016	23:41:46	Soprano pipistrelle	FP-1	04/05/2016	23:56:43	Common pipistrell	FP-1	05/05/2016	00:09:28	Soprano pipistrelle
FP-1	04/05/2016	23:07:35	Soprano pipistrelle	FP-1	04/05/2016	23:42:06	Soprano pipistrelle	FP-1	04/05/2016	23:56:43	Soprano pipistrelle	FP-1	05/05/2016	00:09:48	Soprano pipistrelle
FP-1	04/05/2016	23:14:08	Common pipistrell	FP-1	04/05/2016	23:42:25	Soprano pipistrelle	FP-1	04/05/2016	23:57:02	Common pipistrell	FP-1	05/05/2016	00:10:02	Soprano pipistrelle
FP-1	04/05/2016	23:16:45	Pipistrelle sp.	FP-1	04/05/2016	23:42:44	Soprano pipistrelle	FP-1	04/05/2016	23:57:02	Soprano pipistrelle	FP-1	05/05/2016	00:10:09	Soprano pipistrelle
FP-1	04/05/2016	23:19:09	Common pipistrell	FP-1	04/05/2016	23:45:16	Pipistrelle sp.	FP-1	04/05/2016	23:57:20	Soprano pipistrelle	FP-1	05/05/2016	00:10:16	Common pipistrelle
FP-1	04/05/2016	23:19:28	Common pipistrell	FP-1	04/05/2016	23:48:40	Pipistrelle sp.	FP-1	04/05/2016	23:57:34	Soprano pipistrelle	FP-1	05/05/2016	00:11:20	Soprano pipistrelle
FP-1	04/05/2016	23:20:18	Common pipistrell	FP-1	04/05/2016	23:49:02	Soprano pipistrelle	FP-1	04/05/2016	23:57:52	Soprano pipistrelle	FP-1	05/05/2016	00:11:31	Soprano pipistrelle
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FP-1	04/05/2016	23:23:13	Common pipistrell	FP-1	04/05/2016	23:49:27	Soprano pipistrelle	FP-1	04/05/2016	23:58:28	Soprano pipistrelle	FP-1	05/05/2016	00:11:57	Common pipistrelle
FP-1	04/05/2016	23:23:58	Common pipistrell	FP-1	04/05/2016	23:49:36	Soprano pipistrelle	FP-1	04/05/2016	23:58:43	Soprano pipistrelle	FP-1	05/05/2016	00:11:57	Soprano pipistrelle
FP-1	04/05/2016	23:24:16	Common pipistrell	FP-1	04/05/2016	23:49:51	Soprano pipistrelle	FP-1	04/05/2016	23:59:01	Common pipistrell	FP-1	05/05/2016	00:12:15	Common pipistrelle
FP-1	04/05/2016	23:24:30	Common pipistrell	FP-1	04/05/2016	23:50:02	Soprano pipistrelle	FP-1	04/05/2016	23:59:30	Common pipistrell	FP-1	05/05/2016	00:12:35	Soprano pipistrelle
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FP-1	04/05/2016	23:26:13	Common pipistrell	FP-1	04/05/2016	23:50:42	Soprano pipistrelle	FP-1	05/05/2016	00:00:25	Common pipistrell	FP-1	05/05/2016	00:13:53	Soprano pipistrelle
FP-1	04/05/2016	23:26:32	Common pipistrell	FP-1	04/05/2016	23:50:54	Soprano pipistrelle	FP-1	05/05/2016	00:01:10	Common pipistrell	FP-1	05/05/2016	00:14:12	Soprano pipistrelle
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FP-1	04/05/2016	23:27:19	Common pipistrell	FP-1	04/05/2016	23:51:27	Soprano pipistrelle	FP-1	05/05/2016	00:01:28	Common pipistrell	FP-1	05/05/2016	00:14:42	Common pipistrelle
FP-1	04/05/2016	23:27:38	Common pipistrell	FP-1	04/05/2016	23:51:48	Soprano pipistrelle	FP-1	05/05/2016	00:02:46	Soprano pipistrelle	FP-1	05/05/2016	00:14:42	Soprano pipistrelle
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FP-1	04/05/2016	23:29:57	Common pipistrell	FP-1	04/05/2016	23:52:30	Soprano pipistrelle	FP-1	05/05/2016	00:03:54	Soprano pipistrelle	FP-1	05/05/2016	00:15:52	Soprano pipistrelle
FP-1	04/05/2016	23:30:25	Common pipistrell	FP-1	04/05/2016	23:52:39	Soprano pipistrelle	FP-1	05/05/2016	00:04:12	Soprano pipistrelle	FP-1	05/05/2016	00:16:02	Soprano pipistrelle
FP-1	04/05/2016	23:30:44	Common pipistrell	FP-1	04/05/2016	23:52:50	Common pipistrell	FP-1	05/05/2016	00:04:30	Soprano pipistrelle	FP-1	05/05/2016	00:16:20	Soprano pipistrelle
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FP-1	04/05/2016	23:32:17	Common pipistrell	FP-1	04/05/2016	23:53:45	Common pipistrell	FP-1	05/05/2016	00:05:37	Soprano pipistrelle	FP-1	05/05/2016	00:17:20	Soprano pipistrelle
FP-1	04/05/2016	23:32:27	Common pipistrell	FP-1	04/05/2016	23:53:45	Soprano pipistrelle	FP-1	05/05/2016	00:05:54	Soprano pipistrelle	FP-1	05/05/2016	00:18:08	Soprano pipistrelle
FP-1	04/05/2016	23:32:35	Common pipistrell	FP-1	04/05/2016	23:54:04	Common pipistrell	FP-1	05/05/2016	00:06:12	Soprano pipistrelle	FP-1	05/05/2016	00:18:28	Soprano pipistrelle
FP-1	04/05/2016	23:33:00	Common pipistrell	FP-1	04/05/2016	23:54:04	Soprano pipistrelle	FP-1	05/05/2016	00:06:33	Soprano pipistrelle	FP-1	05/05/2016	00:18:46	Soprano pipistrelle
FP-1	04/05/2016	23:35:30	Common pipistrell	FP-1	04/05/2016	23:54:22	Soprano pipistrelle	FP-1	05/05/2016	00:06:44	Soprano pipistrelle	FP-1	05/05/2016	00:18:54	Soprano pipistrelle
FP-1	04/05/2016	23:36:04	Common pipistrell	FP-1	04/05/2016	23:54:40	Soprano pipistrelle	FP-1	05/05/2016	00:07:03	Soprano pipistrelle	FP-1	05/05/2016	00:19:12	Soprano pipistrelle
FP-1	04/05/2016	23:36:22	Common pipistrell	FP-1	04/05/2016	23:54:56	Soprano pipistrelle	FP-1	05/05/2016	00:07:16	Soprano pipistrelle	FP-1	05/05/2016	00:19:33	Soprano pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	05/05/2016	00:19:51	Soprano pipistrelle	FP-1	05/05/2016	00:31:09	Soprano pipistrelle	FP-1	05/05/2016	00:42:10	Soprano pipistrelle	FP-1	05/05/2016	00:57:10	Soprano pipistrelle
FP-1	05/05/2016	00:19:59	Soprano pipistrelle	FP-1	05/05/2016	00:31:27	Soprano pipistrelle	FP-1	05/05/2016	00:42:31	Common pipistrelle	FP-1	05/05/2016	00:57:18	Soprano pipistrelle
FP-1	05/05/2016	00:20:17	Soprano pipistrelle	FP-1	05/05/2016	00:31:41	Soprano pipistrelle	FP-1	05/05/2016	00:42:49	Common pipistrelle	FP-1	05/05/2016	00:57:36	Common pipistrelle
FP-1	05/05/2016	00:20:35	Soprano pipistrelle	FP-1	05/05/2016	00:31:57	Soprano pipistrelle	FP-1	05/05/2016	00:43:55	Common pipistrelle	FP-1	05/05/2016	00:57:36	Soprano pipistrelle
FP-1	05/05/2016	00:20:43	Soprano pipistrelle	FP-1	05/05/2016	00:32:05	Soprano pipistrelle	FP-1	05/05/2016	00:44:14	Common pipistrelle	FP-1	05/05/2016	00:57:54	Common pipistrelle
FP-1	05/05/2016	00:21:01	Soprano pipistrelle	FP-1	05/05/2016	00:32:23	Soprano pipistrelle	FP-1	05/05/2016	00:44:52	Common pipistrelle	FP-1	05/05/2016	00:57:54	Soprano pipistrelle
FP-1	05/05/2016	00:21:10	Soprano pipistrelle	FP-1	05/05/2016	00:32:36	Soprano pipistrelle	FP-1	05/05/2016	00:45:33	Common pipistrelle	FP-1	05/05/2016	00:58:12	Common pipistrelle
FP-1	05/05/2016	00:21:28	Soprano pipistrelle	FP-1	05/05/2016	00:32:54	Soprano pipistrelle	FP-1	05/05/2016	00:46:54	Soprano pipistrelle	FP-1	05/05/2016	00:58:43	Common pipistrelle
FP-1	05/05/2016	00:21:39	Soprano pipistrelle	FP-1	05/05/2016	00:33:12	Soprano pipistrelle	FP-1	05/05/2016	00:47:13	Soprano pipistrelle	FP-1	05/05/2016	00:59:02	Common pipistrelle
FP-1	05/05/2016	00:21:53	Soprano pipistrelle	FP-1	05/05/2016	00:33:37	Soprano pipistrelle	FP-1	05/05/2016	00:47:21	Soprano pipistrelle	FP-1	05/05/2016	00:59:17	Common pipistrelle
FP-1	05/05/2016	00:22:10	Soprano pipistrelle	FP-1	05/05/2016	00:33:45	Soprano pipistrelle	FP-1	05/05/2016	00:47:37	Soprano pipistrelle	FP-1	05/05/2016	00:59:36	Common pipistrelle
FP-1	05/05/2016	00:22:28	Soprano pipistrelle	FP-1	05/05/2016	00:34:03	Soprano pipistrelle	FP-1	05/05/2016	00:47:56	Soprano pipistrelle	FP-1	05/05/2016	00:59:36	Soprano pipistrelle
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FP-1	05/05/2016	00:22:58	Soprano pipistrelle	FP-1	05/05/2016	00:34:39	Soprano pipistrelle	FP-1	05/05/2016	00:48:32	Soprano pipistrelle	FP-1	05/05/2016	01:00:08	Soprano pipistrelle
FP-1	05/05/2016	00:23:07	Soprano pipistrelle	FP-1	05/05/2016	00:34:47	Soprano pipistrelle	FP-1	05/05/2016	00:48:50	Soprano pipistrelle	FP-1	05/05/2016	01:00:38	Common pipistrelle
FP-1	05/05/2016	00:23:14	Soprano pipistrelle	FP-1	05/05/2016	00:35:06	Soprano pipistrelle	FP-1	05/05/2016	00:49:08	Soprano pipistrelle	FP-1	05/05/2016	01:01:05	Common pipistrelle
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FP-1	05/05/2016	00:23:40	Soprano pipistrelle	FP-1	05/05/2016	00:35:42	Soprano pipistrelle	FP-1	05/05/2016	00:49:44	Soprano pipistrelle	FP-1	05/05/2016	01:02:06	Common pipistrelle
FP-1	05/05/2016	00:23:58	Soprano pipistrelle	FP-1	05/05/2016	00:36:00	Soprano pipistrelle	FP-1	05/05/2016	00:49:56	Soprano pipistrelle	FP-1	05/05/2016	01:02:19	Soprano pipistrelle
FP-1	05/05/2016	00:24:17	Soprano pipistrelle	FP-1	05/05/2016	00:36:28	Soprano pipistrelle	FP-1	05/05/2016	00:50:13	Soprano pipistrelle	FP-1	05/05/2016	01:02:37	Common pipistrelle
FP-1	05/05/2016	00:24:35	Soprano pipistrelle	FP-1	05/05/2016	00:36:46	Soprano pipistrelle	FP-1	05/05/2016	00:50:27	Soprano pipistrelle	FP-1	05/05/2016	01:02:37	Soprano pipistrelle
FP-1	05/05/2016	00:24:51	Soprano pipistrelle	FP-1	05/05/2016	00:37:04	Soprano pipistrelle	FP-1	05/05/2016	00:50:38	Soprano pipistrelle	FP-1	05/05/2016	01:02:50	Common pipistrelle
FP-1	05/05/2016	00:25:10	Soprano pipistrelle	FP-1	05/05/2016	00:37:14	Soprano pipistrelle	FP-1	05/05/2016	00:50:56	Soprano pipistrelle	FP-1	05/05/2016	01:02:59	Common pipistrelle
FP-1	05/05/2016	00:25:22	Soprano pipistrelle	FP-1	05/05/2016	00:37:32	Soprano pipistrelle	FP-1	05/05/2016	00:51:14	Soprano pipistrelle	FP-1	05/05/2016	01:03:16	Common pipistrelle
FP-1	05/05/2016	00:25:40	Soprano pipistrelle	FP-1	05/05/2016	00:37:50	Soprano pipistrelle	FP-1	05/05/2016	00:51:28	Soprano pipistrelle	FP-1	05/05/2016	01:03:33	Common pipistrelle
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FP-1	05/05/2016	00:26:16	Soprano pipistrelle	FP-1	05/05/2016	00:38:09	Soprano pipistrelle	FP-1	05/05/2016	00:52:04	Soprano pipistrelle	FP-1	05/05/2016	01:03:56	Common pipistrelle
FP-1	05/05/2016	00:26:32	Soprano pipistrelle	FP-1	05/05/2016	00:38:27	Soprano pipistrelle	FP-1	05/05/2016	00:52:22	Soprano pipistrelle	FP-1	05/05/2016	01:04:09	Common pipistrelle
FP-1	05/05/2016	00:26:50	Soprano pipistrelle	FP-1	05/05/2016	00:38:35	Soprano pipistrelle	FP-1	05/05/2016	00:52:31	Soprano pipistrelle	FP-1	05/05/2016	01:04:34	Common pipistrelle
FP-1	05/05/2016	00:27:09	Soprano pipistrelle	FP-1	05/05/2016	00:38:53	Soprano pipistrelle	FP-1	05/05/2016	00:52:49	Common pipistrelle	FP-1	05/05/2016	01:04:53	Common pipistrelle
FP-1	05/05/2016	00:27:28	Soprano pipistrelle	FP-1	05/05/2016	00:39:10	Soprano pipistrelle	FP-1	05/05/2016	00:52:49	Soprano pipistrelle	FP-1	05/05/2016	01:05:11	Common pipistrelle
FP-1	05/05/2016	00:27:46	Soprano pipistrelle	FP-1	05/05/2016	00:39:23	Soprano pipistrelle	FP-1	05/05/2016	00:53:08	Soprano pipistrelle	FP-1	05/05/2016	01:05:30	Common pipistrelle
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FP-1	05/05/2016	00:28:22	Soprano pipistrelle	FP-1	05/05/2016	00:39:52	Soprano pipistrelle	FP-1	05/05/2016	00:53:33	Soprano pipistrelle	FP-1	05/05/2016	01:06:13	Common pipistrelle
FP-1	05/05/2016	00:28:40	Soprano pipistrelle	FP-1	05/05/2016	00:39:59	Soprano pipistrelle	FP-1	05/05/2016	00:53:43	Common pipistrelle	FP-1	05/05/2016	01:06:24	Common pipistrelle
FP-1	05/05/2016	00:28:50	Soprano pipistrelle	FP-1	05/05/2016	00:40:08	Soprano pipistrelle	FP-1	05/05/2016	00:53:43	Soprano pipistrelle	FP-1	05/05/2016	01:06:42	Common pipistrelle
FP-1	05/05/2016	00:28:58	Soprano pipistrelle	FP-1	05/05/2016	00:40:24	Soprano pipistrelle	FP-1	05/05/2016	00:54:01	Common pipistrelle	FP-1	05/05/2016	01:07:03	Common pipistrelle
FP-1	05/05/2016	00:29:16	Soprano pipistrelle	FP-1	05/05/2016	00:40:43	Soprano pipistrelle	FP-1	05/05/2016	00:54:29	Common pipistrelle	FP-1	05/05/2016	01:07:22	Common pipistrelle
FP-1	05/05/2016	00:29:24	Soprano pipistrelle	FP-1	05/05/2016	00:41:01	Common pipistrelle	FP-1	05/05/2016	00:54:52	Common pipistrelle	FP-1	05/05/2016	01:07:40	Common pipistrelle
FP-1	05/05/2016	00:29:42	Soprano pipistrelle	FP-1	05/05/2016	00:41:01	Soprano pipistrelle	FP-1	05/05/2016	00:55:44	Common pipistrelle	FP-1	05/05/2016	01:07:58	Common pipistrelle
FP-1	05/05/2016	00:30:00	Soprano pipistrelle	FP-1	05/05/2016	00:41:19	Common pipistrelle	FP-1	05/05/2016	00:56:03	Soprano pipistrelle	FP-1	05/05/2016	01:08:14	Common pipistrelle
FP-1	05/05/2016	00:30:18	Soprano pipistrelle	FP-1	05/05/2016	00:41:27	Soprano pipistrelle	FP-1	05/05/2016	00:56:21	Common pipistrelle	FP-1	05/05/2016	01:08:36	Common pipistrelle
FP-1	05/05/2016	00:30:36	Soprano pipistrelle	FP-1	05/05/2016	00:41:45	Soprano pipistrelle	FP-1	05/05/2016	00:56:42	Common pipistrelle	FP-1	05/05/2016	01:08:58	Common pipistrelle
FP-1	05/05/2016	00:30:51	Soprano pipistrelle	FP-1	05/05/2016	00:42:10	Common pipistrelle	FP-1	05/05/2016	00:56:59	Soprano pipistrelle	FP-1	05/05/2016	01:09:30	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	05/05/2016	01:09:53	Common pipistrell	FP-1	05/05/2016	01:34:47	Soprano pipistrelle	FP-1	05/05/2016	01:46:57	Common pipistrell	FP-1	05/05/2016	01:59:28	Pipistrelle sp.
FP-1	05/05/2016	01:10:12	Common pipistrell	FP-1	05/05/2016	01:34:59	Soprano pipistrelle	FP-1	05/05/2016	01:46:57	Soprano pipistrelle	FP-1	05/05/2016	01:59:40	Common pipistrelle
FP-1	05/05/2016	01:10:30	Common pipistrell	FP-1	05/05/2016	01:35:19	Soprano pipistrelle	FP-1	05/05/2016	01:47:15	Common pipistrell	FP-1	05/05/2016	02:00:02	Common pipistrelle
FP-1	05/05/2016	01:10:48	Common pipistrell	FP-1	05/05/2016	01:35:37	Soprano pipistrelle	FP-1	05/05/2016	01:47:33	Common pipistrell	FP-1	05/05/2016	02:00:13	Common pipistrelle
FP-1	05/05/2016	01:11:06	Common pipistrell	FP-1	05/05/2016	01:35:55	Soprano pipistrelle	FP-1	05/05/2016	01:47:46	Common pipistrell	FP-1	05/05/2016	02:00:29	Common pipistrelle
FP-1	05/05/2016	01:11:21	Common pipistrell	FP-1	05/05/2016	01:36:14	Soprano pipistrelle	FP-1	05/05/2016	01:48:21	Common pipistrell	FP-1	05/05/2016	02:00:51	Common pipistrelle
FP-1	05/05/2016	01:11:40	Common pipistrell	FP-1	05/05/2016	01:36:33	Soprano pipistrelle	FP-1	05/05/2016	01:48:21	Soprano pipistrelle	FP-1	05/05/2016	02:01:10	Common pipistrelle
FP-1	05/05/2016	01:11:58	Common pipistrell	FP-1	05/05/2016	01:36:53	Soprano pipistrelle	FP-1	05/05/2016	01:48:46	Common pipistrell	FP-1	05/05/2016	02:01:10	Soprano pipistrelle
FP-1	05/05/2016	01:12:27	Common pipistrell	FP-1	05/05/2016	01:37:04	Soprano pipistrelle	FP-1	05/05/2016	01:48:46	Soprano pipistrelle	FP-1	05/05/2016	02:01:25	Common pipistrelle
FP-1	05/05/2016	01:12:45	Common pipistrell	FP-1	05/05/2016	01:37:13	Soprano pipistrelle	FP-1	05/05/2016	01:49:04	Common pipistrell	FP-1	05/05/2016	02:01:25	Soprano pipistrelle
FP-1	05/05/2016	01:13:03	Common pipistrell	FP-1	05/05/2016	01:37:25	Soprano pipistrelle	FP-1	05/05/2016	01:49:04	Soprano pipistrelle	FP-1	05/05/2016	02:01:39	Common pipistrelle
FP-1	05/05/2016	01:13:16	Common pipistrell	FP-1	05/05/2016	01:37:37	Soprano pipistrelle	FP-1	05/05/2016	01:49:23	Soprano pipistrelle	FP-1	05/05/2016	02:01:39	Soprano pipistrelle
FP-1	05/05/2016	01:13:32	Common pipistrell	FP-1	05/05/2016	01:37:44	Soprano pipistrelle	FP-1	05/05/2016	01:49:42	Soprano pipistrelle	FP-1	05/05/2016	02:01:57	Common pipistrelle
FP-1	05/05/2016	01:14:15	Common pipistrell	FP-1	05/05/2016	01:38:02	Soprano pipistrelle	FP-1	05/05/2016	01:51:49	Soprano pipistrelle	FP-1	05/05/2016	02:02:08	Common pipistrelle
FP-1	05/05/2016	01:18:48	Pipistrelle sp.	FP-1	05/05/2016	01:38:20	Soprano pipistrelle	FP-1	05/05/2016	01:51:59	Soprano pipistrelle	FP-1	05/05/2016	02:02:16	Common pipistrelle
FP-1	05/05/2016	01:21:22	Soprano pipistrelle	FP-1	05/05/2016	01:38:30	Soprano pipistrelle	FP-1	05/05/2016	01:52:18	Soprano pipistrelle	FP-1	05/05/2016	02:02:44	Common pipistrelle
FP-1	05/05/2016	01:21:40	Soprano pipistrelle	FP-1	05/05/2016	01:38:48	Soprano pipistrelle	FP-1	05/05/2016	01:52:29	Soprano pipistrelle	FP-1	05/05/2016	02:03:05	Common pipistrelle
FP-1	05/05/2016	01:21:58	Soprano pipistrelle	FP-1	05/05/2016	01:39:07	Soprano pipistrelle	FP-1	05/05/2016	01:52:37	Soprano pipistrelle	FP-1	05/05/2016	02:03:19	Common pipistrelle
FP-1	05/05/2016	01:22:20	Soprano pipistrelle	FP-1	05/05/2016	01:39:16	Soprano pipistrelle	FP-1	05/05/2016	01:52:45	Soprano pipistrelle	FP-1	05/05/2016	02:03:37	Common pipistrelle
FP-1	05/05/2016	01:22:38	Soprano pipistrelle	FP-1	05/05/2016	01:39:30	Soprano pipistrelle	FP-1	05/05/2016	01:53:07	Soprano pipistrelle	FP-1	05/05/2016	02:03:44	Common pipistrelle
FP-1	05/05/2016	01:22:56	Soprano pipistrelle	FP-1	05/05/2016	01:39:39	Pipistrelle sp.	FP-1	05/05/2016	01:53:25	Soprano pipistrelle	FP-1	05/05/2016	02:04:01	Common pipistrelle
FP-1	05/05/2016	01:23:06	Soprano pipistrelle	FP-1	05/05/2016	01:39:46	Soprano pipistrelle	FP-1	05/05/2016	01:53:41	Soprano pipistrelle	FP-1	05/05/2016	02:05:10	Common pipistrelle
FP-1	05/05/2016	01:23:24	Soprano pipistrelle	FP-1	05/05/2016	01:39:53	Soprano pipistrelle	FP-1	05/05/2016	01:53:54	Soprano pipistrelle	FP-1	05/05/2016	02:06:51	Soprano pipistrelle
FP-1	05/05/2016	01:26:32	Pipistrelle sp.	FP-1	05/05/2016	01:40:16	Soprano pipistrelle	FP-1	05/05/2016	01:54:18	Soprano pipistrelle	FP-1	05/05/2016	02:07:03	Soprano pipistrelle
FP-1	05/05/2016	01:28:23	Soprano pipistrelle	FP-1	05/05/2016	01:40:28	Soprano pipistrelle	FP-1	05/05/2016	01:54:37	Soprano pipistrelle	FP-1	05/05/2016	02:07:13	Soprano pipistrelle
FP-1	05/05/2016	01:28:47	Soprano pipistrelle	FP-1	05/05/2016	01:40:36	Soprano pipistrelle	FP-1	05/05/2016	01:54:55	Soprano pipistrelle	FP-1	05/05/2016	02:07:24	Soprano pipistrelle
FP-1	05/05/2016	01:28:56	Soprano pipistrelle	FP-1	05/05/2016	01:40:56	Soprano pipistrelle	FP-1	05/05/2016	01:55:09	Soprano pipistrelle	FP-1	05/05/2016	02:07:46	Soprano pipistrelle
FP-1	05/05/2016	01:30:23	Soprano pipistrelle	FP-1	05/05/2016	01:41:15	Common pipistrell	FP-1	05/05/2016	01:55:27	Soprano pipistrelle	FP-1	05/05/2016	02:08:03	Soprano pipistrelle
FP-1	05/05/2016	01:30:37	Soprano pipistrelle	FP-1	05/05/2016	01:41:30	Common pipistrell	FP-1	05/05/2016	01:55:38	Soprano pipistrelle	FP-1	05/05/2016	02:08:18	Soprano pipistrelle
FP-1	05/05/2016	01:30:46	Soprano pipistrelle	FP-1	05/05/2016	01:41:43	Common pipistrell	FP-1	05/05/2016	01:55:49	Soprano pipistrelle	FP-1	05/05/2016	02:08:55	Soprano pipistrelle
FP-1	05/05/2016	01:31:10	Soprano pipistrelle	FP-1	05/05/2016	01:41:56	Common pipistrell	FP-1	05/05/2016	01:56:06	Soprano pipistrelle	FP-1	05/05/2016	02:09:43	Soprano pipistrelle
FP-1	05/05/2016	01:31:24	Soprano pipistrelle	FP-1	05/05/2016	01:42:28	Common pipistrell	FP-1	05/05/2016	01:56:19	Soprano pipistrelle	FP-1	05/05/2016	02:10:09	Soprano pipistrelle
FP-1	05/05/2016	01:31:36	Soprano pipistrelle	FP-1	05/05/2016	01:42:44	Common pipistrell	FP-1	05/05/2016	01:56:37	Soprano pipistrelle	FP-1	05/05/2016	02:10:17	Soprano pipistrelle
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FP-1	05/05/2016	01:32:12	Soprano pipistrelle	FP-1	05/05/2016	01:43:32	Common pipistrell	FP-1	05/05/2016	01:56:57	Soprano pipistrelle	FP-1	05/05/2016	02:10:51	Soprano pipistrelle
FP-1	05/05/2016	01:32:30	Soprano pipistrelle	FP-1	05/05/2016	01:43:50	Common pipistrell	FP-1	05/05/2016	01:57:09	Common pipistrell	FP-1	05/05/2016	02:11:05	Soprano pipistrelle
FP-1	05/05/2016	01:32:40	Soprano pipistrelle	FP-1	05/05/2016	01:44:08	Common pipistrell	FP-1	05/05/2016	01:57:18	Common pipistrell	FP-1	05/05/2016	02:11:20	Soprano pipistrelle
FP-1	05/05/2016	01:32:55	Soprano pipistrelle	FP-1	05/05/2016	01:44:38	Common pipistrell	FP-1	05/05/2016	01:57:46	Common pipistrell	FP-1	05/05/2016	02:11:31	Soprano pipistrelle
FP-1	05/05/2016	01:33:13	Leisler's bat	FP-1	05/05/2016	01:44:55	Pipistrelle sp.	FP-1	05/05/2016	01:58:03	Common pipistrell	FP-1	05/05/2016	02:11:49	Common pipistrelle
FP-1	05/05/2016	01:33:21	Soprano pipistrelle	FP-1	05/05/2016	01:45:13	Common pipistrell	FP-1	05/05/2016	01:58:28	Common pipistrell	FP-1	05/05/2016	02:11:49	Soprano pipistrelle
FP-1	05/05/2016	01:33:37	Soprano pipistrelle	FP-1	05/05/2016	01:45:35	Common pipistrell	FP-1	05/05/2016	01:58:36	Common pipistrell	FP-1	05/05/2016	02:11:57	Soprano pipistrelle
FP-1	05/05/2016	01:33:55	Soprano pipistrelle	FP-1	05/05/2016	01:45:35	Soprano pipistrelle	FP-1	05/05/2016	01:58:54	Common pipistrell	FP-1	05/05/2016	02:12:10	Soprano pipistrelle
FP-1	05/05/2016	01:34:10	Soprano pipistrelle	FP-1	05/05/2016	01:46:42	Common pipistrell	FP-1	05/05/2016	01:59:06	Common pipistrell	FP-1	05/05/2016	02:12:25	Soprano pipistrelle
FP-1	05/05/2016	01:34:29	Soprano pipistrelle	FP-1	05/05/2016	01:46:42	Soprano pipistrelle	FP-1	05/05/2016	01:59:14	Common pipistrell	FP-1	05/05/2016	02:12:36	Soprano pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-1	05/05/2016	02:12:45	Soprano pipistrelle	FP-1	05/05/2016	02:27:43	Common pipistrell	FP-1	05/05/2016	02:40:46	Common pipistrell	FP-1	05/05/2016	02:55:38	Common pipistrelle
FP-1	05/05/2016	02:13:03	Pipistrelle sp.	FP-1	05/05/2016	02:28:14	Common pipistrell	FP-1	05/05/2016	02:41:00	Common pipistrell	FP-1	05/05/2016	02:55:55	Common pipistrelle
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FP-1	05/05/2016	02:15:39	Common pipistrell	FP-1	05/05/2016	02:30:44	Common pipistrell	FP-1	05/05/2016	02:42:54	Common pipistrell	FP-1	05/05/2016	02:58:21	Common pipistrelle
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FP-1	05/05/2016	02:16:00	Common pipistrell	FP-1	05/05/2016	02:31:22	Common pipistrell	FP-1	05/05/2016	02:43:47	Common pipistrell	FP-1	05/05/2016	02:59:10	Common pipistrelle
FP-1	05/05/2016	02:16:21	Common pipistrell	FP-1	05/05/2016	02:31:43	Common pipistrell	FP-1	05/05/2016	02:44:06	Common pipistrell	FP-1	05/05/2016	02:59:28	Common pipistrelle
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FP-1	05/05/2016	02:18:54	Common pipistrell	FP-1	05/05/2016	02:33:16	Common pipistrell	FP-1	05/05/2016	02:45:34	Common pipistrell	FP-1	05/05/2016	03:02:38	Common pipistrelle
FP-1	05/05/2016	02:19:14	Common pipistrell	FP-1	05/05/2016	02:33:23	Common pipistrell	FP-1	05/05/2016	02:46:29	Common pipistrell	FP-1	05/05/2016	03:02:48	Common pipistrelle
FP-1	05/05/2016	02:20:21	Common pipistrell	FP-1	05/05/2016	02:33:42	Common pipistrell	FP-1	05/05/2016	02:46:52	Common pipistrell	FP-1	05/05/2016	03:03:00	Common pipistrelle
FP-1	05/05/2016	02:20:32	Common pipistrell	FP-1	05/05/2016	02:34:02	Common pipistrell	FP-1	05/05/2016	02:47:17	Common pipistrell	FP-1	05/05/2016	03:03:00	Soprano pipistrelle
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FP-1	05/05/2016	02:21:46	Common pipistrell	FP-1	05/05/2016	02:35:21	Common pipistrell	FP-1	05/05/2016	02:49:38	Common pipistrell	FP-1	05/05/2016	03:04:21	Common pipistrelle
FP-1	05/05/2016	02:22:06	Common pipistrell	FP-1	05/05/2016	02:35:34	Common pipistrell	FP-1	05/05/2016	02:50:13	Common pipistrell	FP-1	05/05/2016	03:04:49	Common pipistrelle
FP-1	05/05/2016	02:22:20	Common pipistrell	FP-1	05/05/2016	02:35:58	Common pipistrell	FP-1	05/05/2016	02:50:32	Common pipistrell	FP-1	05/05/2016	03:05:08	Common pipistrelle
FP-1	05/05/2016	02:22:33	Common pipistrell	FP-1	05/05/2016	02:36:25	Common pipistrell	FP-1	05/05/2016	02:50:58	Common pipistrell	FP-1	05/05/2016	03:05:29	Common pipistrelle
FP-1	05/05/2016	02:22:51	Common pipistrell	FP-1	05/05/2016	02:36:39	Common pipistrell	FP-1	05/05/2016	02:51:18	Common pipistrell	FP-1	05/05/2016	03:06:03	Common pipistrelle
FP-1	05/05/2016	02:23:05	Common pipistrell	FP-1	05/05/2016	02:36:50	Common pipistrell	FP-1	05/05/2016	02:51:29	Common pipistrell	FP-1	05/05/2016	03:06:23	Common pipistrelle
FP-1	05/05/2016	02:23:20	Common pipistrell	FP-1	05/05/2016	02:37:01	Common pipistrell	FP-1	05/05/2016	02:51:41	Common pipistrell	FP-1	05/05/2016	03:06:45	Common pipistrelle
FP-1	05/05/2016	02:23:54	Common pipistrell	FP-1	05/05/2016	02:37:08	Common pipistrell	FP-1	05/05/2016	02:51:55	Common pipistrell	FP-1	05/05/2016	03:07:11	Common pipistrelle
FP-1	05/05/2016	02:24:10	Common pipistrell	FP-1	05/05/2016	02:37:20	Common pipistrell	FP-1	05/05/2016	02:52:11	Common pipistrell	FP-1	05/05/2016	03:07:27	Common pipistrelle
FP-1	05/05/2016	02:24:48	Common pipistrell	FP-1	05/05/2016	02:37:36	Common pipistrell	FP-1	05/05/2016	02:52:47	Common pipistrell	FP-1	05/05/2016	03:07:38	Common pipistrelle
FP-1	05/05/2016	02:25:06	Common pipistrell	FP-1	05/05/2016	02:37:55	Common pipistrell	FP-1	05/05/2016	02:53:04	Common pipistrell	FP-1	05/05/2016	03:07:56	Common pipistrelle
FP-1	05/05/2016	02:25:18	Common pipistrell	FP-1	05/05/2016	02:38:24	Common pipistrell	FP-1	05/05/2016	02:53:28	Common pipistrell	FP-1	05/05/2016	03:08:18	Common pipistrelle
FP-1	05/05/2016	02:25:50	Common pipistrell	FP-1	05/05/2016	02:38:40	Common pipistrell	FP-1	05/05/2016	02:53:41	Common pipistrell	FP-1	05/05/2016	03:08:41	Common pipistrelle
FP-1	05/05/2016	02:26:15	Common pipistrell	FP-1	05/05/2016	02:39:01	Common pipistrell	FP-1	05/05/2016	02:54:00	Common pipistrell	FP-1	05/05/2016	03:09:09	Common pipistrelle
FP-1	05/05/2016	02:26:33	Common pipistrell	FP-1	05/05/2016	02:39:18	Common pipistrell	FP-1	05/05/2016	02:54:09	Common pipistrell	FP-1	05/05/2016	03:09:21	Pipistrelle sp.
FP-1	05/05/2016	02:26:51	Common pipistrell	FP-1	05/05/2016	02:39:37	Common pipistrell	FP-1	05/05/2016	02:54:24	Common pipistrell	FP-1	05/05/2016	03:09:54	Common pipistrelle
FP-1	05/05/2016	02:27:05	Common pipistrell	FP-1	05/05/2016	02:39:47	Common pipistrell	FP-1	05/05/2016	02:54:49	Common pipistrell	FP-1	05/05/2016	03:10:35	Common pipistrelle
FP-1	05/05/2016	02:27:24	Common pipistrell	FP-1	05/05/2016	02:40:01	Common pipistrell	FP-1	05/05/2016	02:55:03	Common pipistrell	FP-1	05/05/2016	03:11:04	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	05/05/2016	03:11:19	Common pipistrell	FP-1	05/05/2016	03:32:14	Common pipistrell	FP-1	05/05/2016	04:39:37	Common pipistrell	FP-1	05/05/2016	05:06:04	Common pipistrelle
FP-1	05/05/2016	03:11:40	Common pipistrell	FP-1	05/05/2016	03:32:50	Common pipistrell	FP-1	05/05/2016	04:41:57	Pipistrelle sp.	FP-1	05/05/2016	05:06:12	Common pipistrelle
FP-1	05/05/2016	03:12:01	Common pipistrell	FP-1	05/05/2016	03:33:17	Common pipistrell	FP-1	05/05/2016	04:46:30	Soprano pipistrelle	FP-1	05/05/2016	05:06:26	Common pipistrelle
FP-1	05/05/2016	03:12:25	Common pipistrell	FP-1	05/05/2016	03:33:36	Common pipistrell	FP-1	05/05/2016	04:47:26	Common pipistrell	FP-1	05/05/2016	05:06:38	Common pipistrelle
FP-1	05/05/2016	03:12:55	Common pipistrell	FP-1	05/05/2016	03:33:55	Common pipistrell	FP-1	05/05/2016	04:47:54	Pipistrelle sp.	FP-1	05/05/2016	05:06:52	Common pipistrelle
FP-1	05/05/2016	03:13:20	Common pipistrell	FP-1	05/05/2016	03:34:08	Common pipistrell	FP-1	05/05/2016	04:48:10	Pipistrelle sp.	FP-1	05/05/2016	05:07:03	Common pipistrelle
FP-1	05/05/2016	03:13:38	Common pipistrell	FP-1	05/05/2016	03:34:21	Common pipistrell	FP-1	05/05/2016	04:50:37	Pipistrelle sp.	FP-1	05/05/2016	21:32:07	Leisler's bat
FP-1	05/05/2016	03:13:45	Common pipistrell	FP-1	05/05/2016	03:34:30	Common pipistrell	FP-1	05/05/2016	04:50:52	Pipistrelle sp.	FP-1	05/05/2016	21:32:18	Leisler's bat
FP-1	05/05/2016	03:14:01	Common pipistrell	FP-1	05/05/2016	03:34:43	Common pipistrell	FP-1	05/05/2016	04:52:22	Common pipistrell	FP-1	05/05/2016	21:37:50	Leisler's bat
FP-1	05/05/2016	03:14:18	Common pipistrell	FP-1	05/05/2016	03:35:00	Common pipistrell	FP-1	05/05/2016	04:53:42	Common pipistrell	FP-1	05/05/2016	21:39:30	Pipistrelle sp.
FP-1	05/05/2016	03:14:41	Common pipistrell	FP-1	05/05/2016	03:35:09	Common pipistrell	FP-1	05/05/2016	04:54:11	Common pipistrell	FP-1	05/05/2016	21:39:47	Pipistrelle sp.
FP-1	05/05/2016	03:14:50	Common pipistrell	FP-1	05/05/2016	03:35:19	Common pipistrell	FP-1	05/05/2016	04:54:33	Common pipistrell	FP-1	05/05/2016	21:39:57	Pipistrelle sp.
FP-1	05/05/2016	03:15:04	Common pipistrell	FP-1	05/05/2016	03:35:37	Common pipistrell	FP-1	05/05/2016	04:54:42	Common pipistrell	FP-1	05/05/2016	21:40:14	Pipistrelle sp.
FP-1	05/05/2016	03:15:17	Common pipistrell	FP-1	05/05/2016	03:36:27	Soprano pipistrelle	FP-1	05/05/2016	04:55:02	Common pipistrell	FP-1	05/05/2016	21:40:27	Pipistrelle sp.
FP-1	05/05/2016	03:15:26	Common pipistrell	FP-1	05/05/2016	03:36:53	Soprano pipistrelle	FP-1	05/05/2016	04:55:13	Common pipistrell	FP-1	05/05/2016	21:50:48	Soprano pipistrelle
FP-1	05/05/2016	03:15:58	Common pipistrell	FP-1	05/05/2016	03:37:24	Soprano pipistrelle	FP-1	05/05/2016	04:55:42	Common pipistrell	FP-1	05/05/2016	21:51:33	Soprano pipistrelle
FP-1	05/05/2016	03:16:11	Common pipistrell	FP-1	05/05/2016	03:40:32	Pipistrelle sp.	FP-1	05/05/2016	04:56:08	Common pipistrell	FP-1	05/05/2016	22:03:43	Common pipistrelle
FP-1	05/05/2016	03:17:30	Common pipistrell	FP-1	05/05/2016	03:41:13	Soprano pipistrelle	FP-1	05/05/2016	04:56:49	Common pipistrell	FP-1	05/05/2016	22:13:56	Pipistrelle sp.
FP-1	05/05/2016	03:17:44	Common pipistrell	FP-1	05/05/2016	03:42:41	Soprano pipistrelle	FP-1	05/05/2016	04:56:58	Common pipistrell	FP-1	05/05/2016	22:36:30	Pipistrelle sp.
FP-1	05/05/2016	03:18:23	Common pipistrell	FP-1	05/05/2016	03:43:08	Soprano pipistrelle	FP-1	05/05/2016	04:57:15	Common pipistrell	FP-1	05/05/2016	22:39:49	Pipistrelle sp.
FP-1	05/05/2016	03:18:59	Common pipistrell	FP-1	05/05/2016	03:43:44	Soprano pipistrelle	FP-1	05/05/2016	04:57:38	Common pipistrell	FP-1	05/05/2016	22:43:01	Common pipistrelle
FP-1	05/05/2016	03:19:17	Common pipistrell	FP-1	05/05/2016	03:44:51	Soprano pipistrelle	FP-1	05/05/2016	04:57:59	Common pipistrell	FP-1	05/05/2016	22:43:09	Common pipistrelle
FP-1	05/05/2016	03:20:10	Pipistrelle sp.	FP-1	05/05/2016	04:27:52	Soprano pipistrelle	FP-1	05/05/2016	04:58:12	Common pipistrell	FP-1	05/05/2016	22:44:35	Pipistrelle sp.
FP-1	05/05/2016	03:20:19	Common pipistrell	FP-1	05/05/2016	04:29:12	Common pipistrell	FP-1	05/05/2016	04:58:53	Common pipistrell	FP-1	05/05/2016	22:47:18	Pipistrelle sp.
FP-1	05/05/2016	03:20:38	Common pipistrell	FP-1	05/05/2016	04:29:40	Common pipistrell	FP-1	05/05/2016	04:59:05	Common pipistrell	FP-1	05/05/2016	23:03:14	Pipistrelle sp.
FP-1	05/05/2016	03:21:11	Common pipistrell	FP-1	05/05/2016	04:30:10	Common pipistrell	FP-1	05/05/2016	04:59:28	Common pipistrell	FP-1	05/05/2016	23:10:49	Common pipistrelle
FP-1	05/05/2016	03:21:35	Common pipistrell	FP-1	05/05/2016	04:30:32	Common pipistrell	FP-1	05/05/2016	04:59:41	Common pipistrell	FP-1	05/05/2016	23:12:39	Soprano pipistrelle
FP-1	05/05/2016	03:22:52	Common pipistrell	FP-1	05/05/2016	04:30:41	Common pipistrell	FP-1	05/05/2016	04:59:56	Common pipistrell	FP-1	05/05/2016	23:14:11	Soprano pipistrelle
FP-1	05/05/2016	03:23:30	Pipistrelle sp.	FP-1	05/05/2016	04:30:54	Common pipistrell	FP-1	05/05/2016	05:00:25	Common pipistrell	FP-1	05/05/2016	23:14:55	Common pipistrelle
FP-1	05/05/2016	03:24:47	Common pipistrell	FP-1	05/05/2016	04:31:19	Common pipistrell	FP-1	05/05/2016	05:00:37	Common pipistrell	FP-1	05/05/2016	23:25:42	Pipistrelle sp.
FP-1	05/05/2016	03:25:27	Common pipistrell	FP-1	05/05/2016	04:31:47	Common pipistrell	FP-1	05/05/2016	05:01:16	Common pipistrell	FP-1	05/05/2016	23:26:35	Common pipistrelle
FP-1	05/05/2016	03:26:08	Common pipistrell	FP-1	05/05/2016	04:32:23	Common pipistrell	FP-1	05/05/2016	05:01:43	Common pipistrell	FP-1	05/05/2016	23:26:57	Soprano pipistrelle
FP-1	05/05/2016	03:26:57	Common pipistrell	FP-1	05/05/2016	04:32:32	Common pipistrell	FP-1	05/05/2016	05:02:00	Common pipistrell	FP-1	05/05/2016	23:28:15	Common pipistrelle
FP-1	05/05/2016	03:26:57	Soprano pipistrelle	FP-1	05/05/2016	04:32:50	Common pipistrell	FP-1	05/05/2016	05:02:22	Common pipistrell	FP-1	05/05/2016	23:33:57	Pipistrelle sp.
FP-1	05/05/2016	03:27:16	Common pipistrell	FP-1	05/05/2016	04:33:03	Common pipistrell	FP-1	05/05/2016	05:02:39	Common pipistrell	FP-1	05/05/2016	23:39:26	Common pipistrelle
FP-1	05/05/2016	03:27:16	Soprano pipistrelle	FP-1	05/05/2016	04:33:03	Soprano pipistrelle	FP-1	05/05/2016	05:02:54	Common pipistrell	FP-1	05/05/2016	23:39:49	Common pipistrelle
FP-1	05/05/2016	03:27:50	Common pipistrell	FP-1	05/05/2016	04:33:30	Common pipistrell	FP-1	05/05/2016	05:03:20	Common pipistrell	FP-1	05/05/2016	23:51:01	Pipistrelle sp.
FP-1	05/05/2016	03:28:39	Common pipistrell	FP-1	05/05/2016	04:33:45	Soprano pipistrelle	FP-1	05/05/2016	05:04:11	Common pipistrell	FP-1	06/05/2016	00:11:34	Common pipistrelle
FP-1	05/05/2016	03:29:20	Common pipistrell	FP-1	05/05/2016	04:33:54	Soprano pipistrelle	FP-1	05/05/2016	05:04:30	Common pipistrell	FP-1	06/05/2016	00:17:39	Pipistrelle sp.
FP-1	05/05/2016	03:29:43	Common pipistrell	FP-1	05/05/2016	04:34:11	Common pipistrell	FP-1	05/05/2016	05:04:50	Common pipistrell	FP-1	06/05/2016	00:18:36	Pipistrelle sp.
FP-1	05/05/2016	03:30:05	Common pipistrell	FP-1	05/05/2016	04:34:20	Common pipistrell	FP-1	05/05/2016	05:05:01	Common pipistrell	FP-1	06/05/2016	00:20:44	Common pipistrelle
FP-1	05/05/2016	03:30:58	Common pipistrell	FP-1	05/05/2016	04:34:32	Common pipistrell	FP-1	05/05/2016	05:05:13	Common pipistrell	FP-1	06/05/2016	00:34:21	Common pipistrelle
FP-1	05/05/2016	03:31:55	Common pipistrell	FP-1	05/05/2016	04:34:46	Common pipistrell	FP-1	05/05/2016	05:05:29	Common pipistrell	FP-1	06/05/2016	00:36:16	Common pipistrelle
FP-1	05/05/2016	03:32:04	Common pipistrell	FP-1	05/05/2016	04:39:19	Pipistrelle sp.	FP-1	05/05/2016	05:05:40	Common pipistrell	FP-1	06/05/2016	01:03:37	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	06/05/2016	01:09:07	Common pipistrell	FP-1	06/05/2016	22:38:27	Pipistrelle sp.	FP-1	07/05/2016	22:01:38	Soprano pipistrelle	FP-1	08/05/2016	03:51:20	Common pipistrelle
FP-1	06/05/2016	01:50:24	Common pipistrell	FP-1	06/05/2016	22:39:58	Common pipistrell	FP-1	07/05/2016	22:02:25	Soprano pipistrelle	FP-1	08/05/2016	03:53:15	Common pipistrelle
FP-1	06/05/2016	01:51:41	Common pipistrell	FP-1	06/05/2016	22:40:57	Pipistrelle sp.	FP-1	07/05/2016	22:06:39	Pipistrelle sp.	FP-1	08/05/2016	03:57:36	Leisler's bat
FP-1	06/05/2016	02:57:00	Common pipistrell	FP-1	06/05/2016	22:42:58	Common pipistrell	FP-1	07/05/2016	22:08:47	Common pipistrell	FP-1	08/05/2016	04:17:55	Soprano pipistrelle
FP-1	06/05/2016	03:14:06	Pipistrelle sp.	FP-1	06/05/2016	22:45:09	Soprano pipistrelle	FP-1	07/05/2016	22:12:24	Soprano pipistrelle	FP-1	08/05/2016	04:19:32	Common pipistrelle
FP-1	06/05/2016	03:57:08	Leisler's bat	FP-1	06/05/2016	22:50:04	Pipistrelle sp.	FP-1	07/05/2016	22:13:09	Soprano pipistrelle	FP-1	08/05/2016	04:25:34	Pipistrelle sp.
FP-1	06/05/2016	03:57:16	Leisler's bat	FP-1	06/05/2016	22:59:00	Pipistrelle sp.	FP-1	07/05/2016	22:15:08	Soprano pipistrelle	FP-1	08/05/2016	04:32:10	Soprano pipistrelle
FP-1	06/05/2016	04:03:08	Common pipistrell	FP-1	06/05/2016	23:10:43	Common pipistrell	FP-1	07/05/2016	22:26:18	Leisler's bat	FP-1	08/05/2016	04:32:24	Soprano pipistrelle
FP-1	06/05/2016	04:04:17	Soprano pipistrelle	FP-1	06/05/2016	23:12:15	Common pipistrell	FP-1	07/05/2016	22:29:58	Myotis sp.	FP-1	08/05/2016	04:32:34	Soprano pipistrelle
FP-1	06/05/2016	04:22:55	Soprano pipistrelle	FP-1	06/05/2016	23:12:24	Common pipistrell	FP-1	07/05/2016	22:52:05	Leisler's bat	FP-1	08/05/2016	04:37:32	Soprano pipistrelle
FP-1	06/05/2016	04:25:04	Common pipistrell	FP-1	06/05/2016	23:13:36	Common pipistrell	FP-1	07/05/2016	22:52:18	Leisler's bat	FP-1	08/05/2016	04:57:20	Common pipistrelle
FP-1	06/05/2016	04:26:28	Pipistrelle sp.	FP-1	06/05/2016	23:20:27	Pipistrelle sp.	FP-1	07/05/2016	23:27:18	Leisler's bat	FP-1	08/05/2016	04:58:13	Common pipistrelle
FP-1	06/05/2016	04:27:33	Leisler's bat	FP-1	06/05/2016	23:24:10	Soprano pipistrelle	FP-1	07/05/2016	23:27:32	Leisler's bat	FP-1	08/05/2016	21:45:41	Soprano pipistrelle
FP-1	06/05/2016	04:28:32	Soprano pipistrelle	FP-1	06/05/2016	23:24:43	Soprano pipistrelle	FP-1	07/05/2016	23:33:52	Pipistrelle sp.	FP-1	08/05/2016	21:49:12	Soprano pipistrelle
FP-1	06/05/2016	04:42:13	Common pipistrell	FP-1	06/05/2016	23:45:17	Soprano pipistrelle	FP-1	07/05/2016	23:38:59	Pipistrelle sp.	FP-1	08/05/2016	21:49:19	Soprano pipistrelle
FP-1	06/05/2016	04:50:56	Soprano pipistrelle	FP-1	06/05/2016	23:45:28	Soprano pipistrelle	FP-1	07/05/2016	23:41:34	Common pipistrell	FP-1	08/05/2016	21:56:31	Leisler's bat
FP-1	06/05/2016	04:56:16	Common pipistrell	FP-1	06/05/2016	23:46:35	Soprano pipistrelle	FP-1	07/05/2016	23:47:31	Pipistrelle sp.	FP-1	08/05/2016	22:00:26	Leisler's bat
FP-1	06/05/2016	04:56:25	Common pipistrell	FP-1	06/05/2016	23:46:48	Soprano pipistrelle	FP-1	08/05/2016	00:38:54	Soprano pipistrelle	FP-1	08/05/2016	22:02:58	Leisler's bat
FP-1	06/05/2016	05:01:07	Common pipistrell	FP-1	06/05/2016	23:49:08	Soprano pipistrelle	FP-1	08/05/2016	00:52:34	Soprano pipistrelle	FP-1	08/05/2016	22:05:55	Pipistrelle sp.
FP-1	06/05/2016	21:34:45	Leisler's bat	FP-1	06/05/2016	23:51:30	Common pipistrell	FP-1	08/05/2016	00:56:08	Soprano pipistrelle	FP-1	08/05/2016	22:11:16	Common pipistrelle
FP-1	06/05/2016	21:37:57	Leisler's bat	FP-1	06/05/2016	23:55:35	Pipistrelle sp.	FP-1	08/05/2016	01:15:14	Soprano pipistrelle	FP-1	08/05/2016	22:29:25	Common pipistrelle
FP-1	06/05/2016	21:42:09	Leisler's bat	FP-1	07/05/2016	00:12:03	Soprano pipistrelle	FP-1	08/05/2016	01:44:47	Common pipistrell	FP-1	08/05/2016	22:31:18	Soprano pipistrelle
FP-1	06/05/2016	21:44:04	Pipistrelle sp.	FP-1	07/05/2016	00:12:22	Soprano pipistrelle	FP-1	08/05/2016	01:46:23	Pipistrelle sp.	FP-1	08/05/2016	22:38:50	Soprano pipistrelle
FP-1	06/05/2016	21:45:11	Common pipistrell	FP-1	07/05/2016	00:13:02	Soprano pipistrelle	FP-1	08/05/2016	02:04:55	Soprano pipistrelle	FP-1	08/05/2016	22:40:45	Soprano pipistrelle
FP-1	06/05/2016	21:45:31	Soprano pipistrelle	FP-1	07/05/2016	00:13:14	Common pipistrell	FP-1	08/05/2016	02:10:03	Leisler's bat	FP-1	08/05/2016	22:47:14	Soprano pipistrelle
FP-1	06/05/2016	21:48:39	Soprano pipistrelle	FP-1	07/05/2016	00:13:33	Common pipistrell	FP-1	08/05/2016	02:19:51	Common pipistrell	FP-1	08/05/2016	22:48:53	Leisler's bat
FP-1	06/05/2016	21:48:53	Common pipistrell	FP-1	07/05/2016	00:17:14	Leisler's bat	FP-1	08/05/2016	02:19:51	Leisler's bat	FP-1	08/05/2016	23:07:00	Common pipistrelle
FP-1	06/05/2016	21:49:46	Common pipistrell	FP-1	07/05/2016	00:27:16	Leisler's bat	FP-1	08/05/2016	02:20:10	Common pipistrell	FP-1	08/05/2016	23:10:17	Soprano pipistrelle
FP-1	06/05/2016	21:51:06	Pipistrelle sp.	FP-1	07/05/2016	00:27:29	Leisler's bat	FP-1	08/05/2016	02:51:43	Pipistrelle sp.	FP-1	08/05/2016	23:13:44	Common pipistrelle
FP-1	06/05/2016	21:56:09	Common pipistrell	FP-1	07/05/2016	00:38:02	Leisler's bat	FP-1	08/05/2016	03:08:03	Myotis sp.	FP-1	08/05/2016	23:18:59	Common pipistrelle
FP-1	06/05/2016	21:57:50	Common pipistrell	FP-1	07/05/2016	00:46:00	Leisler's bat	FP-1	08/05/2016	03:10:54	Pipistrelle sp.	FP-1	08/05/2016	23:19:15	Soprano pipistrelle
FP-1	06/05/2016	21:59:03	Leisler's bat	FP-1	07/05/2016	00:57:06	Soprano pipistrelle	FP-1	08/05/2016	03:23:24	Soprano pipistrelle	FP-1	08/05/2016	23:29:47	Common pipistrelle
FP-1	06/05/2016	22:03:45	Pipistrelle sp.	FP-1	07/05/2016	01:19:40	Leisler's bat	FP-1	08/05/2016	03:26:37	Soprano pipistrelle	FP-1	08/05/2016	23:33:22	Soprano pipistrelle
FP-1	06/05/2016	22:06:41	Soprano pipistrelle	FP-1	07/05/2016	01:19:55	Leisler's bat	FP-1	08/05/2016	03:28:28	Soprano pipistrelle	FP-1	08/05/2016	23:47:30	Soprano pipistrelle
FP-1	06/05/2016	22:21:47	Common pipistrell	FP-1	07/05/2016	01:20:27	Soprano pipistrelle	FP-1	08/05/2016	03:30:35	Soprano pipistrelle	FP-1	08/05/2016	23:58:09	Leisler's bat
FP-1	06/05/2016	22:24:50	Common pipistrell	FP-1	07/05/2016	01:28:06	Soprano pipistrelle	FP-1	08/05/2016	03:30:52	Soprano pipistrelle	FP-1	09/05/2016	00:01:14	Leisler's bat
FP-1	06/05/2016	22:26:16	Leisler's bat	FP-1	07/05/2016	01:29:20	Leisler's bat	FP-1	08/05/2016	03:32:34	Common pipistrell	FP-1	09/05/2016	00:42:15	Leisler's bat
FP-1	06/05/2016	22:26:24	Leisler's bat	FP-1	07/05/2016	01:45:23	Common pipistrell	FP-1	08/05/2016	03:42:55	Pipistrelle sp.	FP-1	09/05/2016	00:42:23	Leisler's bat
FP-1	06/05/2016	22:27:35	Common pipistrell	FP-1	07/05/2016	02:02:53	Leisler's bat	FP-1	08/05/2016	03:43:04	Soprano pipistrelle	FP-1	09/05/2016	00:45:44	Myotis sp.
FP-1	06/05/2016	22:27:55	Pipistrelle sp.	FP-1	07/05/2016	04:31:51	Common pipistrell	FP-1	08/05/2016	03:44:44	Pipistrelle sp.	FP-1	09/05/2016	01:10:36	Myotis sp.
FP-1	06/05/2016	22:28:45	Common pipistrell	FP-1	07/05/2016	04:43:32	Leisler's bat	FP-1	08/05/2016	03:47:31	Common pipistrell	FP-1	09/05/2016	01:18:34	Leisler's bat
FP-1	06/05/2016	22:34:13	Pipistrelle sp.	FP-1	07/05/2016	21:40:05	Soprano pipistrelle	FP-1	08/05/2016	03:48:04	Common pipistrell	FP-1	09/05/2016	01:19:19	Leisler's bat
FP-1	06/05/2016	22:36:35	Pipistrelle sp.	FP-1	07/05/2016	22:00:44	Pipistrelle sp.	FP-1	08/05/2016	03:48:17	Soprano pipistrelle	FP-1	09/05/2016	01:35:01	Common pipistrelle
FP-1	06/05/2016	22:38:08	Pipistrelle sp.	FP-1	07/05/2016	22:01:00	Pipistrelle sp.	FP-1	08/05/2016	03:48:43	Common pipistrell	FP-1	09/05/2016	01:46:17	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	09/05/2016	01:50:58	Pipistrelle sp.	FP-1	09/05/2016	23:55:01	Pipistrelle sp.	FP-1	10/05/2016	02:42:36	Leisler's bat	FP-1	11/05/2016	03:53:15	Leisler's bat
FP-1	09/05/2016	01:51:43	Soprano pipistrelle	FP-1	10/05/2016	00:00:26	Leisler's bat	FP-1	10/05/2016	02:46:58	Leisler's bat	FP-1	11/05/2016	03:53:34	Leisler's bat
FP-1	09/05/2016	01:56:29	Soprano pipistrelle	FP-1	10/05/2016	00:02:16	Common pipistrell	FP-1	10/05/2016	02:47:07	Leisler's bat	FP-1	11/05/2016	04:01:49	Leisler's bat
FP-1	09/05/2016	01:58:15	Soprano pipistrelle	FP-1	10/05/2016	00:06:31	Leisler's bat	FP-1	10/05/2016	02:47:52	Leisler's bat	FP-1	11/05/2016	04:02:07	Leisler's bat
FP-1	09/05/2016	02:22:51	Leisler's bat	FP-1	10/05/2016	00:10:44	Leisler's bat	FP-1	10/05/2016	02:48:57	Pipistrelle sp.	FP-1	11/05/2016	04:16:03	Leisler's bat
FP-1	09/05/2016	02:30:24	Common pipistrell	FP-1	10/05/2016	00:11:26	Common pipistrell	FP-1	10/05/2016	02:58:08	Leisler's bat	FP-1	11/05/2016	04:16:36	Leisler's bat
FP-1	09/05/2016	02:41:14	Common pipistrell	FP-1	10/05/2016	00:15:36	Pipistrelle sp.	FP-1	10/05/2016	02:58:34	Leisler's bat	FP-1	11/05/2016	04:42:24	Leisler's bat
FP-1	09/05/2016	02:46:47	Pipistrelle sp.	FP-1	10/05/2016	00:17:55	Leisler's bat	FP-1	10/05/2016	03:15:19	Pipistrelle sp.	FP-1	11/05/2016	04:42:42	Common pipistrelle
FP-1	09/05/2016	02:48:44	Pipistrelle sp.	FP-1	10/05/2016	00:30:42	Soprano pipistrelle	FP-1	10/05/2016	03:20:26	Leisler's bat	FP-1	11/05/2016	04:50:04	Common pipistrelle
FP-1	09/05/2016	02:48:57	Pipistrelle sp.	FP-1	10/05/2016	00:33:03	Leisler's bat	FP-1	10/05/2016	03:26:38	Pipistrelle sp.	FP-1	11/05/2016	04:59:30	Leisler's bat
FP-1	09/05/2016	02:51:35	Soprano pipistrelle	FP-1	10/05/2016	00:41:57	Leisler's bat	FP-1	10/05/2016	03:31:44	Common pipistrell	FP-1	11/05/2016	22:07:57	Soprano pipistrelle
FP-1	09/05/2016	02:56:51	Pipistrelle sp.	FP-1	10/05/2016	00:44:56	Leisler's bat	FP-1	10/05/2016	03:56:30	Leisler's bat	FP-1	11/05/2016	22:15:56	Common pipistrelle
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FP-1	09/05/2016	03:50:03	Leisler's bat	FP-1	10/05/2016	00:50:45	Common pipistrell	FP-1	10/05/2016	03:57:58	Soprano pipistrelle	FP-1	11/05/2016	22:35:51	Common pipistrelle
FP-1	09/05/2016	03:50:20	Leisler's bat	FP-1	10/05/2016	00:52:26	Common pipistrell	FP-1	10/05/2016	04:02:39	Leisler's bat	FP-1	11/05/2016	22:36:23	Leisler's bat
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FP-1	09/05/2016	04:30:09	Soprano pipistrelle	FP-1	10/05/2016	00:54:02	Leisler's bat	FP-1	10/05/2016	04:05:00	Common pipistrell	FP-1	11/05/2016	22:40:43	Soprano pipistrelle
FP-1	09/05/2016	04:49:45	Leisler's bat	FP-1	10/05/2016	00:54:20	Leisler's bat	FP-1	10/05/2016	04:30:43	Leisler's bat	FP-1	11/05/2016	22:47:17	Common pipistrelle
FP-1	09/05/2016	04:52:24	Soprano pipistrelle	FP-1	10/05/2016	00:54:38	Leisler's bat	FP-1	10/05/2016	04:33:17	Leisler's bat	FP-1	11/05/2016	22:55:27	Leisler's bat
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FP-1	09/05/2016	21:53:11	Pipistrelle sp.	FP-1	10/05/2016	01:17:30	Common pipistrell	FP-1	10/05/2016	04:39:08	Leisler's bat	FP-1	11/05/2016	23:05:26	Leisler's bat
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FP-1	09/05/2016	22:02:32	Leisler's bat	FP-1	10/05/2016	01:26:22	Common pipistrell	FP-1	10/05/2016	04:40:48	Leisler's bat	FP-1	11/05/2016	23:06:16	Leisler's bat
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FP-1	09/05/2016	22:03:38	Pipistrelle sp.	FP-1	10/05/2016	01:45:12	Leisler's bat	FP-1	10/05/2016	04:46:19	Pipistrelle sp.	FP-1	11/05/2016	23:07:17	Common pipistrelle
FP-1	09/05/2016	22:03:46	Soprano pipistrelle	FP-1	10/05/2016	01:45:55	Leisler's bat	FP-1	10/05/2016	04:56:23	Leisler's bat	FP-1	11/05/2016	23:09:59	Leisler's bat
FP-1	09/05/2016	22:09:13	Soprano pipistrelle	FP-1	10/05/2016	01:48:33	Pipistrelle sp.	FP-1	10/05/2016	04:56:43	Leisler's bat	FP-1	11/05/2016	23:10:43	Leisler's bat
FP-1	09/05/2016	22:14:09	Soprano pipistrelle	FP-1	10/05/2016	01:50:04	Common pipistrell	FP-1	10/05/2016	04:57:07	Leisler's bat	FP-1	11/05/2016	23:11:02	Leisler's bat
FP-1	09/05/2016	22:23:00	Common pipistrell	FP-1	10/05/2016	02:06:06	Pipistrelle sp.	FP-1	10/05/2016	04:57:24	Leisler's bat	FP-1	11/05/2016	23:12:12	Soprano pipistrelle
FP-1	09/05/2016	22:24:06	Soprano pipistrelle	FP-1	10/05/2016	02:07:30	Soprano pipistrelle	FP-1	10/05/2016	05:02:09	Leisler's bat	FP-1	11/05/2016	23:12:39	Leisler's bat
FP-1	09/05/2016	22:25:19	Leisler's bat	FP-1	10/05/2016	02:08:05	Common pipistrell	FP-1	10/05/2016	05:02:18	Leisler's bat	FP-1	11/05/2016	23:12:52	Leisler's bat
FP-1	09/05/2016	22:25:38	Leisler's bat	FP-1	10/05/2016	02:08:14	Common pipistrell	FP-1	10/05/2016	05:10:42	Leisler's bat	FP-1	11/05/2016	23:13:11	Leisler's bat
FP-1	09/05/2016	22:32:00	Pipistrelle sp.	FP-1	10/05/2016	02:08:28	Common pipistrell	FP-1	10/05/2016	05:14:17	Leisler's bat	FP-1	11/05/2016	23:13:29	Leisler's bat
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FP-1	09/05/2016	22:46:21	Leisler's bat	FP-1	10/05/2016	02:09:51	Common pipistrell	FP-1	11/05/2016	01:04:23	Soprano pipistrelle	FP-1	11/05/2016	23:27:24	Soprano pipistrelle
FP-1	09/05/2016	22:53:21	Pipistrelle sp.	FP-1	10/05/2016	02:10:58	Common pipistrell	FP-1	11/05/2016	01:53:22	Leisler's bat	FP-1	11/05/2016	23:32:21	Common pipistrelle
FP-1	09/05/2016	22:54:07	Leisler's bat	FP-1	10/05/2016	02:11:42	Common pipistrell	FP-1	11/05/2016	02:51:59	Leisler's bat	FP-1	11/05/2016	23:40:16	Common pipistrelle
FP-1	09/05/2016	22:57:23	Leisler's bat	FP-1	10/05/2016	02:13:07	Common pipistrell	FP-1	11/05/2016	02:58:37	Common pipistrell	FP-1	11/05/2016	23:45:00	Common pipistrelle
FP-1	09/05/2016	23:06:13	Common pipistrell	FP-1	10/05/2016	02:13:17	Common pipistrell	FP-1	11/05/2016	03:22:22	Common pipistrell	FP-1	11/05/2016	23:45:28	Soprano pipistrelle
FP-1	09/05/2016	23:16:12	Common pipistrell	FP-1	10/05/2016	02:16:42	Pipistrelle sp.	FP-1	11/05/2016	03:33:13	Leisler's bat	FP-1	11/05/2016	23:48:32	Common pipistrelle
FP-1	09/05/2016	23:25:43	Pipistrelle sp.	FP-1	10/05/2016	02:39:38	Common pipistrell	FP-1	11/05/2016	03:33:31	Leisler's bat	FP-1	11/05/2016	23:48:41	Common pipistrelle
FP-1	09/05/2016	23:43:06	Soprano pipistrelle	FP-1	10/05/2016	02:39:54	Common pipistrell	FP-1	11/05/2016	03:34:46	Leisler's bat	FP-1	11/05/2016	23:49:57	Leisler's bat
FP-1	09/05/2016	23:53:37	Leisler's bat	FP-1	10/05/2016	02:40:04	Common pipistrell	FP-1	11/05/2016	03:35:39	Leisler's bat	FP-1	11/05/2016	23:50:05	Common pipistrelle
FP-1	09/05/2016	23:53:54	Leisler's bat	FP-1	10/05/2016	02:42:17	Leisler's bat	FP-1	11/05/2016	03:43:31	Leisler's bat	FP-1	11/05/2016	23:50:05	Leisler's bat

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	11/05/2016	23:50:23	Leisler's bat	FP-1	12/05/2016	23:21:04	Leisler's bat	FP-1	13/05/2016	22:24:13	Leisler's bat	FP-1	14/05/2016	00:46:14	Leisler's bat
FP-1	11/05/2016	23:59:29	Common pipistrell	FP-1	12/05/2016	23:26:04	Common pipistrell	FP-1	13/05/2016	22:33:07	Soprano pipistrelle	FP-1	14/05/2016	00:46:34	Leisler's bat
FP-1	12/05/2016	00:18:54	Leisler's bat	FP-1	12/05/2016	23:29:39	Common pipistrell	FP-1	13/05/2016	22:40:09	Common pipistrell	FP-1	14/05/2016	00:49:43	Leisler's bat
FP-1	12/05/2016	01:00:10	Leisler's bat	FP-1	12/05/2016	23:46:08	Soprano pipistrelle	FP-1	13/05/2016	22:40:52	Common pipistrell	FP-1	14/05/2016	00:49:50	Leisler's bat
FP-1	12/05/2016	01:00:22	Leisler's bat	FP-1	12/05/2016	23:54:05	Soprano pipistrelle	FP-1	13/05/2016	22:56:50	Leisler's bat	FP-1	14/05/2016	01:06:45	Common pipistrelle
FP-1	12/05/2016	01:00:41	Leisler's bat	FP-1	13/05/2016	00:01:41	Soprano pipistrelle	FP-1	13/05/2016	22:59:48	Common pipistrell	FP-1	14/05/2016	01:20:42	Leisler's bat
FP-1	12/05/2016	01:01:00	Leisler's bat	FP-1	13/05/2016	00:11:44	Common pipistrell	FP-1	13/05/2016	22:59:55	Common pipistrell	FP-1	14/05/2016	01:24:56	Leisler's bat
FP-1	12/05/2016	01:04:57	Leisler's bat	FP-1	13/05/2016	00:21:43	Common pipistrell	FP-1	13/05/2016	23:12:12	Leisler's bat	FP-1	14/05/2016	01:29:58	Soprano pipistrelle
FP-1	12/05/2016	01:05:12	Leisler's bat	FP-1	13/05/2016	00:22:53	Leisler's bat	FP-1	13/05/2016	23:12:30	Leisler's bat	FP-1	14/05/2016	01:37:28	Leisler's bat
FP-1	12/05/2016	01:10:56	Leisler's bat	FP-1	13/05/2016	00:25:38	Leisler's bat	FP-1	13/05/2016	23:20:11	Soprano pipistrelle	FP-1	14/05/2016	01:42:40	Leisler's bat
FP-1	12/05/2016	01:15:25	Leisler's bat	FP-1	13/05/2016	00:37:49	Pipistrelle sp.	FP-1	13/05/2016	23:23:18	Soprano pipistrelle	FP-1	14/05/2016	01:47:46	Leisler's bat
FP-1	12/05/2016	02:22:42	Leisler's bat	FP-1	13/05/2016	00:39:30	Soprano pipistrelle	FP-1	13/05/2016	23:44:20	Common pipistrell	FP-1	14/05/2016	01:52:55	Leisler's bat
FP-1	12/05/2016	02:24:37	Leisler's bat	FP-1	13/05/2016	01:23:00	Common pipistrell	FP-1	14/05/2016	00:08:55	Leisler's bat	FP-1	14/05/2016	01:53:09	Leisler's bat
FP-1	12/05/2016	02:27:15	Leisler's bat	FP-1	13/05/2016	01:47:56	Leisler's bat	FP-1	14/05/2016	00:09:17	Leisler's bat	FP-1	14/05/2016	02:48:25	Myotis sp.
FP-1	12/05/2016	02:27:36	Common pipistrell	FP-1	13/05/2016	01:48:23	Leisler's bat	FP-1	14/05/2016	00:09:32	Leisler's bat	FP-1	14/05/2016	03:18:30	Soprano pipistrelle
FP-1	12/05/2016	02:37:44	Leisler's bat	FP-1	13/05/2016	01:48:43	Leisler's bat	FP-1	14/05/2016	00:10:00	Leisler's bat	FP-1	14/05/2016	03:25:49	Soprano pipistrelle
FP-1	12/05/2016	02:50:39	Leisler's bat	FP-1	13/05/2016	01:49:01	Leisler's bat	FP-1	14/05/2016	00:10:29	Leisler's bat	FP-1	14/05/2016	03:50:42	Leisler's bat
FP-1	12/05/2016	03:07:40	Leisler's bat	FP-1	13/05/2016	01:49:26	Leisler's bat	FP-1	14/05/2016	00:11:15	Leisler's bat	FP-1	14/05/2016	04:18:12	Common pipistrelle
FP-1	12/05/2016	03:08:00	Leisler's bat	FP-1	13/05/2016	01:49:45	Leisler's bat	FP-1	14/05/2016	00:24:16	Leisler's bat	FP-1	14/05/2016	21:44:23	Leisler's bat
FP-1	12/05/2016	03:15:41	Leisler's bat	FP-1	13/05/2016	01:49:57	Leisler's bat	FP-1	14/05/2016	00:25:59	Leisler's bat	FP-1	14/05/2016	22:10:42	Soprano pipistrelle
FP-1	12/05/2016	03:16:01	Leisler's bat	FP-1	13/05/2016	01:51:01	Leisler's bat	FP-1	14/05/2016	00:26:46	Leisler's bat	FP-1	14/05/2016	22:11:02	Pipistrelle sp.
FP-1	12/05/2016	03:16:32	Leisler's bat	FP-1	13/05/2016	02:09:10	Leisler's bat	FP-1	14/05/2016	00:26:57	Leisler's bat	FP-1	14/05/2016	22:13:55	Pipistrelle sp.
FP-1	12/05/2016	03:21:10	Leisler's bat	FP-1	13/05/2016	02:19:56	Leisler's bat	FP-1	14/05/2016	00:27:27	Leisler's bat	FP-1	14/05/2016	22:14:07	Common pipistrelle
FP-1	12/05/2016	03:39:50	Soprano pipistrelle	FP-1	13/05/2016	02:21:04	Leisler's bat	FP-1	14/05/2016	00:27:47	Leisler's bat	FP-1	14/05/2016	22:17:16	Soprano pipistrelle
FP-1	12/05/2016	03:42:55	Leisler's bat	FP-1	13/05/2016	02:59:00	Common pipistrell	FP-1	14/05/2016	00:28:03	Leisler's bat	FP-1	14/05/2016	22:17:29	Soprano pipistrelle
FP-1	12/05/2016	03:43:18	Leisler's bat	FP-1	13/05/2016	03:02:51	Leisler's bat	FP-1	14/05/2016	00:28:18	Leisler's bat	FP-1	14/05/2016	22:18:47	Common pipistrelle
FP-1	12/05/2016	03:57:51	Soprano pipistrelle	FP-1	13/05/2016	03:20:20	Pipistrelle sp.	FP-1	14/05/2016	00:28:29	Leisler's bat	FP-1	14/05/2016	22:19:18	Common pipistrelle
FP-1	12/05/2016	04:27:00	Leisler's bat	FP-1	13/05/2016	03:43:41	Leisler's bat	FP-1	14/05/2016	00:28:46	Leisler's bat	FP-1	14/05/2016	22:19:33	Common pipistrelle
FP-1	12/05/2016	04:27:33	Leisler's bat	FP-1	13/05/2016	04:01:35	Soprano pipistrelle	FP-1	14/05/2016	00:29:17	Leisler's bat	FP-1	14/05/2016	22:19:58	Common pipistrelle
FP-1	12/05/2016	04:35:21	Leisler's bat	FP-1	13/05/2016	04:10:51	Leisler's bat	FP-1	14/05/2016	00:29:36	Leisler's bat	FP-1	14/05/2016	22:22:49	Common pipistrelle
FP-1	12/05/2016	04:35:37	Leisler's bat	FP-1	13/05/2016	04:11:02	Leisler's bat	FP-1	14/05/2016	00:30:05	Leisler's bat	FP-1	14/05/2016	22:23:23	Common pipistrelle
FP-1	12/05/2016	04:36:03	Leisler's bat	FP-1	13/05/2016	04:11:26	Leisler's bat	FP-1	14/05/2016	00:30:36	Leisler's bat	FP-1	14/05/2016	22:24:40	Common pipistrelle
FP-1	12/05/2016	04:36:20	Leisler's bat	FP-1	13/05/2016	04:19:13	Pipistrelle sp.	FP-1	14/05/2016	00:30:55	Leisler's bat	FP-1	14/05/2016	22:24:59	Common pipistrelle
FP-1	12/05/2016	04:46:01	Leisler's bat	FP-1	13/05/2016	04:19:58	Leisler's bat	FP-1	14/05/2016	00:31:15	Leisler's bat	FP-1	14/05/2016	22:28:06	Common pipistrelle
FP-1	12/05/2016	04:53:25	Leisler's bat	FP-1	13/05/2016	04:21:52	Common pipistrell	FP-1	14/05/2016	00:31:34	Leisler's bat	FP-1	14/05/2016	22:28:36	Common pipistrelle
FP-1	12/05/2016	21:59:43	Leisler's bat	FP-1	13/05/2016	21:44:30	Leisler's bat	FP-1	14/05/2016	00:31:43	Leisler's bat	FP-1	14/05/2016	22:30:04	Common pipistrelle
FP-1	12/05/2016	22:16:09	Common pipistrell	FP-1	13/05/2016	21:45:36	Leisler's bat	FP-1	14/05/2016	00:32:02	Leisler's bat	FP-1	14/05/2016	22:35:33	Common pipistrelle
FP-1	12/05/2016	22:20:44	Common pipistrell	FP-1	13/05/2016	21:45:50	Leisler's bat	FP-1	14/05/2016	00:32:20	Leisler's bat	FP-1	14/05/2016	22:36:39	Common pipistrelle
FP-1	12/05/2016	22:34:59	Soprano pipistrelle	FP-1	13/05/2016	21:52:45	Leisler's bat	FP-1	14/05/2016	00:32:48	Leisler's bat	FP-1	14/05/2016	22:38:31	Common pipistrelle
FP-1	12/05/2016	22:44:21	Leisler's bat	FP-1	13/05/2016	22:14:08	Leisler's bat	FP-1	14/05/2016	00:42:44	Leisler's bat	FP-1	14/05/2016	22:48:30	Common pipistrelle
FP-1	12/05/2016	22:44:55	Common pipistrell	FP-1	13/05/2016	22:15:51	Leisler's bat	FP-1	14/05/2016	00:43:01	Leisler's bat	FP-1	14/05/2016	22:51:43	Soprano pipistrelle
FP-1	12/05/2016	22:46:10	Common pipistrell	FP-1	13/05/2016	22:19:14	Leisler's bat	FP-1	14/05/2016	00:43:19	Leisler's bat	FP-1	14/05/2016	22:56:33	Soprano pipistrelle
FP-1	12/05/2016	22:47:10	Common pipistrell	FP-1	13/05/2016	22:19:26	Leisler's bat	FP-1	14/05/2016	00:43:41	Leisler's bat	FP-1	14/05/2016	22:57:42	Soprano pipistrelle
FP-1	12/05/2016	23:09:47	Pipistrelle sp.	FP-1	13/05/2016	22:23:34	Leisler's bat	FP-1	14/05/2016	00:44:10	Leisler's bat	FP-1	14/05/2016	23:11:19	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-1	14/05/2016	23:11:47	Common pipistrell	FP-2	28/05/2016	04:37:05	Leisler's bat	FP-2	29/05/2016	04:35:12	Leisler's bat	FP-2	30/05/2016	02:30:27	Common pipistrelle
FP-1	14/05/2016	23:13:23	Common pipistrell	FP-2	28/05/2016	22:00:00	Leisler's bat	FP-2	29/05/2016	04:37:05	Leisler's bat	FP-2	30/05/2016	02:30:55	Common pipistrelle
FP-1	14/05/2016	23:13:45	Common pipistrell	FP-2	28/05/2016	22:13:25	Soprano pipistrelle	FP-2	29/05/2016	04:37:28	Leisler's bat	FP-2	30/05/2016	02:30:55	Leisler's bat
FP-1	14/05/2016	23:13:52	Common pipistrell	FP-2	28/05/2016	22:15:09	Leisler's bat	FP-2	29/05/2016	04:39:36	Leisler's bat	FP-2	30/05/2016	02:31:18	Common pipistrelle
FP-1	14/05/2016	23:32:51	Pipistrelle sp.	FP-2	28/05/2016	22:25:55	Leisler's bat	FP-2	29/05/2016	04:41:12	Leisler's bat	FP-2	30/05/2016	02:32:51	Common pipistrelle
FP-1	15/05/2016	00:04:49	Soprano pipistrelle	FP-2	28/05/2016	22:27:01	Leisler's bat	FP-2	29/05/2016	22:26:28	Soprano pipistrelle	FP-2	30/05/2016	02:33:17	Common pipistrelle
FP-1	15/05/2016	00:10:22	Soprano pipistrelle	FP-2	28/05/2016	22:27:13	Leisler's bat	FP-2	29/05/2016	22:27:24	Pipistrelle sp.	FP-2	30/05/2016	02:40:44	Common pipistrelle
FP-1	15/05/2016	00:13:57	Pipistrelle sp.	FP-2	28/05/2016	22:47:15	Pipistrelle sp.	FP-2	29/05/2016	22:28:52	Soprano pipistrelle	FP-2	30/05/2016	02:46:52	Common pipistrelle
FP-1	15/05/2016	00:57:49	Common pipistrell	FP-2	28/05/2016	22:59:06	Common pipistrell	FP-2	29/05/2016	22:40:23	Soprano pipistrelle	FP-2	30/05/2016	02:49:41	Common pipistrelle
FP-1	15/05/2016	00:57:49	Soprano pipistrelle	FP-2	28/05/2016	23:15:35	Pipistrelle sp.	FP-2	29/05/2016	22:43:28	Pipistrelle sp.	FP-2	30/05/2016	02:50:23	Common pipistrelle
FP-1	15/05/2016	01:05:27	Myotis sp.	FP-2	28/05/2016	23:30:12	Leisler's bat	FP-2	29/05/2016	23:16:58	Common pipistrell	FP-2	30/05/2016	02:51:33	Common pipistrelle
FP-1	15/05/2016	01:15:40	Common pipistrell	FP-2	28/05/2016	23:30:32	Leisler's bat	FP-2	29/05/2016	23:39:20	Pipistrelle sp.	FP-2	30/05/2016	02:52:03	Common pipistrelle
FP-1	15/05/2016	01:17:03	Soprano pipistrelle	FP-2	28/05/2016	23:48:02	Pipistrelle sp.	FP-2	29/05/2016	23:39:33	Leisler's bat	FP-2	30/05/2016	02:52:19	Pipistrelle sp.
FP-2	27/05/2016	22:19:07	Leisler's bat	FP-2	28/05/2016	23:51:24	Leisler's bat	FP-2	29/05/2016	23:43:54	Soprano pipistrelle	FP-2	30/05/2016	02:52:57	Pipistrelle sp.
FP-2	27/05/2016	22:21:56	Common pipistrell	FP-2	28/05/2016	23:51:58	Common pipistrell	FP-2	29/05/2016	23:51:49	Common pipistrell	FP-2	30/05/2016	02:53:31	Pipistrelle sp.
FP-2	27/05/2016	22:26:23	Leisler's bat	FP-2	29/05/2016	00:09:11	Soprano pipistrelle	FP-2	30/05/2016	00:05:03	Common pipistrell	FP-2	30/05/2016	02:54:03	Common pipistrelle
FP-2	27/05/2016	22:40:03	Common pipistrell	FP-2	29/05/2016	00:35:08	Leisler's bat	FP-2	30/05/2016	00:25:11	Leisler's bat	FP-2	30/05/2016	02:54:18	Common pipistrelle
FP-2	27/05/2016	22:44:32	Soprano pipistrelle	FP-2	29/05/2016	00:43:10	Common pipistrell	FP-2	30/05/2016	00:29:11	Soprano pipistrelle	FP-2	30/05/2016	02:54:51	Common pipistrelle
FP-2	27/05/2016	22:55:32	Soprano pipistrelle	FP-2	29/05/2016	00:43:21	Common pipistrell	FP-2	30/05/2016	00:44:07	Leisler's bat	FP-2	30/05/2016	02:54:58	Common pipistrelle
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FP-2	27/05/2016	23:03:35	Pipistrelle sp.	FP-2	29/05/2016	01:01:59	Pipistrelle sp.	FP-2	30/05/2016	01:23:49	Common pipistrell	FP-2	30/05/2016	02:55:25	Common pipistrelle
FP-2	27/05/2016	23:05:54	Pipistrelle sp.	FP-2	29/05/2016	01:03:35	Pipistrelle sp.	FP-2	30/05/2016	01:27:43	Common pipistrell	FP-2	30/05/2016	02:56:39	Pipistrelle sp.
FP-2	27/05/2016	23:29:31	Common pipistrell	FP-2	29/05/2016	01:04:48	Common pipistrell	FP-2	30/05/2016	01:28:52	Common pipistrell	FP-2	30/05/2016	02:57:50	Pipistrelle sp.
FP-2	28/05/2016	00:01:00	Common pipistrell	FP-2	29/05/2016	01:18:09	Common pipistrell	FP-2	30/05/2016	02:09:06	Common pipistrell	FP-2	30/05/2016	02:58:06	Common pipistrelle
FP-2	28/05/2016	00:12:29	Common pipistrell	FP-2	29/05/2016	01:38:54	Leisler's bat	FP-2	30/05/2016	02:10:46	Leisler's bat	FP-2	30/05/2016	02:59:32	Common pipistrelle
FP-2	28/05/2016	00:30:37	Leisler's bat	FP-2	29/05/2016	01:47:10	Common pipistrell	FP-2	30/05/2016	02:11:56	Common pipistrell	FP-2	30/05/2016	03:00:01	Common pipistrelle
FP-2	28/05/2016	00:49:29	Pipistrelle sp.	FP-2	29/05/2016	01:51:24	Common pipistrell	FP-2	30/05/2016	02:16:44	Pipistrelle sp.	FP-2	30/05/2016	03:00:24	Soprano pipistrelle
FP-2	28/05/2016	00:51:44	Leisler's bat	FP-2	29/05/2016	01:54:35	Common pipistrell	FP-2	30/05/2016	02:17:17	Common pipistrell	FP-2	30/05/2016	03:01:30	Common pipistrelle
FP-2	28/05/2016	01:05:05	Leisler's bat	FP-2	29/05/2016	02:11:36	Leisler's bat	FP-2	30/05/2016	02:17:43	Common pipistrell	FP-2	30/05/2016	03:01:55	Common pipistrelle
FP-2	28/05/2016	01:09:34	Leisler's bat	FP-2	29/05/2016	02:21:51	Leisler's bat	FP-2	30/05/2016	02:18:56	Common pipistrell	FP-2	30/05/2016	03:06:57	Common pipistrelle
FP-2	28/05/2016	01:33:40	Common pipistrell	FP-2	29/05/2016	02:43:52	Common pipistrell	FP-2	30/05/2016	02:19:17	Pipistrelle sp.	FP-2	30/05/2016	03:09:01	Common pipistrelle
FP-2	28/05/2016	01:33:40	Leisler's bat	FP-2	29/05/2016	02:59:18	Pipistrelle sp.	FP-2	30/05/2016	02:19:41	Leisler's bat	FP-2	30/05/2016	03:11:09	Leisler's bat
FP-2	28/05/2016	01:55:53	Common pipistrell	FP-2	29/05/2016	03:27:57	Myotis sp.	FP-2	30/05/2016	02:20:00	Leisler's bat	FP-2	30/05/2016	03:11:25	Common pipistrelle
FP-2	28/05/2016	02:15:08	Common pipistrell	FP-2	29/05/2016	03:38:16	Common pipistrell	FP-2	30/05/2016	02:21:52	Common pipistrell	FP-2	30/05/2016	03:12:14	Common pipistrelle
FP-2	28/05/2016	02:15:25	Soprano pipistrelle	FP-2	29/05/2016	03:52:07	Common pipistrell	FP-2	30/05/2016	02:22:04	Leisler's bat	FP-2	30/05/2016	03:12:32	Common pipistrelle
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FP-2	28/05/2016	02:18:04	Pipistrelle sp.	FP-2	29/05/2016	04:14:56	Soprano pipistrelle	FP-2	30/05/2016	02:23:02	Common pipistrell	FP-2	30/05/2016	03:14:47	Common pipistrelle
FP-2	28/05/2016	02:41:56	Common pipistrell	FP-2	29/05/2016	04:22:07	Common pipistrell	FP-2	30/05/2016	02:23:58	Common pipistrell	FP-2	30/05/2016	03:15:28	Common pipistrelle
FP-2	28/05/2016	02:55:20	Soprano pipistrelle	FP-2	29/05/2016	04:24:22	Leisler's bat	FP-2	30/05/2016	02:24:45	Common pipistrell	FP-2	30/05/2016	03:19:31	Common pipistrelle
FP-2	28/05/2016	03:08:40	Leisler's bat	FP-2	29/05/2016	04:24:37	Leisler's bat	FP-2	30/05/2016	02:25:14	Common pipistrell	FP-2	30/05/2016	03:26:39	Common pipistrelle
FP-2	28/05/2016	03:28:23	Common pipistrell	FP-2	29/05/2016	04:31:31	Leisler's bat	FP-2	30/05/2016	02:25:29	Common pipistrell	FP-2	30/05/2016	03:34:16	Common pipistrelle
FP-2	28/05/2016	03:41:30	Soprano pipistrelle	FP-2	29/05/2016	04:32:06	Leisler's bat	FP-2	30/05/2016	02:25:40	Myotis sp.	FP-2	30/05/2016	03:57:19	Common pipistrelle
FP-2	28/05/2016	04:28:54	Common pipistrell	FP-2	29/05/2016	04:34:43	Leisler's bat	FP-2	30/05/2016	02:26:35	Common pipistrell	FP-2	30/05/2016	04:04:07	Common pipistrelle
FP-2	28/05/2016	04:36:16	Leisler's bat	FP-2	29/05/2016	04:34:55	Leisler's bat	FP-2	30/05/2016	02:29:23	Common pipistrell	FP-2	30/05/2016	04:07:43	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	30/05/2016	04:08:26	Leisler's bat	FP-2	31/05/2016	00:48:37	Common pipistrell	FP-2	31/05/2016	01:16:26	Pipistrelle sp.	FP-2	31/05/2016	01:33:58	Common pipistrelle
FP-2	30/05/2016	04:13:15	Common pipistrell	FP-2	31/05/2016	00:49:26	Common pipistrell	FP-2	31/05/2016	01:16:33	Leisler's bat	FP-2	31/05/2016	01:34:32	Common pipistrelle
FP-2	30/05/2016	04:13:23	Soprano pipistrelle	FP-2	31/05/2016	00:49:36	Common pipistrell	FP-2	31/05/2016	01:16:52	Pipistrelle sp.	FP-2	31/05/2016	01:34:54	Common pipistrelle
FP-2	30/05/2016	04:15:31	Soprano pipistrelle	FP-2	31/05/2016	00:50:07	Common pipistrell	FP-2	31/05/2016	01:17:47	Common pipistrell	FP-2	31/05/2016	01:35:03	Common pipistrelle
FP-2	30/05/2016	04:15:51	Common pipistrell	FP-2	31/05/2016	00:50:27	Common pipistrell	FP-2	31/05/2016	01:17:47	Leisler's bat	FP-2	31/05/2016	01:35:22	Common pipistrelle
FP-2	30/05/2016	04:19:53	Leisler's bat	FP-2	31/05/2016	00:50:46	Common pipistrell	FP-2	31/05/2016	01:17:57	Common pipistrell	FP-2	31/05/2016	01:35:44	Common pipistrelle
FP-2	30/05/2016	04:22:08	Leisler's bat	FP-2	31/05/2016	00:51:41	Soprano pipistrelle	FP-2	31/05/2016	01:17:57	Leisler's bat	FP-2	31/05/2016	01:35:56	Common pipistrelle
FP-2	30/05/2016	04:23:27	Leisler's bat	FP-2	31/05/2016	00:52:12	Common pipistrell	FP-2	31/05/2016	01:18:15	Leisler's bat	FP-2	31/05/2016	01:36:06	Common pipistrelle
FP-2	30/05/2016	04:26:52	Leisler's bat	FP-2	31/05/2016	00:52:21	Common pipistrell	FP-2	31/05/2016	01:18:39	Common pipistrell	FP-2	31/05/2016	01:36:22	Common pipistrelle
FP-2	30/05/2016	04:28:06	Leisler's bat	FP-2	31/05/2016	00:52:30	Common pipistrell	FP-2	31/05/2016	01:18:54	Common pipistrell	FP-2	31/05/2016	01:36:50	Leisler's bat
FP-2	30/05/2016	22:42:58	Pipistrelle sp.	FP-2	31/05/2016	00:53:21	Common pipistrell	FP-2	31/05/2016	01:19:28	Common pipistrell	FP-2	31/05/2016	01:37:02	Pipistrelle sp.
FP-2	30/05/2016	22:54:38	Common pipistrell	FP-2	31/05/2016	00:53:59	Common pipistrell	FP-2	31/05/2016	01:19:40	Common pipistrell	FP-2	31/05/2016	01:37:29	Common pipistrelle
FP-2	30/05/2016	22:58:55	Soprano pipistrelle	FP-2	31/05/2016	00:54:10	Common pipistrell	FP-2	31/05/2016	01:19:50	Common pipistrell	FP-2	31/05/2016	01:37:40	Common pipistrelle
FP-2	30/05/2016	23:08:18	Common pipistrell	FP-2	31/05/2016	00:54:24	Common pipistrell	FP-2	31/05/2016	01:20:08	Common pipistrell	FP-2	31/05/2016	01:37:40	Leisler's bat
FP-2	30/05/2016	23:14:19	Common pipistrell	FP-2	31/05/2016	00:54:36	Common pipistrell	FP-2	31/05/2016	01:20:23	Pipistrelle sp.	FP-2	31/05/2016	01:38:31	Leisler's bat
FP-2	30/05/2016	23:26:47	Common pipistrell	FP-2	31/05/2016	00:54:53	Common pipistrell	FP-2	31/05/2016	01:20:42	Common pipistrell	FP-2	31/05/2016	01:38:50	Pipistrelle sp.
FP-2	30/05/2016	23:32:21	Common pipistrell	FP-2	31/05/2016	00:58:06	Common pipistrell	FP-2	31/05/2016	01:21:59	Common pipistrell	FP-2	31/05/2016	01:39:35	Pipistrelle sp.
FP-2	30/05/2016	23:40:30	Leisler's bat	FP-2	31/05/2016	00:58:06	Leisler's bat	FP-2	31/05/2016	01:22:31	Common pipistrell	FP-2	31/05/2016	01:40:21	Common pipistrelle
FP-2	30/05/2016	23:54:55	Common pipistrell	FP-2	31/05/2016	00:58:17	Common pipistrell	FP-2	31/05/2016	01:22:45	Common pipistrell	FP-2	31/05/2016	01:40:31	Common pipistrelle
FP-2	31/05/2016	00:13:18	Pipistrelle sp.	FP-2	31/05/2016	00:58:17	Leisler's bat	FP-2	31/05/2016	01:22:55	Common pipistrell	FP-2	31/05/2016	01:41:03	Leisler's bat
FP-2	31/05/2016	00:17:29	Common pipistrell	FP-2	31/05/2016	00:59:47	Common pipistrell	FP-2	31/05/2016	01:23:14	Common pipistrell	FP-2	31/05/2016	01:46:24	Common pipistrelle
FP-2	31/05/2016	00:18:54	Leisler's bat	FP-2	31/05/2016	01:00:24	Common pipistrell	FP-2	31/05/2016	01:23:25	Common pipistrell	FP-2	31/05/2016	01:46:36	Common pipistrelle
FP-2	31/05/2016	00:26:32	Common pipistrell	FP-2	31/05/2016	01:00:33	Common pipistrell	FP-2	31/05/2016	01:23:33	Common pipistrell	FP-2	31/05/2016	01:46:52	Common pipistrelle
FP-2	31/05/2016	00:32:31	Pipistrelle sp.	FP-2	31/05/2016	01:02:33	Common pipistrell	FP-2	31/05/2016	01:23:42	Common pipistrell	FP-2	31/05/2016	01:47:12	Pipistrelle sp.
FP-2	31/05/2016	00:35:07	Common pipistrell	FP-2	31/05/2016	01:02:43	Common pipistrell	FP-2	31/05/2016	01:24:10	Common pipistrell	FP-2	31/05/2016	01:47:29	Common pipistrelle
FP-2	31/05/2016	00:36:01	Common pipistrell	FP-2	31/05/2016	01:04:03	Common pipistrell	FP-2	31/05/2016	01:24:27	Common pipistrell	FP-2	31/05/2016	01:47:41	Common pipistrelle
FP-2	31/05/2016	00:36:10	Common pipistrell	FP-2	31/05/2016	01:04:46	Common pipistrell	FP-2	31/05/2016	01:24:42	Common pipistrell	FP-2	31/05/2016	01:48:02	Common pipistrelle
FP-2	31/05/2016	00:36:44	Common pipistrell	FP-2	31/05/2016	01:05:45	Common pipistrell	FP-2	31/05/2016	01:26:14	Common pipistrell	FP-2	31/05/2016	01:48:10	Common pipistrelle
FP-2	31/05/2016	00:37:01	Common pipistrell	FP-2	31/05/2016	01:06:02	Common pipistrell	FP-2	31/05/2016	01:26:27	Common pipistrell	FP-2	31/05/2016	01:48:18	Common pipistrelle
FP-2	31/05/2016	00:37:13	Common pipistrell	FP-2	31/05/2016	01:06:08	Common pipistrell	FP-2	31/05/2016	01:27:00	Common pipistrell	FP-2	31/05/2016	01:48:26	Common pipistrelle
FP-2	31/05/2016	00:37:49	Common pipistrell	FP-2	31/05/2016	01:06:29	Common pipistrell	FP-2	31/05/2016	01:27:08	Common pipistrell	FP-2	31/05/2016	01:48:50	Common pipistrelle
FP-2	31/05/2016	00:38:15	Common pipistrell	FP-2	31/05/2016	01:06:43	Common pipistrell	FP-2	31/05/2016	01:28:00	Pipistrelle sp.	FP-2	31/05/2016	01:49:20	Pipistrelle sp.
FP-2	31/05/2016	00:39:43	Common pipistrell	FP-2	31/05/2016	01:06:43	Leisler's bat	FP-2	31/05/2016	01:28:45	Common pipistrell	FP-2	31/05/2016	01:49:44	Common pipistrelle
FP-2	31/05/2016	00:42:09	Common pipistrell	FP-2	31/05/2016	01:08:33	Common pipistrell	FP-2	31/05/2016	01:29:05	Common pipistrell	FP-2	31/05/2016	01:49:58	Common pipistrelle
FP-2	31/05/2016	00:42:35	Common pipistrell	FP-2	31/05/2016	01:10:21	Common pipistrell	FP-2	31/05/2016	01:30:05	Pipistrelle sp.	FP-2	31/05/2016	01:50:11	Common pipistrelle
FP-2	31/05/2016	00:43:17	Common pipistrell	FP-2	31/05/2016	01:10:30	Common pipistrell	FP-2	31/05/2016	01:30:34	Common pipistrell	FP-2	31/05/2016	01:50:26	Common pipistrelle
FP-2	31/05/2016	00:44:13	Common pipistrell	FP-2	31/05/2016	01:10:40	Common pipistrell	FP-2	31/05/2016	01:31:12	Common pipistrell	FP-2	31/05/2016	01:50:49	Common pipistrelle
FP-2	31/05/2016	00:44:31	Common pipistrell	FP-2	31/05/2016	01:12:57	Common pipistrell	FP-2	31/05/2016	01:31:19	Common pipistrell	FP-2	31/05/2016	01:50:59	Common pipistrelle
FP-2	31/05/2016	00:45:16	Common pipistrell	FP-2	31/05/2016	01:14:06	Common pipistrell	FP-2	31/05/2016	01:31:33	Common pipistrell	FP-2	31/05/2016	01:51:15	Common pipistrelle
FP-2	31/05/2016	00:45:38	Common pipistrell	FP-2	31/05/2016	01:14:22	Common pipistrell	FP-2	31/05/2016	01:31:41	Common pipistrell	FP-2	31/05/2016	01:51:27	Common pipistrelle
FP-2	31/05/2016	00:45:48	Common pipistrell	FP-2	31/05/2016	01:14:28	Pipistrelle sp.	FP-2	31/05/2016	01:32:41	Common pipistrell	FP-2	31/05/2016	01:51:34	Common pipistrelle
FP-2	31/05/2016	00:46:09	Common pipistrell	FP-2	31/05/2016	01:14:40	Common pipistrell	FP-2	31/05/2016	01:32:52	Common pipistrell	FP-2	31/05/2016	01:51:44	Common pipistrelle
FP-2	31/05/2016	00:47:56	Common pipistrell	FP-2	31/05/2016	01:15:08	Common pipistrell	FP-2	31/05/2016	01:33:07	Common pipistrell	FP-2	31/05/2016	01:52:02	Common pipistrelle
FP-2	31/05/2016	00:48:14	Common pipistrell	FP-2	31/05/2016	01:15:57	Common pipistrell	FP-2	31/05/2016	01:33:26	Common pipistrell	FP-2	31/05/2016	01:52:22	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	31/05/2016	01:52:47	Common pipistrell	FP-2	31/05/2016	02:11:10	Common pipistrell	FP-2	31/05/2016	02:34:46	Pipistrelle sp.	FP-2	31/05/2016	03:05:42	Pipistrelle sp.
FP-2	31/05/2016	01:53:00	Common pipistrell	FP-2	31/05/2016	02:11:25	Common pipistrell	FP-2	31/05/2016	02:34:53	Pipistrelle sp.	FP-2	31/05/2016	03:06:18	Common pipistrelle
FP-2	31/05/2016	01:54:45	Common pipistrell	FP-2	31/05/2016	02:11:34	Common pipistrell	FP-2	31/05/2016	02:35:15	Pipistrelle sp.	FP-2	31/05/2016	03:09:12	Pipistrelle sp.
FP-2	31/05/2016	01:54:55	Common pipistrell	FP-2	31/05/2016	02:12:23	Common pipistrell	FP-2	31/05/2016	02:35:58	Pipistrelle sp.	FP-2	31/05/2016	03:11:52	Common pipistrelle
FP-2	31/05/2016	01:55:20	Common pipistrell	FP-2	31/05/2016	02:12:50	Common pipistrell	FP-2	31/05/2016	02:37:31	Leisler's bat	FP-2	31/05/2016	03:12:41	Common pipistrelle
FP-2	31/05/2016	01:55:47	Common pipistrell	FP-2	31/05/2016	02:13:11	Common pipistrell	FP-2	31/05/2016	02:37:45	Common pipistrell	FP-2	31/05/2016	03:15:38	Pipistrelle sp.
FP-2	31/05/2016	01:56:00	Common pipistrell	FP-2	31/05/2016	02:13:20	Common pipistrell	FP-2	31/05/2016	02:38:09	Pipistrelle sp.	FP-2	31/05/2016	03:16:06	Common pipistrelle
FP-2	31/05/2016	01:56:44	Common pipistrell	FP-2	31/05/2016	02:13:32	Common pipistrell	FP-2	31/05/2016	02:38:32	Pipistrelle sp.	FP-2	31/05/2016	03:16:15	Common pipistrelle
FP-2	31/05/2016	01:56:59	Common pipistrell	FP-2	31/05/2016	02:13:53	Common pipistrell	FP-2	31/05/2016	02:38:57	Pipistrelle sp.	FP-2	31/05/2016	03:16:47	Pipistrelle sp.
FP-2	31/05/2016	01:57:11	Common pipistrell	FP-2	31/05/2016	02:14:09	Common pipistrell	FP-2	31/05/2016	02:39:13	Pipistrelle sp.	FP-2	31/05/2016	03:17:31	Common pipistrelle
FP-2	31/05/2016	01:57:25	Common pipistrell	FP-2	31/05/2016	02:14:30	Common pipistrell	FP-2	31/05/2016	02:39:34	Pipistrelle sp.	FP-2	31/05/2016	03:19:54	Common pipistrelle
FP-2	31/05/2016	01:57:37	Common pipistrell	FP-2	31/05/2016	02:14:49	Pipistrelle sp.	FP-2	31/05/2016	02:40:00	Pipistrelle sp.	FP-2	31/05/2016	03:25:53	Soprano pipistrelle
FP-2	31/05/2016	01:58:28	Common pipistrell	FP-2	31/05/2016	02:15:03	Pipistrelle sp.	FP-2	31/05/2016	02:40:24	Pipistrelle sp.	FP-2	31/05/2016	03:30:51	Common pipistrelle
FP-2	31/05/2016	01:58:52	Common pipistrell	FP-2	31/05/2016	02:15:48	Pipistrelle sp.	FP-2	31/05/2016	02:40:43	Pipistrelle sp.	FP-2	31/05/2016	03:31:35	Common pipistrelle
FP-2	31/05/2016	01:59:09	Common pipistrell	FP-2	31/05/2016	02:16:24	Pipistrelle sp.	FP-2	31/05/2016	02:42:11	Pipistrelle sp.	FP-2	31/05/2016	03:37:05	Common pipistrelle
FP-2	31/05/2016	02:00:00	Common pipistrell	FP-2	31/05/2016	02:17:03	Pipistrelle sp.	FP-2	31/05/2016	02:42:54	Pipistrelle sp.	FP-2	31/05/2016	03:37:28	Common pipistrelle
FP-2	31/05/2016	02:01:14	Common pipistrell	FP-2	31/05/2016	02:18:34	Pipistrelle sp.	FP-2	31/05/2016	02:45:15	Pipistrelle sp.	FP-2	31/05/2016	03:50:37	Common pipistrelle
FP-2	31/05/2016	02:01:14	Leisler's bat	FP-2	31/05/2016	02:18:41	Pipistrelle sp.	FP-2	31/05/2016	02:47:11	Pipistrelle sp.	FP-2	31/05/2016	03:59:12	Leisler's bat
FP-2	31/05/2016	02:01:45	Pipistrelle sp.	FP-2	31/05/2016	02:18:57	Pipistrelle sp.	FP-2	31/05/2016	02:47:24	Pipistrelle sp.	FP-2	31/05/2016	22:36:46	Soprano pipistrelle
FP-2	31/05/2016	02:02:19	Common pipistrell	FP-2	31/05/2016	02:19:23	Pipistrelle sp.	FP-2	31/05/2016	02:47:34	Pipistrelle sp.	FP-2	31/05/2016	22:43:10	Common pipistrelle
FP-2	31/05/2016	02:02:52	Common pipistrell	FP-2	31/05/2016	02:22:08	Common pipistrell	FP-2	31/05/2016	02:47:45	Pipistrelle sp.	FP-2	31/05/2016	22:54:57	Soprano pipistrelle
FP-2	31/05/2016	02:03:08	Common pipistrell	FP-2	31/05/2016	02:22:18	Pipistrelle sp.	FP-2	31/05/2016	02:47:54	Pipistrelle sp.	FP-2	31/05/2016	22:55:14	Soprano pipistrelle
FP-2	31/05/2016	02:03:38	Common pipistrell	FP-2	31/05/2016	02:22:45	Pipistrelle sp.	FP-2	31/05/2016	02:49:31	Pipistrelle sp.	FP-2	31/05/2016	23:05:20	Common pipistrelle
FP-2	31/05/2016	02:03:59	Common pipistrell	FP-2	31/05/2016	02:22:57	Pipistrelle sp.	FP-2	31/05/2016	02:50:01	Pipistrelle sp.	FP-2	31/05/2016	23:08:08	Common pipistrelle
FP-2	31/05/2016	02:04:24	Common pipistrell	FP-2	31/05/2016	02:23:54	Pipistrelle sp.	FP-2	31/05/2016	02:50:11	Pipistrelle sp.	FP-2	31/05/2016	23:08:57	Leisler's bat
FP-2	31/05/2016	02:05:13	Common pipistrell	FP-2	31/05/2016	02:24:06	Pipistrelle sp.	FP-2	31/05/2016	02:50:47	Pipistrelle sp.	FP-2	31/05/2016	23:11:28	Common pipistrelle
FP-2	31/05/2016	02:05:23	Pipistrelle sp.	FP-2	31/05/2016	02:24:14	Pipistrelle sp.	FP-2	31/05/2016	02:51:10	Pipistrelle sp.	FP-2	31/05/2016	23:15:46	Common pipistrelle
FP-2	31/05/2016	02:05:30	Pipistrelle sp.	FP-2	31/05/2016	02:24:24	Soprano pipistrelle	FP-2	31/05/2016	02:51:20	Pipistrelle sp.	FP-2	31/05/2016	23:16:25	Common pipistrelle
FP-2	31/05/2016	02:05:46	Pipistrelle sp.	FP-2	31/05/2016	02:24:57	Soprano pipistrelle	FP-2	31/05/2016	02:52:51	Pipistrelle sp.	FP-2	31/05/2016	23:18:32	Common pipistrelle
FP-2	31/05/2016	02:06:26	Common pipistrell	FP-2	31/05/2016	02:25:23	Common pipistrell	FP-2	31/05/2016	02:53:21	Pipistrelle sp.	FP-2	31/05/2016	23:57:29	Common pipistrelle
FP-2	31/05/2016	02:06:45	Common pipistrell	FP-2	31/05/2016	02:25:54	Common pipistrell	FP-2	31/05/2016	02:53:49	Pipistrelle sp.	FP-2	31/05/2016	23:57:41	Common pipistrelle
FP-2	31/05/2016	02:06:57	Pipistrelle sp.	FP-2	31/05/2016	02:26:16	Common pipistrell	FP-2	31/05/2016	02:54:00	Pipistrelle sp.	FP-2	31/05/2016	23:58:06	Common pipistrelle
FP-2	31/05/2016	02:07:25	Common pipistrell	FP-2	31/05/2016	02:26:32	Pipistrelle sp.	FP-2	31/05/2016	02:54:09	Pipistrelle sp.	FP-2	31/05/2016	23:58:15	Common pipistrelle
FP-2	31/05/2016	02:07:34	Common pipistrell	FP-2	31/05/2016	02:26:42	Pipistrelle sp.	FP-2	31/05/2016	02:54:39	Pipistrelle sp.	FP-2	31/05/2016	23:58:34	Common pipistrelle
FP-2	31/05/2016	02:07:47	Common pipistrell	FP-2	31/05/2016	02:27:04	Pipistrelle sp.	FP-2	31/05/2016	02:55:17	Pipistrelle sp.	FP-2	31/05/2016	23:59:47	Common pipistrelle
FP-2	31/05/2016	02:08:02	Common pipistrell	FP-2	31/05/2016	02:27:23	Pipistrelle sp.	FP-2	31/05/2016	02:55:52	Pipistrelle sp.	FP-2	01/06/2016	00:00:35	Common pipistrelle
FP-2	31/05/2016	02:08:16	Common pipistrell	FP-2	31/05/2016	02:27:43	Pipistrelle sp.	FP-2	31/05/2016	02:56:42	Pipistrelle sp.	FP-2	01/06/2016	00:00:51	Common pipistrelle
FP-2	31/05/2016	02:08:23	Common pipistrell	FP-2	31/05/2016	02:28:09	Pipistrelle sp.	FP-2	31/05/2016	02:57:31	Common pipistrell	FP-2	01/06/2016	00:01:14	Common pipistrelle
FP-2	31/05/2016	02:08:47	Common pipistrell	FP-2	31/05/2016	02:28:32	Common pipistrell	FP-2	31/05/2016	02:58:02	Pipistrelle sp.	FP-2	01/06/2016	00:01:58	Common pipistrelle
FP-2	31/05/2016	02:09:03	Common pipistrell	FP-2	31/05/2016	02:28:52	Common pipistrell	FP-2	31/05/2016	02:58:51	Pipistrelle sp.	FP-2	01/06/2016	00:02:12	Common pipistrelle
FP-2	31/05/2016	02:09:42	Common pipistrell	FP-2	31/05/2016	02:31:45	Common pipistrell	FP-2	31/05/2016	02:59:16	Pipistrelle sp.	FP-2	01/06/2016	00:02:55	Common pipistrelle
FP-2	31/05/2016	02:10:21	Common pipistrell	FP-2	31/05/2016	02:32:20	Pipistrelle sp.	FP-2	31/05/2016	02:59:40	Pipistrelle sp.	FP-2	01/06/2016	00:03:52	Common pipistrelle
FP-2	31/05/2016	02:10:28	Common pipistrell	FP-2	31/05/2016	02:34:14	Common pipistrell	FP-2	31/05/2016	03:00:54	Pipistrelle sp.	FP-2	01/06/2016	00:07:28	Common pipistrelle
FP-2	31/05/2016	02:10:38	Common pipistrell	FP-2	31/05/2016	02:34:39	Common pipistrell	FP-2	31/05/2016	03:05:35	Pipistrelle sp.	FP-2	01/06/2016	00:09:29	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	01/06/2016	00:11:40	Common pipistrell	FP-2	01/06/2016	03:17:25	Common pipistrell	FP-2	01/06/2016	23:48:53	Soprano pipistrelle	FP-2	02/06/2016	00:46:35	Pipistrelle sp.
FP-2	01/06/2016	00:12:36	Common pipistrell	FP-2	01/06/2016	03:17:32	Common pipistrell	FP-2	01/06/2016	23:49:18	Common pipistrell	FP-2	02/06/2016	00:51:41	Pipistrelle sp.
FP-2	01/06/2016	00:14:00	Common pipistrell	FP-2	01/06/2016	03:26:22	Common pipistrell	FP-2	01/06/2016	23:49:36	Common pipistrell	FP-2	02/06/2016	00:56:02	Pipistrelle sp.
FP-2	01/06/2016	00:18:42	Common pipistrell	FP-2	01/06/2016	03:27:10	Common pipistrell	FP-2	01/06/2016	23:49:48	Pipistrelle sp.	FP-2	02/06/2016	00:56:13	Pipistrelle sp.
FP-2	01/06/2016	00:26:36	Pipistrelle sp.	FP-2	01/06/2016	03:28:35	Common pipistrell	FP-2	01/06/2016	23:50:16	Pipistrelle sp.	FP-2	02/06/2016	00:59:32	Leisler's bat
FP-2	01/06/2016	00:34:07	Common pipistrell	FP-2	01/06/2016	03:39:01	Common pipistrell	FP-2	01/06/2016	23:51:25	Pipistrelle sp.	FP-2	02/06/2016	01:01:05	Common pipistrelle
FP-2	01/06/2016	00:35:55	Pipistrelle sp.	FP-2	01/06/2016	22:18:26	Leisler's bat	FP-2	01/06/2016	23:51:49	Common pipistrell	FP-2	02/06/2016	01:01:36	Pipistrelle sp.
FP-2	01/06/2016	00:50:35	Pipistrelle sp.	FP-2	01/06/2016	22:18:44	Leisler's bat	FP-2	01/06/2016	23:52:19	Common pipistrell	FP-2	02/06/2016	01:02:23	Common pipistrelle
FP-2	01/06/2016	00:58:54	Common pipistrell	FP-2	01/06/2016	22:32:27	Leisler's bat	FP-2	01/06/2016	23:52:38	Common pipistrell	FP-2	02/06/2016	01:04:07	Pipistrelle sp.
FP-2	01/06/2016	01:02:55	Common pipistrell	FP-2	01/06/2016	22:35:32	Leisler's bat	FP-2	01/06/2016	23:54:32	Common pipistrell	FP-2	02/06/2016	01:04:19	Pipistrelle sp.
FP-2	01/06/2016	01:07:38	Common pipistrell	FP-2	01/06/2016	22:37:41	Leisler's bat	FP-2	01/06/2016	23:55:08	Pipistrelle sp.	FP-2	02/06/2016	01:04:42	Pipistrelle sp.
FP-2	01/06/2016	01:10:08	Common pipistrell	FP-2	01/06/2016	22:38:42	Leisler's bat	FP-2	01/06/2016	23:55:48	Pipistrelle sp.	FP-2	02/06/2016	01:05:16	Common pipistrelle
FP-2	01/06/2016	01:12:45	Common pipistrell	FP-2	01/06/2016	22:57:57	Common pipistrell	FP-2	01/06/2016	23:56:20	Pipistrelle sp.	FP-2	02/06/2016	01:05:28	Common pipistrelle
FP-2	01/06/2016	01:15:35	Common pipistrell	FP-2	01/06/2016	22:58:08	Pipistrelle sp.	FP-2	02/06/2016	00:01:18	Pipistrelle sp.	FP-2	02/06/2016	01:05:50	Common pipistrelle
FP-2	01/06/2016	01:26:56	Common pipistrell	FP-2	01/06/2016	22:58:26	Common pipistrell	FP-2	02/06/2016	00:05:33	Pipistrelle sp.	FP-2	02/06/2016	01:06:07	Common pipistrelle
FP-2	01/06/2016	01:29:48	Common pipistrell	FP-2	01/06/2016	23:03:02	Soprano pipistrelle	FP-2	02/06/2016	00:06:25	Pipistrelle sp.	FP-2	02/06/2016	01:06:30	Common pipistrelle
FP-2	01/06/2016	01:39:17	Common pipistrell	FP-2	01/06/2016	23:05:10	Common pipistrell	FP-2	02/06/2016	00:10:01	Pipistrelle sp.	FP-2	02/06/2016	01:07:11	Common pipistrelle
FP-2	01/06/2016	01:40:00	Pipistrelle sp.	FP-2	01/06/2016	23:05:30	Pipistrelle sp.	FP-2	02/06/2016	00:10:25	Leisler's bat	FP-2	02/06/2016	01:08:04	Common pipistrelle
FP-2	01/06/2016	01:41:23	Common pipistrell	FP-2	01/06/2016	23:16:15	Pipistrelle sp.	FP-2	02/06/2016	00:11:25	Pipistrelle sp.	FP-2	02/06/2016	01:08:26	Common pipistrelle
FP-2	01/06/2016	01:41:23	Myotis sp.	FP-2	01/06/2016	23:20:46	Common pipistrell	FP-2	02/06/2016	00:14:35	Pipistrelle sp.	FP-2	02/06/2016	01:11:45	Common pipistrelle
FP-2	01/06/2016	01:42:15	Common pipistrell	FP-2	01/06/2016	23:20:59	Pipistrelle sp.	FP-2	02/06/2016	00:16:32	Pipistrelle sp.	FP-2	02/06/2016	01:12:05	Common pipistrelle
FP-2	01/06/2016	01:42:41	Common pipistrell	FP-2	01/06/2016	23:21:15	Common pipistrell	FP-2	02/06/2016	00:17:40	Pipistrelle sp.	FP-2	02/06/2016	01:13:30	Common pipistrelle
FP-2	01/06/2016	01:43:09	Common pipistrell	FP-2	01/06/2016	23:25:07	Common pipistrell	FP-2	02/06/2016	00:17:48	Pipistrelle sp.	FP-2	02/06/2016	01:14:02	Common pipistrelle
FP-2	01/06/2016	01:43:49	Common pipistrell	FP-2	01/06/2016	23:25:17	Common pipistrell	FP-2	02/06/2016	00:23:09	Pipistrelle sp.	FP-2	02/06/2016	01:14:11	Common pipistrelle
FP-2	01/06/2016	01:44:29	Common pipistrell	FP-2	01/06/2016	23:25:35	Pipistrelle sp.	FP-2	02/06/2016	00:24:36	Pipistrelle sp.	FP-2	02/06/2016	01:14:51	Pipistrelle sp.
FP-2	01/06/2016	01:44:36	Common pipistrell	FP-2	01/06/2016	23:31:50	Common pipistrell	FP-2	02/06/2016	00:28:32	Pipistrelle sp.	FP-2	02/06/2016	01:15:28	Common pipistrelle
FP-2	01/06/2016	01:45:19	Common pipistrell	FP-2	01/06/2016	23:32:51	Soprano pipistrelle	FP-2	02/06/2016	00:28:52	Pipistrelle sp.	FP-2	02/06/2016	01:17:30	Pipistrelle sp.
FP-2	01/06/2016	01:45:39	Pipistrelle sp.	FP-2	01/06/2016	23:37:53	Common pipistrell	FP-2	02/06/2016	00:29:40	Pipistrelle sp.	FP-2	02/06/2016	01:27:13	Common pipistrelle
FP-2	01/06/2016	01:45:46	Common pipistrell	FP-2	01/06/2016	23:38:15	Soprano pipistrelle	FP-2	02/06/2016	00:29:48	Pipistrelle sp.	FP-2	02/06/2016	01:27:34	Pipistrelle sp.
FP-2	01/06/2016	01:46:32	Common pipistrell	FP-2	01/06/2016	23:39:02	Common pipistrell	FP-2	02/06/2016	00:29:58	Pipistrelle sp.	FP-2	02/06/2016	01:28:08	Pipistrelle sp.
FP-2	01/06/2016	01:47:36	Common pipistrell	FP-2	01/06/2016	23:40:10	Common pipistrell	FP-2	02/06/2016	00:30:10	Pipistrelle sp.	FP-2	02/06/2016	01:28:38	Common pipistrelle
FP-2	01/06/2016	01:48:02	Common pipistrell	FP-2	01/06/2016	23:40:37	Common pipistrell	FP-2	02/06/2016	00:32:02	Pipistrelle sp.	FP-2	02/06/2016	01:29:36	Pipistrelle sp.
FP-2	01/06/2016	01:48:20	Common pipistrell	FP-2	01/06/2016	23:40:59	Common pipistrell	FP-2	02/06/2016	00:32:13	Pipistrelle sp.	FP-2	02/06/2016	01:29:58	Common pipistrelle
FP-2	01/06/2016	01:48:41	Common pipistrell	FP-2	01/06/2016	23:41:27	Common pipistrell	FP-2	02/06/2016	00:41:48	Common pipistrell	FP-2	02/06/2016	01:30:10	Common pipistrelle
FP-2	01/06/2016	01:49:23	Common pipistrell	FP-2	01/06/2016	23:42:50	Common pipistrell	FP-2	02/06/2016	00:42:18	Common pipistrell	FP-2	02/06/2016	01:30:26	Common pipistrelle
FP-2	01/06/2016	01:49:37	Common pipistrell	FP-2	01/06/2016	23:43:07	Pipistrelle sp.	FP-2	02/06/2016	00:42:49	Common pipistrell	FP-2	02/06/2016	01:30:39	Pipistrelle sp.
FP-2	01/06/2016	01:51:13	Common pipistrell	FP-2	01/06/2016	23:44:50	Common pipistrell	FP-2	02/06/2016	00:43:19	Pipistrelle sp.	FP-2	02/06/2016	01:30:49	Common pipistrelle
FP-2	01/06/2016	01:51:32	Common pipistrell	FP-2	01/06/2016	23:45:00	Common pipistrell	FP-2	02/06/2016	00:43:29	Common pipistrell	FP-2	02/06/2016	01:31:07	Common pipistrelle
FP-2	01/06/2016	01:57:35	Common pipistrell	FP-2	01/06/2016	23:45:14	Common pipistrell	FP-2	02/06/2016	00:43:29	Leisler's bat	FP-2	02/06/2016	01:31:22	Common pipistrelle
FP-2	01/06/2016	01:58:18	Common pipistrell	FP-2	01/06/2016	23:45:22	Common pipistrell	FP-2	02/06/2016	00:44:34	Leisler's bat	FP-2	02/06/2016	01:31:30	Common pipistrelle
FP-2	01/06/2016	02:23:56	Leisler's bat	FP-2	01/06/2016	23:45:37	Common pipistrell	FP-2	02/06/2016	00:45:40	Common pipistrell	FP-2	02/06/2016	01:31:36	Common pipistrelle
FP-2	01/06/2016	02:24:08	Leisler's bat	FP-2	01/06/2016	23:45:56	Common pipistrell	FP-2	02/06/2016	00:45:47	Common pipistrell	FP-2	02/06/2016	01:31:54	Common pipistrelle
FP-2	01/06/2016	03:00:36	Leisler's bat	FP-2	01/06/2016	23:46:21	Pipistrelle sp.	FP-2	02/06/2016	00:46:06	Leisler's bat	FP-2	02/06/2016	01:32:26	Common pipistrelle
FP-2	01/06/2016	03:01:51	Common pipistrell	FP-2	01/06/2016	23:47:09	Common pipistrell	FP-2	02/06/2016	00:46:26	Common pipistrell	FP-2	02/06/2016	01:32:34	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	02/06/2016	01:32:45	Common pipistrell	FP-2	02/06/2016	01:48:51	Common pipistrell	FP-2	02/06/2016	02:08:51	Common pipistrell	FP-2	02/06/2016	02:22:17	Common pipistrelle
FP-2	02/06/2016	01:32:53	Pipistrelle sp.	FP-2	02/06/2016	01:50:25	Common pipistrell	FP-2	02/06/2016	02:08:58	Common pipistrell	FP-2	02/06/2016	02:22:28	Common pipistrelle
FP-2	02/06/2016	01:33:14	Common pipistrell	FP-2	02/06/2016	01:50:38	Common pipistrell	FP-2	02/06/2016	02:09:19	Common pipistrell	FP-2	02/06/2016	02:22:36	Common pipistrelle
FP-2	02/06/2016	01:33:27	Common pipistrell	FP-2	02/06/2016	01:51:26	Common pipistrell	FP-2	02/06/2016	02:09:39	Common pipistrell	FP-2	02/06/2016	02:22:46	Common pipistrelle
FP-2	02/06/2016	01:33:46	Common pipistrell	FP-2	02/06/2016	01:51:39	Common pipistrell	FP-2	02/06/2016	02:10:09	Common pipistrell	FP-2	02/06/2016	02:22:56	Common pipistrelle
FP-2	02/06/2016	01:33:59	Pipistrelle sp.	FP-2	02/06/2016	01:51:53	Common pipistrell	FP-2	02/06/2016	02:10:18	Common pipistrell	FP-2	02/06/2016	02:23:10	Common pipistrelle
FP-2	02/06/2016	01:34:08	Pipistrelle sp.	FP-2	02/06/2016	01:52:04	Common pipistrell	FP-2	02/06/2016	02:10:34	Common pipistrell	FP-2	02/06/2016	02:23:19	Common pipistrelle
FP-2	02/06/2016	01:34:38	Pipistrelle sp.	FP-2	02/06/2016	01:52:42	Common pipistrell	FP-2	02/06/2016	02:10:47	Common pipistrell	FP-2	02/06/2016	02:23:35	Common pipistrelle
FP-2	02/06/2016	01:34:48	Common pipistrell	FP-2	02/06/2016	01:52:57	Common pipistrell	FP-2	02/06/2016	02:10:59	Common pipistrell	FP-2	02/06/2016	02:23:45	Common pipistrelle
FP-2	02/06/2016	01:35:11	Common pipistrell	FP-2	02/06/2016	01:53:10	Common pipistrell	FP-2	02/06/2016	02:11:12	Common pipistrell	FP-2	02/06/2016	02:23:56	Common pipistrelle
FP-2	02/06/2016	01:35:18	Common pipistrell	FP-2	02/06/2016	01:53:20	Common pipistrell	FP-2	02/06/2016	02:11:30	Common pipistrell	FP-2	02/06/2016	02:24:40	Common pipistrelle
FP-2	02/06/2016	01:35:26	Common pipistrell	FP-2	02/06/2016	01:53:34	Common pipistrell	FP-2	02/06/2016	02:11:55	Common pipistrell	FP-2	02/06/2016	02:24:54	Pipistrelle sp.
FP-2	02/06/2016	01:35:38	Common pipistrell	FP-2	02/06/2016	01:54:07	Pipistrelle sp.	FP-2	02/06/2016	02:12:03	Common pipistrell	FP-2	02/06/2016	02:25:39	Leisler's bat
FP-2	02/06/2016	01:35:51	Common pipistrell	FP-2	02/06/2016	01:54:31	Common pipistrell	FP-2	02/06/2016	02:12:33	Pipistrelle sp.	FP-2	02/06/2016	02:25:39	Pipistrelle sp.
FP-2	02/06/2016	01:36:02	Common pipistrell	FP-2	02/06/2016	01:55:23	Pipistrelle sp.	FP-2	02/06/2016	02:13:07	Common pipistrell	FP-2	02/06/2016	02:25:47	Leisler's bat
FP-2	02/06/2016	01:36:12	Common pipistrell	FP-2	02/06/2016	01:55:40	Common pipistrell	FP-2	02/06/2016	02:13:18	Common pipistrell	FP-2	02/06/2016	02:26:10	Leisler's bat
FP-2	02/06/2016	01:36:12	Leisler's bat	FP-2	02/06/2016	01:55:50	Common pipistrell	FP-2	02/06/2016	02:14:12	Common pipistrell	FP-2	02/06/2016	02:26:25	Common pipistrelle
FP-2	02/06/2016	01:36:44	Pipistrelle sp.	FP-2	02/06/2016	01:56:01	Common pipistrell	FP-2	02/06/2016	02:14:38	Common pipistrell	FP-2	02/06/2016	02:26:40	Common pipistrelle
FP-2	02/06/2016	01:37:06	Common pipistrell	FP-2	02/06/2016	01:56:57	Pipistrelle sp.	FP-2	02/06/2016	02:14:49	Common pipistrell	FP-2	02/06/2016	02:26:40	Leisler's bat
FP-2	02/06/2016	01:38:01	Common pipistrell	FP-2	02/06/2016	01:57:06	Pipistrelle sp.	FP-2	02/06/2016	02:14:59	Common pipistrell	FP-2	02/06/2016	02:27:07	Leisler's bat
FP-2	02/06/2016	01:39:45	Common pipistrell	FP-2	02/06/2016	01:57:16	Pipistrelle sp.	FP-2	02/06/2016	02:15:41	Common pipistrell	FP-2	02/06/2016	02:27:07	Pipistrelle sp.
FP-2	02/06/2016	01:39:54	Common pipistrell	FP-2	02/06/2016	01:57:58	Pipistrelle sp.	FP-2	02/06/2016	02:15:59	Common pipistrell	FP-2	02/06/2016	02:27:19	Leisler's bat
FP-2	02/06/2016	01:40:19	Common pipistrell	FP-2	02/06/2016	01:58:10	Common pipistrell	FP-2	02/06/2016	02:16:20	Common pipistrell	FP-2	02/06/2016	02:27:48	Common pipistrelle
FP-2	02/06/2016	01:40:19	Leisler's bat	FP-2	02/06/2016	01:58:46	Common pipistrell	FP-2	02/06/2016	02:16:34	Common pipistrell	FP-2	02/06/2016	02:27:48	Leisler's bat
FP-2	02/06/2016	01:40:30	Common pipistrell	FP-2	02/06/2016	01:58:58	Pipistrelle sp.	FP-2	02/06/2016	02:16:42	Common pipistrell	FP-2	02/06/2016	02:28:29	Common pipistrelle
FP-2	02/06/2016	01:40:39	Common pipistrell	FP-2	02/06/2016	01:59:14	Common pipistrell	FP-2	02/06/2016	02:16:50	Common pipistrell	FP-2	02/06/2016	02:28:39	Leisler's bat
FP-2	02/06/2016	01:41:28	Pipistrelle sp.	FP-2	02/06/2016	01:59:34	Common pipistrell	FP-2	02/06/2016	02:17:01	Common pipistrell	FP-2	02/06/2016	02:28:57	Common pipistrelle
FP-2	02/06/2016	01:41:52	Common pipistrell	FP-2	02/06/2016	02:00:10	Pipistrelle sp.	FP-2	02/06/2016	02:17:11	Common pipistrell	FP-2	02/06/2016	02:29:04	Common pipistrelle
FP-2	02/06/2016	01:42:17	Common pipistrell	FP-2	02/06/2016	02:00:18	Pipistrelle sp.	FP-2	02/06/2016	02:17:21	Common pipistrell	FP-2	02/06/2016	02:29:14	Common pipistrelle
FP-2	02/06/2016	01:44:49	Common pipistrell	FP-2	02/06/2016	02:00:57	Common pipistrell	FP-2	02/06/2016	02:17:29	Common pipistrell	FP-2	02/06/2016	02:30:19	Common pipistrelle
FP-2	02/06/2016	01:45:33	Pipistrelle sp.	FP-2	02/06/2016	02:02:15	Pipistrelle sp.	FP-2	02/06/2016	02:17:41	Common pipistrell	FP-2	02/06/2016	02:30:27	Common pipistrelle
FP-2	02/06/2016	01:45:42	Common pipistrell	FP-2	02/06/2016	02:02:37	Pipistrelle sp.	FP-2	02/06/2016	02:18:03	Common pipistrell	FP-2	02/06/2016	02:30:38	Common pipistrelle
FP-2	02/06/2016	01:45:42	Leisler's bat	FP-2	02/06/2016	02:03:06	Common pipistrell	FP-2	02/06/2016	02:18:41	Common pipistrell	FP-2	02/06/2016	02:31:55	Leisler's bat
FP-2	02/06/2016	01:46:01	Pipistrelle sp.	FP-2	02/06/2016	02:03:22	Common pipistrell	FP-2	02/06/2016	02:19:03	Common pipistrell	FP-2	02/06/2016	02:32:12	Pipistrelle sp.
FP-2	02/06/2016	01:46:18	Common pipistrell	FP-2	02/06/2016	02:03:32	Common pipistrell	FP-2	02/06/2016	02:19:28	Common pipistrell	FP-2	02/06/2016	02:32:38	Common pipistrelle
FP-2	02/06/2016	01:46:25	Common pipistrell	FP-2	02/06/2016	02:04:02	Common pipistrell	FP-2	02/06/2016	02:19:42	Common pipistrell	FP-2	02/06/2016	02:33:21	Pipistrelle sp.
FP-2	02/06/2016	01:46:33	Common pipistrell	FP-2	02/06/2016	02:04:14	Common pipistrell	FP-2	02/06/2016	02:20:05	Common pipistrell	FP-2	02/06/2016	02:33:52	Common pipistrelle
FP-2	02/06/2016	01:46:46	Pipistrelle sp.	FP-2	02/06/2016	02:04:52	Common pipistrell	FP-2	02/06/2016	02:20:23	Common pipistrell	FP-2	02/06/2016	02:34:02	Common pipistrelle
FP-2	02/06/2016	01:47:02	Common pipistrell	FP-2	02/06/2016	02:05:16	Common pipistrell	FP-2	02/06/2016	02:20:49	Common pipistrell	FP-2	02/06/2016	02:34:30	Common pipistrelle
FP-2	02/06/2016	01:47:12	Pipistrelle sp.	FP-2	02/06/2016	02:05:38	Common pipistrell	FP-2	02/06/2016	02:21:33	Common pipistrell	FP-2	02/06/2016	02:34:40	Leisler's bat
FP-2	02/06/2016	01:47:38	Common pipistrell	FP-2	02/06/2016	02:06:21	Common pipistrell	FP-2	02/06/2016	02:21:42	Common pipistrell	FP-2	02/06/2016	02:34:49	Leisler's bat
FP-2	02/06/2016	01:47:54	Common pipistrell	FP-2	02/06/2016	02:08:13	Common pipistrell	FP-2	02/06/2016	02:21:49	Common pipistrell	FP-2	02/06/2016	02:34:59	Common pipistrelle
FP-2	02/06/2016	01:48:22	Common pipistrell	FP-2	02/06/2016	02:08:20	Common pipistrell	FP-2	02/06/2016	02:21:57	Common pipistrell	FP-2	02/06/2016	02:35:16	Common pipistrelle
FP-2	02/06/2016	01:48:43	Common pipistrell	FP-2	02/06/2016	02:08:29	Common pipistrell	FP-2	02/06/2016	02:22:05	Common pipistrell	FP-2	02/06/2016	02:35:44	Leisler's bat

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	02/06/2016	02:36:10	Leisler's bat	FP-2	02/06/2016	02:54:36	Pipistrelle sp.	FP-2	02/06/2016	03:28:16	Common pipistrelle	FP-2	03/06/2016	00:29:52	Common pipistrelle
FP-2	02/06/2016	02:37:03	Leisler's bat	FP-2	02/06/2016	02:54:44	Pipistrelle sp.	FP-2	02/06/2016	04:19:30	Leisler's bat	FP-2	03/06/2016	00:30:17	Common pipistrelle
FP-2	02/06/2016	02:38:20	Common pipistrelle	FP-2	02/06/2016	02:55:21	Common pipistrelle	FP-2	02/06/2016	22:24:22	Leisler's bat	FP-2	03/06/2016	00:31:12	Common pipistrelle
FP-2	02/06/2016	02:38:50	Common pipistrelle	FP-2	02/06/2016	02:56:03	Pipistrelle sp.	FP-2	02/06/2016	22:27:49	Leisler's bat	FP-2	03/06/2016	00:33:05	Common pipistrelle
FP-2	02/06/2016	02:39:47	Common pipistrelle	FP-2	02/06/2016	02:56:41	Pipistrelle sp.	FP-2	02/06/2016	22:28:41	Leisler's bat	FP-2	03/06/2016	00:33:29	Common pipistrelle
FP-2	02/06/2016	02:39:59	Common pipistrelle	FP-2	02/06/2016	02:56:55	Pipistrelle sp.	FP-2	02/06/2016	22:30:18	Soprano pipistrelle	FP-2	03/06/2016	00:33:40	Common pipistrelle
FP-2	02/06/2016	02:40:06	Common pipistrelle	FP-2	02/06/2016	02:57:03	Pipistrelle sp.	FP-2	02/06/2016	22:57:23	Common pipistrelle	FP-2	03/06/2016	00:34:10	Common pipistrelle
FP-2	02/06/2016	02:40:30	Pipistrelle sp.	FP-2	02/06/2016	02:57:22	Pipistrelle sp.	FP-2	02/06/2016	22:59:20	Pipistrelle sp.	FP-2	03/06/2016	00:36:47	Common pipistrelle
FP-2	02/06/2016	02:40:38	Pipistrelle sp.	FP-2	02/06/2016	02:58:12	Common pipistrelle	FP-2	02/06/2016	23:01:18	Common pipistrelle	FP-2	03/06/2016	00:37:38	Common pipistrelle
FP-2	02/06/2016	02:40:49	Pipistrelle sp.	FP-2	02/06/2016	02:58:22	Common pipistrelle	FP-2	02/06/2016	23:03:30	Common pipistrelle	FP-2	03/06/2016	00:48:01	Leisler's bat
FP-2	02/06/2016	02:41:16	Pipistrelle sp.	FP-2	02/06/2016	02:58:41	Common pipistrelle	FP-2	02/06/2016	23:07:48	Pipistrelle sp.	FP-2	03/06/2016	00:49:17	Myotis sp.
FP-2	02/06/2016	02:42:16	Common pipistrelle	FP-2	02/06/2016	02:59:08	Common pipistrelle	FP-2	02/06/2016	23:10:49	Leisler's bat	FP-2	03/06/2016	00:59:24	Common pipistrelle
FP-2	02/06/2016	02:42:42	Common pipistrelle	FP-2	02/06/2016	02:59:39	Common pipistrelle	FP-2	02/06/2016	23:14:45	Common pipistrelle	FP-2	03/06/2016	00:59:57	Common pipistrelle
FP-2	02/06/2016	02:43:02	Common pipistrelle	FP-2	02/06/2016	02:59:48	Common pipistrelle	FP-2	02/06/2016	23:15:47	Pipistrelle sp.	FP-2	03/06/2016	01:00:35	Common pipistrelle
FP-2	02/06/2016	02:43:19	Common pipistrelle	FP-2	02/06/2016	02:59:59	Common pipistrelle	FP-2	02/06/2016	23:16:40	Common pipistrelle	FP-2	03/06/2016	01:26:18	Common pipistrelle
FP-2	02/06/2016	02:43:41	Common pipistrelle	FP-2	02/06/2016	03:00:35	Pipistrelle sp.	FP-2	02/06/2016	23:23:44	Pipistrelle sp.	FP-2	03/06/2016	01:28:28	Common pipistrelle
FP-2	02/06/2016	02:44:11	Pipistrelle sp.	FP-2	02/06/2016	03:01:05	Common pipistrelle	FP-2	02/06/2016	23:24:13	Common pipistrelle	FP-2	03/06/2016	01:37:25	Common pipistrelle
FP-2	02/06/2016	02:45:42	Common pipistrelle	FP-2	02/06/2016	03:01:41	Common pipistrelle	FP-2	02/06/2016	23:37:07	Pipistrelle sp.	FP-2	03/06/2016	01:38:26	Common pipistrelle
FP-2	02/06/2016	02:46:33	Pipistrelle sp.	FP-2	02/06/2016	03:02:29	Common pipistrelle	FP-2	02/06/2016	23:39:28	Pipistrelle sp.	FP-2	03/06/2016	01:45:00	Soprano pipistrelle
FP-2	02/06/2016	02:47:24	Pipistrelle sp.	FP-2	02/06/2016	03:03:02	Common pipistrelle	FP-2	02/06/2016	23:50:01	Common pipistrelle	FP-2	03/06/2016	01:46:38	Common pipistrelle
FP-2	02/06/2016	02:47:49	Pipistrelle sp.	FP-2	02/06/2016	03:03:57	Common pipistrelle	FP-2	03/06/2016	00:05:20	Pipistrelle sp.	FP-2	03/06/2016	01:47:46	Common pipistrelle
FP-2	02/06/2016	02:48:03	Common pipistrelle	FP-2	02/06/2016	03:04:54	Common pipistrelle	FP-2	03/06/2016	00:10:11	Pipistrelle sp.	FP-2	03/06/2016	01:48:56	Common pipistrelle
FP-2	02/06/2016	02:48:20	Pipistrelle sp.	FP-2	02/06/2016	03:05:17	Pipistrelle sp.	FP-2	03/06/2016	00:11:27	Common pipistrelle	FP-2	03/06/2016	01:50:26	Common pipistrelle
FP-2	02/06/2016	02:48:40	Pipistrelle sp.	FP-2	02/06/2016	03:05:54	Pipistrelle sp.	FP-2	03/06/2016	00:17:59	Common pipistrelle	FP-2	03/06/2016	01:52:11	Common pipistrelle
FP-2	02/06/2016	02:49:02	Pipistrelle sp.	FP-2	02/06/2016	03:06:03	Common pipistrelle	FP-2	03/06/2016	00:18:11	Common pipistrelle	FP-2	03/06/2016	01:53:42	Common pipistrelle
FP-2	02/06/2016	02:49:14	Pipistrelle sp.	FP-2	02/06/2016	03:12:54	Pipistrelle sp.	FP-2	03/06/2016	00:18:25	Common pipistrelle	FP-2	03/06/2016	02:21:37	Common pipistrelle
FP-2	02/06/2016	02:49:31	Pipistrelle sp.	FP-2	02/06/2016	03:18:57	Pipistrelle sp.	FP-2	03/06/2016	00:18:41	Common pipistrelle	FP-2	03/06/2016	02:22:34	Common pipistrelle
FP-2	02/06/2016	02:49:38	Pipistrelle sp.	FP-2	02/06/2016	03:20:15	Common pipistrelle	FP-2	03/06/2016	00:19:07	Common pipistrelle	FP-2	03/06/2016	02:23:20	Common pipistrelle
FP-2	02/06/2016	02:49:50	Pipistrelle sp.	FP-2	02/06/2016	03:20:39	Common pipistrelle	FP-2	03/06/2016	00:20:44	Common pipistrelle	FP-2	03/06/2016	02:23:57	Common pipistrelle
FP-2	02/06/2016	02:50:16	Pipistrelle sp.	FP-2	02/06/2016	03:20:46	Common pipistrelle	FP-2	03/06/2016	00:20:52	Common pipistrelle	FP-2	03/06/2016	02:26:50	Common pipistrelle
FP-2	02/06/2016	02:50:41	Pipistrelle sp.	FP-2	02/06/2016	03:23:02	Common pipistrelle	FP-2	03/06/2016	00:21:33	Common pipistrelle	FP-2	03/06/2016	02:27:27	Common pipistrelle
FP-2	02/06/2016	02:50:50	Pipistrelle sp.	FP-2	02/06/2016	03:23:49	Common pipistrelle	FP-2	03/06/2016	00:21:43	Common pipistrelle	FP-2	03/06/2016	02:28:10	Common pipistrelle
FP-2	02/06/2016	02:51:07	Pipistrelle sp.	FP-2	02/06/2016	03:23:57	Common pipistrelle	FP-2	03/06/2016	00:22:04	Common pipistrelle	FP-2	03/06/2016	02:28:56	Common pipistrelle
FP-2	02/06/2016	02:51:21	Pipistrelle sp.	FP-2	02/06/2016	03:24:15	Common pipistrelle	FP-2	03/06/2016	00:22:44	Common pipistrelle	FP-2	03/06/2016	02:29:31	Common pipistrelle
FP-2	02/06/2016	02:51:40	Pipistrelle sp.	FP-2	02/06/2016	03:24:50	Common pipistrelle	FP-2	03/06/2016	00:24:54	Common pipistrelle	FP-2	03/06/2016	03:32:33	Common pipistrelle
FP-2	02/06/2016	02:51:48	Leisler's bat	FP-2	02/06/2016	03:25:48	Common pipistrelle	FP-2	03/06/2016	00:25:02	Common pipistrelle	FP-2	03/06/2016	22:36:39	Soprano pipistrelle
FP-2	02/06/2016	02:51:48	Pipistrelle sp.	FP-2	02/06/2016	03:26:03	Pipistrelle sp.	FP-2	03/06/2016	00:25:26	Common pipistrelle	FP-2	03/06/2016	22:56:12	Soprano pipistrelle
FP-2	02/06/2016	02:52:00	Common pipistrelle	FP-2	02/06/2016	03:26:29	Common pipistrelle	FP-2	03/06/2016	00:25:39	Common pipistrelle	FP-2	03/06/2016	23:11:46	Common pipistrelle
FP-2	02/06/2016	02:52:11	Common pipistrelle	FP-2	02/06/2016	03:26:45	Common pipistrelle	FP-2	03/06/2016	00:26:04	Common pipistrelle	FP-2	03/06/2016	23:33:50	Pipistrelle sp.
FP-2	02/06/2016	02:52:43	Pipistrelle sp.	FP-2	02/06/2016	03:26:53	Common pipistrelle	FP-2	03/06/2016	00:26:25	Common pipistrelle	FP-2	03/06/2016	23:37:35	Common pipistrelle
FP-2	02/06/2016	02:52:57	Pipistrelle sp.	FP-2	02/06/2016	03:27:10	Common pipistrelle	FP-2	03/06/2016	00:27:52	Common pipistrelle	FP-2	03/06/2016	23:37:47	Common pipistrelle
FP-2	02/06/2016	02:53:11	Pipistrelle sp.	FP-2	02/06/2016	03:27:24	Common pipistrelle	FP-2	03/06/2016	00:29:01	Common pipistrelle	FP-2	03/06/2016	23:38:22	Common pipistrelle
FP-2	02/06/2016	02:53:23	Pipistrelle sp.	FP-2	02/06/2016	03:27:41	Common pipistrelle	FP-2	03/06/2016	00:29:25	Common pipistrelle	FP-2	03/06/2016	23:45:52	Pipistrelle sp.
FP-2	02/06/2016	02:53:32	Pipistrelle sp.	FP-2	02/06/2016	03:27:56	Common pipistrelle	FP-2	03/06/2016	00:29:33	Common pipistrelle	FP-2	03/06/2016	23:47:03	Pipistrelle sp.

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	03/06/2016	23:47:10	Leisler's bat	FP-2	04/06/2016	01:57:40	Common pipistrell	FP-2	05/06/2016	03:14:49	Common pipistrell	FP-2	06/06/2016	01:04:07	Common pipistrelle
FP-2	03/06/2016	23:48:26	Common pipistrell	FP-2	04/06/2016	01:58:09	Common pipistrell	FP-2	05/06/2016	03:22:14	Common pipistrell	FP-2	06/06/2016	01:04:21	Common pipistrelle
FP-2	03/06/2016	23:48:36	Common pipistrell	FP-2	04/06/2016	01:58:43	Common pipistrell	FP-2	05/06/2016	03:23:49	Pipistrelle sp.	FP-2	06/06/2016	01:04:34	Common pipistrelle
FP-2	03/06/2016	23:48:45	Common pipistrell	FP-2	04/06/2016	01:59:27	Common pipistrell	FP-2	05/06/2016	03:34:23	Common pipistrell	FP-2	06/06/2016	01:04:55	Common pipistrelle
FP-2	03/06/2016	23:48:52	Common pipistrell	FP-2	04/06/2016	02:00:00	Common pipistrell	FP-2	05/06/2016	03:51:10	Common pipistrell	FP-2	06/06/2016	01:05:04	Common pipistrelle
FP-2	03/06/2016	23:49:35	Common pipistrell	FP-2	04/06/2016	02:01:40	Common pipistrell	FP-2	05/06/2016	03:53:21	Pipistrelle sp.	FP-2	06/06/2016	01:05:20	Common pipistrelle
FP-2	03/06/2016	23:50:55	Pipistrelle sp.	FP-2	04/06/2016	02:24:13	Common pipistrell	FP-2	05/06/2016	03:57:09	Common pipistrell	FP-2	06/06/2016	01:05:41	Common pipistrelle
FP-2	03/06/2016	23:52:03	Leisler's bat	FP-2	04/06/2016	02:36:09	Leisler's bat	FP-2	05/06/2016	04:11:18	Common pipistrell	FP-2	06/06/2016	01:06:11	Common pipistrelle
FP-2	03/06/2016	23:59:03	Common pipistrell	FP-2	04/06/2016	03:04:46	Common pipistrell	FP-2	05/06/2016	04:19:34	Soprano pipistrelle	FP-2	06/06/2016	01:06:20	Common pipistrelle
FP-2	04/06/2016	00:07:07	Common pipistrell	FP-2	04/06/2016	22:13:28	Leisler's bat	FP-2	05/06/2016	04:30:49	Leisler's bat	FP-2	06/06/2016	01:06:35	Common pipistrelle
FP-2	04/06/2016	00:07:36	Common pipistrell	FP-2	04/06/2016	22:59:07	Pipistrelle sp.	FP-2	05/06/2016	04:31:01	Leisler's bat	FP-2	06/06/2016	01:06:52	Common pipistrelle
FP-2	04/06/2016	00:07:44	Common pipistrell	FP-2	04/06/2016	23:29:44	Pipistrelle sp.	FP-2	05/06/2016	04:34:41	Leisler's bat	FP-2	06/06/2016	01:07:00	Common pipistrelle
FP-2	04/06/2016	00:07:51	Common pipistrell	FP-2	04/06/2016	23:36:59	Pipistrelle sp.	FP-2	05/06/2016	04:35:12	Leisler's bat	FP-2	06/06/2016	01:07:29	Common pipistrelle
FP-2	04/06/2016	00:08:11	Common pipistrell	FP-2	04/06/2016	23:38:28	Pipistrelle sp.	FP-2	05/06/2016	22:39:12	Soprano pipistrelle	FP-2	06/06/2016	01:07:38	Common pipistrelle
FP-2	04/06/2016	00:09:20	Common pipistrell	FP-2	04/06/2016	23:43:06	Leisler's bat	FP-2	05/06/2016	23:17:27	Common pipistrell	FP-2	06/06/2016	01:07:48	Common pipistrelle
FP-2	04/06/2016	00:09:32	Common pipistrell	FP-2	04/06/2016	23:43:15	Leisler's bat	FP-2	05/06/2016	23:17:34	Common pipistrell	FP-2	06/06/2016	01:08:11	Common pipistrelle
FP-2	04/06/2016	00:11:47	Common pipistrell	FP-2	04/06/2016	23:57:14	Common pipistrell	FP-2	05/06/2016	23:17:44	Common pipistrell	FP-2	06/06/2016	01:08:38	Common pipistrelle
FP-2	04/06/2016	00:11:59	Common pipistrell	FP-2	05/06/2016	00:24:53	Pipistrelle sp.	FP-2	05/06/2016	23:18:00	Common pipistrell	FP-2	06/06/2016	01:08:50	Common pipistrelle
FP-2	04/06/2016	00:13:26	Common pipistrell	FP-2	05/06/2016	00:25:55	Common pipistrell	FP-2	05/06/2016	23:20:47	Pipistrelle sp.	FP-2	06/06/2016	01:09:02	Common pipistrelle
FP-2	04/06/2016	00:13:39	Common pipistrell	FP-2	05/06/2016	00:28:10	Common pipistrell	FP-2	05/06/2016	23:24:36	Common pipistrell	FP-2	06/06/2016	01:09:28	Common pipistrelle
FP-2	04/06/2016	00:13:52	Common pipistrell	FP-2	05/06/2016	00:37:58	Common pipistrell	FP-2	05/06/2016	23:34:38	Common pipistrell	FP-2	06/06/2016	01:09:48	Common pipistrelle
FP-2	04/06/2016	00:14:44	Common pipistrell	FP-2	05/06/2016	00:45:02	Common pipistrell	FP-2	05/06/2016	23:41:40	Common pipistrell	FP-2	06/06/2016	01:10:05	Common pipistrelle
FP-2	04/06/2016	00:14:53	Common pipistrell	FP-2	05/06/2016	00:48:51	Common pipistrell	FP-2	05/06/2016	23:42:23	Common pipistrell	FP-2	06/06/2016	01:10:14	Common pipistrelle
FP-2	04/06/2016	00:15:13	Common pipistrell	FP-2	05/06/2016	00:56:10	Leisler's bat	FP-2	05/06/2016	23:45:20	Common pipistrell	FP-2	06/06/2016	01:11:02	Common pipistrelle
FP-2	04/06/2016	00:15:49	Common pipistrell	FP-2	05/06/2016	01:07:09	Common pipistrell	FP-2	05/06/2016	23:47:24	Soprano pipistrelle	FP-2	06/06/2016	01:11:11	Common pipistrelle
FP-2	04/06/2016	00:21:49	Common pipistrell	FP-2	05/06/2016	01:29:46	Common pipistrell	FP-2	05/06/2016	23:48:42	Common pipistrell	FP-2	06/06/2016	01:11:43	Common pipistrelle
FP-2	04/06/2016	00:23:14	Common pipistrell	FP-2	05/06/2016	01:30:04	Pipistrelle sp.	FP-2	05/06/2016	23:48:56	Common pipistrell	FP-2	06/06/2016	01:12:04	Common pipistrelle
FP-2	04/06/2016	00:26:38	Common pipistrell	FP-2	05/06/2016	01:30:39	Common pipistrell	FP-2	05/06/2016	23:49:04	Common pipistrell	FP-2	06/06/2016	01:12:12	Common pipistrelle
FP-2	04/06/2016	00:27:51	Soprano pipistrelle	FP-2	05/06/2016	01:33:16	Common pipistrell	FP-2	05/06/2016	23:52:09	Common pipistrell	FP-2	06/06/2016	01:12:24	Common pipistrelle
FP-2	04/06/2016	00:30:12	Leisler's bat	FP-2	05/06/2016	01:41:44	Pipistrelle sp.	FP-2	05/06/2016	23:54:46	Common pipistrell	FP-2	06/06/2016	01:13:13	Common pipistrelle
FP-2	04/06/2016	00:40:10	Common pipistrell	FP-2	05/06/2016	01:43:40	Pipistrelle sp.	FP-2	05/06/2016	23:59:08	Common pipistrell	FP-2	06/06/2016	01:13:30	Pipistrelle sp.
FP-2	04/06/2016	00:40:20	Common pipistrell	FP-2	05/06/2016	01:45:14	Common pipistrell	FP-2	06/06/2016	00:00:18	Common pipistrell	FP-2	06/06/2016	01:13:43	Common pipistrelle
FP-2	04/06/2016	00:42:04	Common pipistrell	FP-2	05/06/2016	02:01:10	Common pipistrell	FP-2	06/06/2016	00:01:21	Common pipistrell	FP-2	06/06/2016	01:13:55	Common pipistrelle
FP-2	04/06/2016	00:42:47	Common pipistrell	FP-2	05/06/2016	02:03:56	Common pipistrell	FP-2	06/06/2016	00:04:47	Common pipistrell	FP-2	06/06/2016	01:14:16	Common pipistrelle
FP-2	04/06/2016	00:43:43	Common pipistrell	FP-2	05/06/2016	02:04:52	Common pipistrell	FP-2	06/06/2016	00:07:17	Leisler's bat	FP-2	06/06/2016	01:14:27	Common pipistrelle
FP-2	04/06/2016	00:48:25	Leisler's bat	FP-2	05/06/2016	02:23:15	Soprano pipistrelle	FP-2	06/06/2016	00:12:45	Common pipistrell	FP-2	06/06/2016	01:14:51	Common pipistrelle
FP-2	04/06/2016	01:10:26	Common pipistrell	FP-2	05/06/2016	02:39:00	Common pipistrell	FP-2	06/06/2016	00:13:18	Common pipistrell	FP-2	06/06/2016	01:15:02	Common pipistrelle
FP-2	04/06/2016	01:11:32	Common pipistrell	FP-2	05/06/2016	02:40:00	Common pipistrell	FP-2	06/06/2016	00:16:31	Common pipistrell	FP-2	06/06/2016	01:15:11	Common pipistrelle
FP-2	04/06/2016	01:14:39	Leisler's bat	FP-2	05/06/2016	02:47:00	Common pipistrell	FP-2	06/06/2016	00:21:41	Common pipistrell	FP-2	06/06/2016	01:15:29	Common pipistrelle
FP-2	04/06/2016	01:23:51	Common pipistrell	FP-2	05/06/2016	02:50:45	Pipistrelle sp.	FP-2	06/06/2016	00:26:03	Soprano pipistrelle	FP-2	06/06/2016	01:15:50	Common pipistrelle
FP-2	04/06/2016	01:28:53	Soprano pipistrelle	FP-2	05/06/2016	02:54:55	Common pipistrell	FP-2	06/06/2016	00:31:43	Soprano pipistrelle	FP-2	06/06/2016	01:16:16	Common pipistrelle
FP-2	04/06/2016	01:30:10	Common pipistrell	FP-2	05/06/2016	03:01:56	Leisler's bat	FP-2	06/06/2016	00:50:42	Common pipistrell	FP-2	06/06/2016	01:16:28	Pipistrelle sp.
FP-2	04/06/2016	01:30:23	Common pipistrell	FP-2	05/06/2016	03:07:30	Pipistrelle sp.	FP-2	06/06/2016	01:03:51	Common pipistrell	FP-2	06/06/2016	01:17:11	Common pipistrelle
FP-2	04/06/2016	01:57:32	Common pipistrell	FP-2	05/06/2016	03:11:17	Common pipistrell	FP-2	06/06/2016	01:03:59	Common pipistrell	FP-2	06/06/2016	01:17:34	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	06/06/2016	01:17:45	Common pipistrell	FP-2	06/06/2016	01:32:01	Common pipistrell	FP-2	06/06/2016	01:46:59	Common pipistrell	FP-2	06/06/2016	02:03:36	Common pipistrelle
FP-2	06/06/2016	01:17:59	Common pipistrell	FP-2	06/06/2016	01:32:42	Common pipistrell	FP-2	06/06/2016	01:47:12	Common pipistrell	FP-2	06/06/2016	02:04:04	Common pipistrelle
FP-2	06/06/2016	01:18:08	Common pipistrell	FP-2	06/06/2016	01:32:52	Common pipistrell	FP-2	06/06/2016	01:47:22	Common pipistrell	FP-2	06/06/2016	02:04:25	Pipistrelle sp.
FP-2	06/06/2016	01:18:19	Pipistrelle sp.	FP-2	06/06/2016	01:32:52	Leisler's bat	FP-2	06/06/2016	01:47:33	Pipistrelle sp.	FP-2	06/06/2016	02:04:40	Common pipistrelle
FP-2	06/06/2016	01:18:29	Pipistrelle sp.	FP-2	06/06/2016	01:33:53	Common pipistrell	FP-2	06/06/2016	01:47:51	Common pipistrell	FP-2	06/06/2016	02:05:02	Common pipistrelle
FP-2	06/06/2016	01:18:46	Common pipistrell	FP-2	06/06/2016	01:34:08	Common pipistrell	FP-2	06/06/2016	01:48:06	Common pipistrell	FP-2	06/06/2016	02:05:21	Common pipistrelle
FP-2	06/06/2016	01:19:13	Common pipistrell	FP-2	06/06/2016	01:34:17	Common pipistrell	FP-2	06/06/2016	01:48:18	Common pipistrell	FP-2	06/06/2016	02:05:42	Pipistrelle sp.
FP-2	06/06/2016	01:19:25	Common pipistrell	FP-2	06/06/2016	01:34:36	Common pipistrell	FP-2	06/06/2016	01:48:37	Common pipistrell	FP-2	06/06/2016	02:06:22	Pipistrelle sp.
FP-2	06/06/2016	01:19:39	Common pipistrell	FP-2	06/06/2016	01:35:12	Common pipistrell	FP-2	06/06/2016	01:48:50	Common pipistrell	FP-2	06/06/2016	02:06:36	Common pipistrelle
FP-2	06/06/2016	01:20:07	Common pipistrell	FP-2	06/06/2016	01:35:36	Common pipistrell	FP-2	06/06/2016	01:49:16	Pipistrelle sp.	FP-2	06/06/2016	02:07:27	Pipistrelle sp.
FP-2	06/06/2016	01:20:16	Common pipistrell	FP-2	06/06/2016	01:36:04	Common pipistrell	FP-2	06/06/2016	01:49:24	Common pipistrell	FP-2	06/06/2016	02:07:47	Pipistrelle sp.
FP-2	06/06/2016	01:20:51	Pipistrelle sp.	FP-2	06/06/2016	01:36:12	Common pipistrell	FP-2	06/06/2016	01:49:45	Common pipistrell	FP-2	06/06/2016	02:08:06	Common pipistrelle
FP-2	06/06/2016	01:21:36	Common pipistrell	FP-2	06/06/2016	01:36:45	Common pipistrell	FP-2	06/06/2016	01:49:54	Common pipistrell	FP-2	06/06/2016	02:08:38	Pipistrelle sp.
FP-2	06/06/2016	01:22:11	Common pipistrell	FP-2	06/06/2016	01:36:56	Common pipistrell	FP-2	06/06/2016	01:50:06	Common pipistrell	FP-2	06/06/2016	02:09:45	Myotis sp.
FP-2	06/06/2016	01:22:21	Common pipistrell	FP-2	06/06/2016	01:37:14	Common pipistrell	FP-2	06/06/2016	01:50:38	Common pipistrell	FP-2	06/06/2016	02:25:19	Common pipistrelle
FP-2	06/06/2016	01:22:35	Common pipistrell	FP-2	06/06/2016	01:37:40	Common pipistrell	FP-2	06/06/2016	01:51:09	Common pipistrell	FP-2	06/06/2016	02:25:58	Pipistrelle sp.
FP-2	06/06/2016	01:22:45	Common pipistrell	FP-2	06/06/2016	01:37:51	Common pipistrell	FP-2	06/06/2016	01:51:18	Common pipistrell	FP-2	06/06/2016	02:30:13	Pipistrelle sp.
FP-2	06/06/2016	01:22:55	Common pipistrell	FP-2	06/06/2016	01:38:38	Common pipistrell	FP-2	06/06/2016	01:51:36	Pipistrelle sp.	FP-2	06/06/2016	02:34:20	Pipistrelle sp.
FP-2	06/06/2016	01:23:42	Common pipistrell	FP-2	06/06/2016	01:39:01	Common pipistrell	FP-2	06/06/2016	01:52:01	Pipistrelle sp.	FP-2	06/06/2016	02:36:06	Pipistrelle sp.
FP-2	06/06/2016	01:24:03	Common pipistrell	FP-2	06/06/2016	01:39:35	Pipistrelle sp.	FP-2	06/06/2016	01:52:34	Common pipistrell	FP-2	06/06/2016	02:48:56	Common pipistrelle
FP-2	06/06/2016	01:24:22	Common pipistrell	FP-2	06/06/2016	01:39:42	Pipistrelle sp.	FP-2	06/06/2016	01:53:00	Pipistrelle sp.	FP-2	06/06/2016	02:51:48	Common pipistrelle
FP-2	06/06/2016	01:24:46	Common pipistrell	FP-2	06/06/2016	01:39:50	Common pipistrell	FP-2	06/06/2016	01:53:57	Common pipistrell	FP-2	06/06/2016	03:09:56	Pipistrelle sp.
FP-2	06/06/2016	01:24:55	Common pipistrell	FP-2	06/06/2016	01:40:24	Common pipistrell	FP-2	06/06/2016	01:54:05	Common pipistrell	FP-2	06/06/2016	03:11:51	Common pipistrelle
FP-2	06/06/2016	01:25:02	Common pipistrell	FP-2	06/06/2016	01:40:42	Common pipistrell	FP-2	06/06/2016	01:54:16	Common pipistrell	FP-2	06/06/2016	03:19:24	Common pipistrelle
FP-2	06/06/2016	01:25:44	Common pipistrell	FP-2	06/06/2016	01:41:01	Common pipistrell	FP-2	06/06/2016	01:54:53	Pipistrelle sp.	FP-2	06/06/2016	03:33:16	Common pipistrelle
FP-2	06/06/2016	01:25:52	Common pipistrell	FP-2	06/06/2016	01:41:33	Common pipistrell	FP-2	06/06/2016	01:55:15	Pipistrelle sp.	FP-2	06/06/2016	03:38:52	Myotis sp.
FP-2	06/06/2016	01:26:08	Common pipistrell	FP-2	06/06/2016	01:41:54	Common pipistrell	FP-2	06/06/2016	01:55:51	Pipistrelle sp.	FP-2	06/06/2016	04:15:32	Common pipistrelle
FP-2	06/06/2016	01:26:32	Common pipistrell	FP-2	06/06/2016	01:42:05	Pipistrelle sp.	FP-2	06/06/2016	01:56:13	Soprano pipistrelle	FP-2	06/06/2016	04:31:34	Leisler's bat
FP-2	06/06/2016	01:26:45	Common pipistrell	FP-2	06/06/2016	01:42:26	Common pipistrell	FP-2	06/06/2016	01:56:25	Pipistrelle sp.	FP-2	06/06/2016	23:04:22	Leisler's bat
FP-2	06/06/2016	01:27:00	Common pipistrell	FP-2	06/06/2016	01:42:45	Common pipistrell	FP-2	06/06/2016	01:56:32	Common pipistrell	FP-2	06/06/2016	23:09:56	Common pipistrelle
FP-2	06/06/2016	01:27:23	Common pipistrell	FP-2	06/06/2016	01:42:54	Common pipistrell	FP-2	06/06/2016	01:56:45	Pipistrelle sp.	FP-2	06/06/2016	23:21:38	Common pipistrelle
FP-2	06/06/2016	01:27:37	Common pipistrell	FP-2	06/06/2016	01:43:09	Common pipistrell	FP-2	06/06/2016	01:57:00	Common pipistrell	FP-2	06/06/2016	23:21:45	Common pipistrelle
FP-2	06/06/2016	01:27:49	Common pipistrell	FP-2	06/06/2016	01:43:23	Common pipistrell	FP-2	06/06/2016	01:57:16	Pipistrelle sp.	FP-2	06/06/2016	23:33:12	Common pipistrelle
FP-2	06/06/2016	01:28:14	Common pipistrell	FP-2	06/06/2016	01:44:05	Common pipistrell	FP-2	06/06/2016	01:57:23	Pipistrelle sp.	FP-2	06/06/2016	23:34:17	Common pipistrelle
FP-2	06/06/2016	01:28:27	Common pipistrell	FP-2	06/06/2016	01:44:28	Common pipistrell	FP-2	06/06/2016	01:57:31	Pipistrelle sp.	FP-2	06/06/2016	23:34:35	Common pipistrelle
FP-2	06/06/2016	01:28:53	Common pipistrell	FP-2	06/06/2016	01:44:46	Common pipistrell	FP-2	06/06/2016	01:57:51	Pipistrelle sp.	FP-2	06/06/2016	23:34:48	Common pipistrelle
FP-2	06/06/2016	01:29:04	Common pipistrell	FP-2	06/06/2016	01:44:57	Common pipistrell	FP-2	06/06/2016	01:58:01	Common pipistrell	FP-2	06/06/2016	23:34:57	Common pipistrelle
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FP-2	06/06/2016	01:29:35	Common pipistrell	FP-2	06/06/2016	01:45:26	Common pipistrell	FP-2	06/06/2016	01:58:30	Pipistrelle sp.	FP-2	06/06/2016	23:35:30	Common pipistrelle
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FP-2	06/06/2016	01:31:17	Common pipistrell	FP-2	06/06/2016	01:46:42	Pipistrelle sp.	FP-2	06/06/2016	02:00:35	Common pipistrell	FP-2	06/06/2016	23:36:22	Common pipistrelle
FP-2	06/06/2016	01:31:52	Common pipistrell	FP-2	06/06/2016	01:46:51	Pipistrelle sp.	FP-2	06/06/2016	02:03:21	Common pipistrell	FP-2	06/06/2016	23:36:35	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-2	06/06/2016	23:37:35	Common pipistrelle	FP-2	07/06/2016	02:29:31	Common pipistrelle	FP-2	07/06/2016	02:42:28	Common pipistrelle	FP-2	07/06/2016	03:00:34	Common pipistrelle
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FP-2	06/06/2016	23:38:15	Common pipistrelle	FP-2	07/06/2016	02:30:28	Common pipistrelle	FP-2	07/06/2016	02:43:01	Common pipistrelle	FP-2	07/06/2016	03:01:23	Common pipistrelle
FP-2	06/06/2016	23:43:43	Common pipistrelle	FP-2	07/06/2016	02:30:44	Common pipistrelle	FP-2	07/06/2016	02:43:14	Common pipistrelle	FP-2	07/06/2016	03:01:54	Common pipistrelle
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FP-2	06/06/2016	23:45:05	Common pipistrelle	FP-2	07/06/2016	02:31:25	Common pipistrelle	FP-2	07/06/2016	02:43:47	Common pipistrelle	FP-2	07/06/2016	03:02:30	Common pipistrelle
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FP-2	07/06/2016	00:18:10	Common pipistrelle	FP-2	07/06/2016	02:32:20	Common pipistrelle	FP-2	07/06/2016	02:44:47	Common pipistrelle	FP-2	07/06/2016	03:04:38	Pipistrelle sp.
FP-2	07/06/2016	00:18:40	Soprano pipistrelle	FP-2	07/06/2016	02:32:30	Common pipistrelle	FP-2	07/06/2016	02:45:00	Common pipistrelle	FP-2	07/06/2016	03:04:55	Pipistrelle sp.
FP-2	07/06/2016	00:31:44	Leisler's bat	FP-2	07/06/2016	02:32:40	Common pipistrelle	FP-2	07/06/2016	02:45:25	Common pipistrelle	FP-2	07/06/2016	03:05:38	Pipistrelle sp.
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FP-2	07/06/2016	01:01:35	Common pipistrelle	FP-2	07/06/2016	02:36:27	Common pipistrelle	FP-2	07/06/2016	02:48:12	Common pipistrelle	FP-2	07/06/2016	03:10:10	Common pipistrelle
FP-2	07/06/2016	01:09:57	Common pipistrelle	FP-2	07/06/2016	02:36:37	Common pipistrelle	FP-2	07/06/2016	02:48:32	Common pipistrelle	FP-2	07/06/2016	03:10:51	Common pipistrelle
FP-2	07/06/2016	01:11:27	Pipistrelle sp.	FP-2	07/06/2016	02:36:56	Common pipistrelle	FP-2	07/06/2016	02:48:52	Common pipistrelle	FP-2	07/06/2016	03:11:44	Common pipistrelle
FP-2	07/06/2016	01:27:26	Pipistrelle sp.	FP-2	07/06/2016	02:37:15	Common pipistrelle	FP-2	07/06/2016	02:49:05	Common pipistrelle	FP-2	07/06/2016	03:13:21	Common pipistrelle
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FP-2	07/06/2016	01:42:06	Common pipistrelle	FP-2	07/06/2016	02:37:58	Common pipistrelle	FP-2	07/06/2016	02:50:20	Common pipistrelle	FP-2	07/06/2016	03:14:12	Common pipistrelle
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FP-2	07/06/2016	02:26:33	Common pipistrelle	FP-2	07/06/2016	02:39:28	Common pipistrelle	FP-2	07/06/2016	02:53:50	Common pipistrelle	FP-2	07/06/2016	03:16:01	Common pipistrelle
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FP-2	07/06/2016	02:27:03	Common pipistrelle	FP-2	07/06/2016	02:40:06	Common pipistrelle	FP-2	07/06/2016	02:56:08	Common pipistrelle	FP-2	07/06/2016	03:16:48	Common pipistrelle
FP-2	07/06/2016	02:27:20	Common pipistrelle	FP-2	07/06/2016	02:40:21	Common pipistrelle	FP-2	07/06/2016	02:56:32	Common pipistrelle	FP-2	07/06/2016	03:17:01	Common pipistrelle
FP-2	07/06/2016	02:27:54	Common pipistrelle	FP-2	07/06/2016	02:40:34	Common pipistrelle	FP-2	07/06/2016	02:57:34	Common pipistrelle	FP-2	07/06/2016	03:17:19	Common pipistrelle
FP-2	07/06/2016	02:28:09	Common pipistrelle	FP-2	07/06/2016	02:40:44	Common pipistrelle	FP-2	07/06/2016	02:58:30	Common pipistrelle	FP-2	07/06/2016	03:17:32	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-2	07/06/2016	03:18:10	Common pipistrell	FP-2	07/06/2016	03:33:06	Common pipistrell	FP-2	08/06/2016	01:02:18	Common pipistrell	FP-2	08/06/2016	01:42:45	Common pipistrelle
FP-2	07/06/2016	03:18:28	Common pipistrell	FP-2	07/06/2016	03:33:24	Pipistrelle sp.	FP-2	08/06/2016	01:02:36	Common pipistrell	FP-2	08/06/2016	01:43:42	Common pipistrelle
FP-2	07/06/2016	03:18:40	Common pipistrell	FP-2	07/06/2016	03:35:05	Common pipistrell	FP-2	08/06/2016	01:03:08	Common pipistrell	FP-2	08/06/2016	01:46:11	Pipistrelle sp.
FP-2	07/06/2016	03:19:14	Common pipistrell	FP-2	07/06/2016	03:43:02	Common pipistrell	FP-2	08/06/2016	01:03:19	Common pipistrell	FP-2	08/06/2016	01:49:37	Common pipistrelle
FP-2	07/06/2016	03:20:03	Common pipistrell	FP-2	07/06/2016	04:22:47	Soprano pipistrelle	FP-2	08/06/2016	01:03:37	Common pipistrell	FP-2	08/06/2016	01:50:01	Pipistrelle sp.
FP-2	07/06/2016	03:20:16	Common pipistrell	FP-2	07/06/2016	22:33:00	Common pipistrell	FP-2	08/06/2016	01:03:45	Pipistrelle sp.	FP-2	08/06/2016	01:50:26	Common pipistrelle
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FP-2	07/06/2016	03:20:46	Common pipistrell	FP-2	07/06/2016	23:09:35	Pipistrelle sp.	FP-2	08/06/2016	01:04:31	Common pipistrell	FP-2	08/06/2016	01:51:09	Common pipistrelle
FP-2	07/06/2016	03:21:01	Common pipistrell	FP-2	07/06/2016	23:13:40	Common pipistrell	FP-2	08/06/2016	01:05:29	Common pipistrell	FP-2	08/06/2016	01:51:37	Common pipistrelle
FP-2	07/06/2016	03:21:14	Common pipistrell	FP-2	07/06/2016	23:20:55	Common pipistrell	FP-2	08/06/2016	01:05:57	Common pipistrell	FP-2	08/06/2016	01:51:51	Common pipistrelle
FP-2	07/06/2016	03:21:51	Common pipistrell	FP-2	07/06/2016	23:21:11	Common pipistrell	FP-2	08/06/2016	01:06:04	Common pipistrell	FP-2	08/06/2016	01:52:05	Common pipistrelle
FP-2	07/06/2016	03:22:01	Common pipistrell	FP-2	07/06/2016	23:23:12	Leisler's bat	FP-2	08/06/2016	01:16:32	Pipistrelle sp.	FP-2	08/06/2016	01:52:19	Common pipistrelle
FP-2	07/06/2016	03:22:33	Common pipistrell	FP-2	07/06/2016	23:56:50	Common pipistrell	FP-2	08/06/2016	01:26:02	Common pipistrell	FP-2	08/06/2016	01:52:36	Common pipistrelle
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FP-2	07/06/2016	03:23:00	Common pipistrell	FP-2	08/06/2016	00:00:10	Common pipistrell	FP-2	08/06/2016	01:27:52	Common pipistrell	FP-2	08/06/2016	01:53:08	Common pipistrelle
FP-2	07/06/2016	03:23:32	Common pipistrell	FP-2	08/06/2016	00:04:49	Common pipistrell	FP-2	08/06/2016	01:28:25	Pipistrelle sp.	FP-2	08/06/2016	01:53:17	Common pipistrelle
FP-2	07/06/2016	03:23:44	Common pipistrell	FP-2	08/06/2016	00:07:33	Pipistrelle sp.	FP-2	08/06/2016	01:28:43	Common pipistrell	FP-2	08/06/2016	01:53:39	Common pipistrelle
FP-2	07/06/2016	03:24:10	Common pipistrell	FP-2	08/06/2016	00:11:22	Common pipistrell	FP-2	08/06/2016	01:29:17	Common pipistrell	FP-2	08/06/2016	01:53:50	Common pipistrelle
FP-2	07/06/2016	03:24:27	Common pipistrell	FP-2	08/06/2016	00:12:05	Pipistrelle sp.	FP-2	08/06/2016	01:29:30	Common pipistrell	FP-2	08/06/2016	01:54:58	Common pipistrelle
FP-2	07/06/2016	03:24:41	Common pipistrell	FP-2	08/06/2016	00:13:53	Pipistrelle sp.	FP-2	08/06/2016	01:29:45	Common pipistrell	FP-2	08/06/2016	01:55:16	Common pipistrelle
FP-2	07/06/2016	03:24:52	Common pipistrell	FP-2	08/06/2016	00:16:53	Myotis sp.	FP-2	08/06/2016	01:33:35	Common pipistrell	FP-2	08/06/2016	01:55:34	Common pipistrelle
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FP-2	07/06/2016	03:25:51	Leisler's bat	FP-2	08/06/2016	00:26:38	Pipistrelle sp.	FP-2	08/06/2016	01:35:04	Common pipistrell	FP-2	08/06/2016	01:57:07	Common pipistrelle
FP-2	07/06/2016	03:26:24	Common pipistrell	FP-2	08/06/2016	00:34:48	Leisler's bat	FP-2	08/06/2016	01:35:04	Leisler's bat	FP-2	08/06/2016	01:57:45	Common pipistrelle
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FP-2	07/06/2016	03:27:56	Common pipistrell	FP-2	08/06/2016	00:43:29	Pipistrelle sp.	FP-2	08/06/2016	01:35:51	Leisler's bat	FP-2	08/06/2016	02:05:57	Common pipistrelle
FP-2	07/06/2016	03:28:22	Common pipistrell	FP-2	08/06/2016	00:45:15	Pipistrelle sp.	FP-2	08/06/2016	01:36:07	Common pipistrell	FP-2	08/06/2016	02:07:31	Pipistrelle sp.
FP-2	07/06/2016	03:28:30	Common pipistrell	FP-2	08/06/2016	00:47:52	Pipistrelle sp.	FP-2	08/06/2016	01:36:45	Common pipistrell	FP-2	08/06/2016	02:08:45	Pipistrelle sp.
FP-2	07/06/2016	03:28:42	Common pipistrell	FP-2	08/06/2016	00:52:46	Common pipistrell	FP-2	08/06/2016	01:36:54	Common pipistrell	FP-2	08/06/2016	02:19:53	Common pipistrelle
FP-2	07/06/2016	03:29:15	Common pipistrell	FP-2	08/06/2016	00:53:08	Common pipistrell	FP-2	08/06/2016	01:37:04	Common pipistrell	FP-2	08/06/2016	02:21:14	Common pipistrelle
FP-2	07/06/2016	03:29:41	Common pipistrell	FP-2	08/06/2016	00:53:26	Common pipistrell	FP-2	08/06/2016	01:37:15	Common pipistrell	FP-2	08/06/2016	02:21:26	Common pipistrelle
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FP-2	07/06/2016	03:30:06	Common pipistrell	FP-2	08/06/2016	00:55:25	Common pipistrell	FP-2	08/06/2016	01:37:42	Common pipistrell	FP-2	08/06/2016	02:22:06	Common pipistrelle
FP-2	07/06/2016	03:30:15	Common pipistrell	FP-2	08/06/2016	00:55:42	Common pipistrell	FP-2	08/06/2016	01:37:57	Common pipistrell	FP-2	08/06/2016	02:22:24	Common pipistrelle
FP-2	07/06/2016	03:30:27	Common pipistrell	FP-2	08/06/2016	00:56:12	Common pipistrell	FP-2	08/06/2016	01:38:11	Common pipistrell	FP-2	08/06/2016	02:23:00	Common pipistrelle
FP-2	07/06/2016	03:31:02	Common pipistrell	FP-2	08/06/2016	00:56:28	Common pipistrell	FP-2	08/06/2016	01:38:23	Common pipistrell	FP-2	08/06/2016	02:23:19	Common pipistrelle
FP-2	07/06/2016	03:31:22	Common pipistrell	FP-2	08/06/2016	00:57:54	Common pipistrell	FP-2	08/06/2016	01:39:30	Common pipistrell	FP-2	08/06/2016	02:23:43	Common pipistrelle
FP-2	07/06/2016	03:31:51	Common pipistrell	FP-2	08/06/2016	00:59:35	Common pipistrell	FP-2	08/06/2016	01:40:10	Common pipistrell	FP-2	08/06/2016	02:23:56	Common pipistrelle
FP-2	07/06/2016	03:32:10	Common pipistrell	FP-2	08/06/2016	01:00:27	Common pipistrell	FP-2	08/06/2016	01:41:25	Common pipistrell	FP-2	08/06/2016	02:24:15	Common pipistrelle
FP-2	07/06/2016	03:32:28	Common pipistrell	FP-2	08/06/2016	01:01:50	Common pipistrell	FP-2	08/06/2016	01:42:01	Common pipistrell	FP-2	08/06/2016	02:24:23	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-2	08/06/2016	02:25:22	Common pipistrell	FP-2	08/06/2016	03:09:19	Pipistrelle sp.	FP-2	09/06/2016	01:53:37	Common pipistrell	FP-2	10/06/2016	01:42:48	Common pipistrelle
FP-2	08/06/2016	02:25:37	Common pipistrell	FP-2	08/06/2016	03:15:57	Pipistrelle sp.	FP-2	09/06/2016	01:54:06	Common pipistrell	FP-2	10/06/2016	01:43:04	Common pipistrelle
FP-2	08/06/2016	02:25:46	Common pipistrell	FP-2	08/06/2016	03:17:09	Leisler's bat	FP-2	09/06/2016	01:55:12	Common pipistrell	FP-2	10/06/2016	01:43:15	Common pipistrelle
FP-2	08/06/2016	02:25:59	Common pipistrell	FP-2	08/06/2016	03:17:32	Common pipistrell	FP-2	09/06/2016	02:35:54	Common pipistrell	FP-2	10/06/2016	01:43:47	Common pipistrelle
FP-2	08/06/2016	02:26:16	Common pipistrell	FP-2	08/06/2016	03:17:50	Common pipistrell	FP-2	09/06/2016	03:06:32	Myotis sp.	FP-2	10/06/2016	01:44:02	Common pipistrelle
FP-2	08/06/2016	02:26:25	Common pipistrell	FP-2	08/06/2016	03:17:59	Common pipistrell	FP-2	09/06/2016	03:07:44	Common pipistrell	FP-2	10/06/2016	01:44:19	Common pipistrelle
FP-2	08/06/2016	02:26:45	Common pipistrell	FP-2	08/06/2016	03:18:07	Common pipistrell	FP-2	09/06/2016	03:13:36	Leisler's bat	FP-2	10/06/2016	01:44:38	Common pipistrelle
FP-2	08/06/2016	02:27:03	Common pipistrell	FP-2	08/06/2016	03:18:19	Common pipistrell	FP-2	09/06/2016	03:14:03	Soprano pipistrelle	FP-2	10/06/2016	01:44:53	Common pipistrelle
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FP-2	08/06/2016	02:27:55	Common pipistrell	FP-2	08/06/2016	03:27:53	Pipistrelle sp.	FP-2	09/06/2016	04:02:59	Soprano pipistrelle	FP-2	10/06/2016	01:46:19	Common pipistrelle
FP-2	08/06/2016	02:28:25	Common pipistrell	FP-2	08/06/2016	03:42:40	Common pipistrell	FP-2	09/06/2016	22:52:34	Common pipistrell	FP-2	10/06/2016	01:46:54	Common pipistrelle
FP-2	08/06/2016	02:28:39	Common pipistrell	FP-2	08/06/2016	03:46:29	Common pipistrell	FP-2	09/06/2016	22:52:47	Common pipistrell	FP-2	10/06/2016	01:47:46	Common pipistrelle
FP-2	08/06/2016	02:29:28	Common pipistrell	FP-2	08/06/2016	22:47:49	Common pipistrell	FP-2	09/06/2016	23:06:14	Pipistrelle sp.	FP-2	10/06/2016	01:47:58	Common pipistrelle
FP-2	08/06/2016	02:29:37	Common pipistrell	FP-2	08/06/2016	23:14:18	Common pipistrell	FP-2	09/06/2016	23:09:54	Pipistrelle sp.	FP-2	10/06/2016	01:48:21	Common pipistrelle
FP-2	08/06/2016	02:29:45	Common pipistrell	FP-2	08/06/2016	23:15:21	Leisler's bat	FP-2	09/06/2016	23:19:22	Common pipistrell	FP-2	10/06/2016	01:48:32	Common pipistrelle
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FP-2	08/06/2016	02:32:10	Common pipistrell	FP-2	09/06/2016	00:55:12	Common pipistrell	FP-2	10/06/2016	00:08:45	Leisler's bat	FP-2	10/06/2016	01:51:33	Common pipistrelle
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FP-2	08/06/2016	02:49:54	Common pipistrell	FP-2	09/06/2016	01:51:58	Common pipistrell	FP-2	10/06/2016	01:41:37	Common pipistrell	FP-2	10/06/2016	02:02:50	Common pipistrelle
FP-2	08/06/2016	02:52:18	Pipistrelle sp.	FP-2	09/06/2016	01:52:08	Common pipistrell	FP-2	10/06/2016	01:41:56	Common pipistrell	FP-2	10/06/2016	02:03:56	Common pipistrelle
FP-2	08/06/2016	03:04:28	Common pipistrell	FP-2	09/06/2016	01:52:44	Common pipistrell	FP-2	10/06/2016	01:42:18	Common pipistrell	FP-2	10/06/2016	02:04:08	Common pipistrelle
FP-2	08/06/2016	03:06:07	Leisler's bat	FP-2	09/06/2016	01:53:02	Common pipistrell	FP-2	10/06/2016	01:42:28	Common pipistrell	FP-2	10/06/2016	02:04:14	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-2	10/06/2016	02:04:55	Common pipistrell	FP-2	10/06/2016	02:29:42	Common pipistrell	FP-2	10/06/2016	02:59:21	Common pipistrell	FP-2	10/06/2016	03:42:31	Common pipistrelle
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FP-2	10/06/2016	02:05:49	Common pipistrell	FP-2	10/06/2016	02:30:32	Common pipistrell	FP-2	10/06/2016	02:59:48	Common pipistrell	FP-2	10/06/2016	03:43:14	Common pipistrelle
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FP-2	10/06/2016	02:15:20	Common pipistrell	FP-2	10/06/2016	02:36:27	Common pipistrell	FP-2	10/06/2016	03:02:09	Common pipistrell	FP-2	10/06/2016	03:46:38	Common pipistrelle
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FP-2	10/06/2016	02:17:42	Common pipistrell	FP-2	10/06/2016	02:38:01	Common pipistrell	FP-2	10/06/2016	03:03:49	Common pipistrell	FP-2	10/06/2016	03:48:54	Common pipistrelle
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FP-2	10/06/2016	02:18:28	Common pipistrell	FP-2	10/06/2016	02:38:44	Common pipistrell	FP-2	10/06/2016	03:05:31	Common pipistrell	FP-2	10/06/2016	03:49:55	Common pipistrelle
FP-2	10/06/2016	02:18:36	Common pipistrell	FP-2	10/06/2016	02:38:58	Common pipistrell	FP-2	10/06/2016	03:06:33	Common pipistrell	FP-2	10/06/2016	03:50:27	Common pipistrelle
FP-2	10/06/2016	02:18:47	Common pipistrell	FP-2	10/06/2016	02:39:08	Common pipistrell	FP-2	10/06/2016	03:07:36	Common pipistrell	FP-2	10/06/2016	03:50:38	Common pipistrelle
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FP-2	10/06/2016	02:19:15	Common pipistrell	FP-2	10/06/2016	02:40:41	Common pipistrell	FP-2	10/06/2016	03:08:56	Common pipistrell	FP-2	10/06/2016	03:51:23	Common pipistrelle
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FP-2	10/06/2016	02:22:06	Common pipistrell	FP-2	10/06/2016	02:55:35	Common pipistrell	FP-2	10/06/2016	03:11:33	Common pipistrell	FP-2	10/06/2016	04:25:42	Leisler's bat
FP-2	10/06/2016	02:23:21	Common pipistrell	FP-2	10/06/2016	02:55:47	Common pipistrell	FP-2	10/06/2016	03:11:45	Common pipistrell	FP-2	10/06/2016	04:28:03	Leisler's bat
FP-2	10/06/2016	02:24:02	Common pipistrell	FP-2	10/06/2016	02:55:59	Common pipistrell	FP-2	10/06/2016	03:11:57	Common pipistrell	FP-2	10/06/2016	23:45:06	Common pipistrelle
FP-2	10/06/2016	02:24:16	Common pipistrell	FP-2	10/06/2016	02:56:12	Common pipistrell	FP-2	10/06/2016	03:12:13	Common pipistrell	FP-2	10/06/2016	23:45:17	Common pipistrelle
FP-2	10/06/2016	02:26:52	Common pipistrell	FP-2	10/06/2016	02:56:42	Common pipistrell	FP-2	10/06/2016	03:13:11	Common pipistrell	FP-2	10/06/2016	23:45:33	Common pipistrelle
FP-2	10/06/2016	02:27:02	Common pipistrell	FP-2	10/06/2016	02:56:53	Common pipistrell	FP-2	10/06/2016	03:13:20	Common pipistrell	FP-2	10/06/2016	23:46:14	Common pipistrelle
FP-2	10/06/2016	02:27:19	Common pipistrell	FP-2	10/06/2016	02:57:15	Common pipistrell	FP-2	10/06/2016	03:13:36	Common pipistrell	FP-2	10/06/2016	23:46:31	Common pipistrelle
FP-2	10/06/2016	02:27:36	Common pipistrell	FP-2	10/06/2016	02:57:25	Common pipistrell	FP-2	10/06/2016	03:14:00	Common pipistrell	FP-2	10/06/2016	23:47:08	Common pipistrelle
FP-2	10/06/2016	02:27:59	Common pipistrell	FP-2	10/06/2016	02:57:51	Common pipistrell	FP-2	10/06/2016	03:14:16	Common pipistrell	FP-2	10/06/2016	23:47:22	Common pipistrelle
FP-2	10/06/2016	02:28:13	Common pipistrell	FP-2	10/06/2016	02:58:06	Common pipistrell	FP-2	10/06/2016	03:14:51	Common pipistrell	FP-2	10/06/2016	23:47:42	Common pipistrelle
FP-2	10/06/2016	02:28:49	Common pipistrell	FP-2	10/06/2016	02:58:32	Common pipistrell	FP-2	10/06/2016	03:15:03	Common pipistrell	FP-2	10/06/2016	23:47:52	Common pipistrelle
FP-2	10/06/2016	02:29:11	Common pipistrell	FP-2	10/06/2016	02:58:42	Common pipistrell	FP-2	10/06/2016	03:15:57	Common pipistrell	FP-2	10/06/2016	23:48:53	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	10/06/2016	23:49:06	Common pipistrell	FP-2	11/06/2016	00:35:05	Common pipistrell	FP-2	11/06/2016	00:45:58	Common pipistrell	FP-2	11/06/2016	01:07:27	Common pipistrelle
FP-2	10/06/2016	23:49:16	Common pipistrell	FP-2	11/06/2016	00:35:28	Common pipistrell	FP-2	11/06/2016	00:46:16	Common pipistrell	FP-2	11/06/2016	01:07:40	Common pipistrelle
FP-2	10/06/2016	23:49:24	Common pipistrell	FP-2	11/06/2016	00:35:37	Common pipistrell	FP-2	11/06/2016	00:51:10	Leisler's bat	FP-2	11/06/2016	01:08:08	Common pipistrelle
FP-2	10/06/2016	23:50:04	Common pipistrell	FP-2	11/06/2016	00:35:49	Common pipistrell	FP-2	11/06/2016	00:53:21	Common pipistrell	FP-2	11/06/2016	01:08:53	Common pipistrelle
FP-2	10/06/2016	23:50:51	Common pipistrell	FP-2	11/06/2016	00:36:09	Common pipistrell	FP-2	11/06/2016	00:53:47	Common pipistrell	FP-2	11/06/2016	01:09:03	Common pipistrelle
FP-2	10/06/2016	23:58:42	Common pipistrell	FP-2	11/06/2016	00:36:19	Common pipistrell	FP-2	11/06/2016	00:54:23	Common pipistrell	FP-2	11/06/2016	01:09:13	Common pipistrelle
FP-2	11/06/2016	00:21:33	Common pipistrell	FP-2	11/06/2016	00:36:32	Common pipistrell	FP-2	11/06/2016	00:54:35	Common pipistrell	FP-2	11/06/2016	01:10:04	Common pipistrelle
FP-2	11/06/2016	00:21:49	Common pipistrell	FP-2	11/06/2016	00:37:18	Common pipistrell	FP-2	11/06/2016	00:54:42	Common pipistrell	FP-2	11/06/2016	01:10:33	Common pipistrelle
FP-2	11/06/2016	00:22:06	Common pipistrell	FP-2	11/06/2016	00:37:35	Common pipistrell	FP-2	11/06/2016	00:54:56	Common pipistrell	FP-2	11/06/2016	01:10:47	Common pipistrelle
FP-2	11/06/2016	00:22:28	Common pipistrell	FP-2	11/06/2016	00:37:51	Common pipistrell	FP-2	11/06/2016	00:55:52	Common pipistrell	FP-2	11/06/2016	01:11:13	Common pipistrelle
FP-2	11/06/2016	00:22:46	Common pipistrell	FP-2	11/06/2016	00:38:02	Common pipistrell	FP-2	11/06/2016	00:56:44	Common pipistrell	FP-2	11/06/2016	01:11:26	Common pipistrelle
FP-2	11/06/2016	00:23:04	Common pipistrell	FP-2	11/06/2016	00:38:12	Common pipistrell	FP-2	11/06/2016	00:56:55	Common pipistrell	FP-2	11/06/2016	01:11:40	Common pipistrelle
FP-2	11/06/2016	00:23:16	Common pipistrell	FP-2	11/06/2016	00:38:28	Common pipistrell	FP-2	11/06/2016	00:57:05	Common pipistrell	FP-2	11/06/2016	01:11:54	Common pipistrelle
FP-2	11/06/2016	00:23:38	Common pipistrell	FP-2	11/06/2016	00:38:37	Common pipistrell	FP-2	11/06/2016	00:57:32	Common pipistrell	FP-2	11/06/2016	01:12:14	Common pipistrelle
FP-2	11/06/2016	00:24:06	Common pipistrell	FP-2	11/06/2016	00:38:51	Common pipistrell	FP-2	11/06/2016	00:57:46	Common pipistrell	FP-2	11/06/2016	01:14:21	Common pipistrelle
FP-2	11/06/2016	00:24:19	Common pipistrell	FP-2	11/06/2016	00:39:02	Common pipistrell	FP-2	11/06/2016	00:57:58	Common pipistrell	FP-2	11/06/2016	01:14:35	Common pipistrelle
FP-2	11/06/2016	00:24:45	Common pipistrell	FP-2	11/06/2016	00:39:36	Common pipistrell	FP-2	11/06/2016	00:58:12	Common pipistrell	FP-2	11/06/2016	01:15:00	Common pipistrelle
FP-2	11/06/2016	00:26:18	Common pipistrell	FP-2	11/06/2016	00:39:48	Common pipistrell	FP-2	11/06/2016	00:58:43	Common pipistrell	FP-2	11/06/2016	01:15:13	Common pipistrelle
FP-2	11/06/2016	00:27:02	Common pipistrell	FP-2	11/06/2016	00:39:57	Common pipistrell	FP-2	11/06/2016	00:59:01	Common pipistrell	FP-2	11/06/2016	01:15:22	Common pipistrelle
FP-2	11/06/2016	00:27:13	Common pipistrell	FP-2	11/06/2016	00:40:05	Common pipistrell	FP-2	11/06/2016	00:59:12	Common pipistrell	FP-2	11/06/2016	01:15:55	Common pipistrelle
FP-2	11/06/2016	00:27:30	Common pipistrell	FP-2	11/06/2016	00:40:18	Common pipistrell	FP-2	11/06/2016	00:59:27	Common pipistrell	FP-2	11/06/2016	01:16:07	Common pipistrelle
FP-2	11/06/2016	00:27:39	Common pipistrell	FP-2	11/06/2016	00:40:36	Common pipistrell	FP-2	11/06/2016	00:59:42	Common pipistrell	FP-2	11/06/2016	01:16:39	Common pipistrelle
FP-2	11/06/2016	00:27:50	Common pipistrell	FP-2	11/06/2016	00:40:53	Common pipistrell	FP-2	11/06/2016	01:00:12	Common pipistrell	FP-2	11/06/2016	01:16:52	Common pipistrelle
FP-2	11/06/2016	00:27:58	Common pipistrell	FP-2	11/06/2016	00:41:06	Common pipistrell	FP-2	11/06/2016	01:00:31	Common pipistrell	FP-2	11/06/2016	01:17:56	Common pipistrelle
FP-2	11/06/2016	00:28:13	Common pipistrell	FP-2	11/06/2016	00:41:28	Common pipistrell	FP-2	11/06/2016	01:00:45	Common pipistrell	FP-2	11/06/2016	01:18:15	Common pipistrelle
FP-2	11/06/2016	00:28:25	Common pipistrell	FP-2	11/06/2016	00:41:49	Common pipistrell	FP-2	11/06/2016	01:00:57	Common pipistrell	FP-2	11/06/2016	01:18:56	Common pipistrelle
FP-2	11/06/2016	00:28:47	Common pipistrell	FP-2	11/06/2016	00:41:58	Common pipistrell	FP-2	11/06/2016	01:01:16	Common pipistrell	FP-2	11/06/2016	01:19:42	Common pipistrelle
FP-2	11/06/2016	00:28:59	Common pipistrell	FP-2	11/06/2016	00:42:07	Common pipistrell	FP-2	11/06/2016	01:01:32	Common pipistrell	FP-2	11/06/2016	01:20:08	Common pipistrelle
FP-2	11/06/2016	00:29:14	Common pipistrell	FP-2	11/06/2016	00:42:16	Common pipistrell	FP-2	11/06/2016	01:01:41	Common pipistrell	FP-2	11/06/2016	01:20:19	Common pipistrelle
FP-2	11/06/2016	00:29:21	Common pipistrell	FP-2	11/06/2016	00:42:25	Common pipistrell	FP-2	11/06/2016	01:01:51	Common pipistrell	FP-2	11/06/2016	01:20:54	Common pipistrelle
FP-2	11/06/2016	00:29:50	Common pipistrell	FP-2	11/06/2016	00:42:39	Common pipistrell	FP-2	11/06/2016	01:02:06	Common pipistrell	FP-2	11/06/2016	01:21:12	Common pipistrelle
FP-2	11/06/2016	00:30:01	Common pipistrell	FP-2	11/06/2016	00:42:52	Common pipistrell	FP-2	11/06/2016	01:02:20	Common pipistrell	FP-2	11/06/2016	01:21:22	Common pipistrelle
FP-2	11/06/2016	00:30:11	Common pipistrell	FP-2	11/06/2016	00:43:02	Common pipistrell	FP-2	11/06/2016	01:02:39	Common pipistrell	FP-2	11/06/2016	01:21:33	Common pipistrelle
FP-2	11/06/2016	00:30:22	Common pipistrell	FP-2	11/06/2016	00:43:36	Common pipistrell	FP-2	11/06/2016	01:02:52	Common pipistrell	FP-2	11/06/2016	01:21:42	Common pipistrelle
FP-2	11/06/2016	00:30:46	Common pipistrell	FP-2	11/06/2016	00:43:48	Common pipistrell	FP-2	11/06/2016	01:03:20	Common pipistrell	FP-2	11/06/2016	01:21:55	Common pipistrelle
FP-2	11/06/2016	00:30:58	Common pipistrell	FP-2	11/06/2016	00:44:03	Common pipistrell	FP-2	11/06/2016	01:03:31	Common pipistrell	FP-2	11/06/2016	01:22:09	Common pipistrelle
FP-2	11/06/2016	00:31:59	Common pipistrell	FP-2	11/06/2016	00:44:10	Common pipistrell	FP-2	11/06/2016	01:03:57	Common pipistrell	FP-2	11/06/2016	01:22:25	Common pipistrelle
FP-2	11/06/2016	00:32:33	Common pipistrell	FP-2	11/06/2016	00:44:20	Common pipistrell	FP-2	11/06/2016	01:04:13	Common pipistrell	FP-2	11/06/2016	01:23:00	Common pipistrelle
FP-2	11/06/2016	00:32:45	Common pipistrell	FP-2	11/06/2016	00:44:36	Common pipistrell	FP-2	11/06/2016	01:04:52	Common pipistrell	FP-2	11/06/2016	01:23:14	Common pipistrelle
FP-2	11/06/2016	00:33:18	Common pipistrell	FP-2	11/06/2016	00:44:45	Common pipistrell	FP-2	11/06/2016	01:05:05	Common pipistrell	FP-2	11/06/2016	01:23:56	Common pipistrelle
FP-2	11/06/2016	00:33:30	Common pipistrell	FP-2	11/06/2016	00:44:55	Common pipistrell	FP-2	11/06/2016	01:06:09	Common pipistrell	FP-2	11/06/2016	01:24:08	Common pipistrelle
FP-2	11/06/2016	00:33:58	Common pipistrell	FP-2	11/06/2016	00:45:05	Common pipistrell	FP-2	11/06/2016	01:06:16	Common pipistrell	FP-2	11/06/2016	01:24:45	Common pipistrelle
FP-2	11/06/2016	00:34:10	Common pipistrell	FP-2	11/06/2016	00:45:20	Common pipistrell	FP-2	11/06/2016	01:06:44	Common pipistrell	FP-2	11/06/2016	01:24:56	Common pipistrelle
FP-2	11/06/2016	00:34:54	Common pipistrell	FP-2	11/06/2016	00:45:40	Common pipistrell	FP-2	11/06/2016	01:06:56	Common pipistrell	FP-2	11/06/2016	01:27:29	Myotis sp.

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
FP-2	11/06/2016	01:33:10	Myotis sp.	FP-2	11/06/2016	23:44:07	Common pipistrell	FP-2	12/06/2016	00:02:47	Common pipistrell	FP-2	12/06/2016	02:06:06	Common pipistrelle
FP-2	11/06/2016	01:44:50	Common pipistrell	FP-2	11/06/2016	23:44:15	Common pipistrell	FP-2	12/06/2016	00:03:00	Common pipistrell	FP-2	12/06/2016	02:17:37	Common pipistrelle
FP-2	11/06/2016	03:33:27	Common pipistrell	FP-2	11/06/2016	23:44:58	Common pipistrell	FP-2	12/06/2016	00:03:32	Common pipistrell	FP-2	12/06/2016	02:22:39	Common pipistrelle
FP-2	11/06/2016	03:39:54	Common pipistrell	FP-2	11/06/2016	23:45:08	Common pipistrell	FP-2	12/06/2016	00:03:39	Common pipistrell	FP-2	12/06/2016	02:24:08	Common pipistrelle
FP-2	11/06/2016	03:44:36	Common pipistrell	FP-2	11/06/2016	23:45:18	Common pipistrell	FP-2	12/06/2016	00:03:48	Common pipistrell	FP-2	12/06/2016	02:24:16	Common pipistrelle
FP-2	11/06/2016	04:02:51	Common pipistrell	FP-2	11/06/2016	23:45:30	Common pipistrell	FP-2	12/06/2016	00:04:05	Common pipistrell	FP-2	12/06/2016	02:24:39	Common pipistrelle
FP-2	11/06/2016	04:08:49	Soprano pipistrelle	FP-2	11/06/2016	23:45:45	Common pipistrell	FP-2	12/06/2016	00:04:37	Common pipistrell	FP-2	12/06/2016	02:25:14	Common pipistrelle
FP-2	11/06/2016	04:13:07	Leisler's bat	FP-2	11/06/2016	23:45:53	Common pipistrell	FP-2	12/06/2016	00:05:25	Common pipistrell	FP-2	12/06/2016	02:25:32	Common pipistrelle
FP-2	11/06/2016	23:24:34	Common pipistrell	FP-2	11/06/2016	23:46:22	Common pipistrell	FP-2	12/06/2016	00:06:27	Common pipistrell	FP-2	12/06/2016	02:26:41	Common pipistrelle
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FP-2	11/06/2016	23:25:45	Common pipistrell	FP-2	11/06/2016	23:46:46	Common pipistrell	FP-2	12/06/2016	00:07:09	Common pipistrell	FP-2	12/06/2016	02:27:25	Common pipistrelle
FP-2	11/06/2016	23:25:55	Common pipistrell	FP-2	11/06/2016	23:47:01	Common pipistrell	FP-2	12/06/2016	00:07:26	Common pipistrell	FP-2	12/06/2016	02:59:11	Common pipistrelle
FP-2	11/06/2016	23:26:37	Common pipistrell	FP-2	11/06/2016	23:47:24	Common pipistrell	FP-2	12/06/2016	00:07:34	Common pipistrell	FP-2	12/06/2016	03:42:38	Common pipistrelle
FP-2	11/06/2016	23:26:48	Common pipistrell	FP-2	11/06/2016	23:47:40	Common pipistrell	FP-2	12/06/2016	00:08:51	Common pipistrell	FP-2	12/06/2016	03:48:25	Common pipistrelle
FP-2	11/06/2016	23:27:37	Common pipistrell	FP-2	11/06/2016	23:48:08	Common pipistrell	FP-2	12/06/2016	00:08:58	Common pipistrell	FP-2	12/06/2016	04:13:55	Common pipistrelle
FP-2	11/06/2016	23:27:47	Common pipistrell	FP-2	11/06/2016	23:48:17	Common pipistrell	FP-2	12/06/2016	00:09:33	Common pipistrell	FP-2	12/06/2016	22:28:32	Leisler's bat
FP-2	11/06/2016	23:28:02	Common pipistrell	FP-2	11/06/2016	23:48:25	Common pipistrell	FP-2	12/06/2016	00:19:34	Common pipistrell	FP-2	12/06/2016	22:46:37	Common pipistrelle
FP-2	11/06/2016	23:28:16	Common pipistrell	FP-2	11/06/2016	23:48:34	Common pipistrell	FP-2	12/06/2016	00:19:54	Common pipistrell	FP-2	12/06/2016	23:08:32	Common pipistrelle
FP-2	11/06/2016	23:28:33	Common pipistrell	FP-2	11/06/2016	23:48:48	Common pipistrell	FP-2	12/06/2016	00:20:30	Common pipistrell	FP-2	12/06/2016	23:12:03	Leisler's bat
FP-2	11/06/2016	23:29:40	Common pipistrell	FP-2	11/06/2016	23:49:00	Common pipistrell	FP-2	12/06/2016	00:25:50	Common pipistrell	FP-2	12/06/2016	23:20:31	Soprano pipistrelle
FP-2	11/06/2016	23:30:01	Common pipistrell	FP-2	11/06/2016	23:49:13	Common pipistrell	FP-2	12/06/2016	00:47:20	Brown Long-eared	FP-2	12/06/2016	23:26:46	Common pipistrelle
FP-2	11/06/2016	23:30:41	Common pipistrell	FP-2	11/06/2016	23:51:15	Common pipistrell	FP-2	12/06/2016	00:56:55	Common pipistrell	FP-2	12/06/2016	23:42:36	Common pipistrelle
FP-2	11/06/2016	23:30:54	Common pipistrell	FP-2	11/06/2016	23:51:35	Common pipistrell	FP-2	12/06/2016	00:57:13	Common pipistrell	FP-2	12/06/2016	23:58:07	Common pipistrelle
FP-2	11/06/2016	23:31:55	Common pipistrell	FP-2	11/06/2016	23:51:46	Common pipistrell	FP-2	12/06/2016	01:04:20	Common pipistrell	FP-2	13/06/2016	00:09:25	Common pipistrelle
FP-2	11/06/2016	23:32:04	Common pipistrell	FP-2	11/06/2016	23:52:00	Common pipistrell	FP-2	12/06/2016	01:04:53	Common pipistrell	FP-2	13/06/2016	00:26:23	Common pipistrelle
FP-2	11/06/2016	23:32:31	Common pipistrell	FP-2	11/06/2016	23:52:27	Common pipistrell	FP-2	12/06/2016	01:05:04	Common pipistrell	FP-2	13/06/2016	00:30:31	Common pipistrelle
FP-2	11/06/2016	23:32:39	Common pipistrell	FP-2	11/06/2016	23:52:35	Common pipistrell	FP-2	12/06/2016	01:05:12	Common pipistrell	FP-2	13/06/2016	00:44:10	Common pipistrelle
FP-2	11/06/2016	23:32:53	Common pipistrell	FP-2	11/06/2016	23:52:46	Common pipistrell	FP-2	12/06/2016	01:06:13	Common pipistrell	FP-2	13/06/2016	02:36:55	Common pipistrelle
FP-2	11/06/2016	23:33:04	Common pipistrell	FP-2	11/06/2016	23:53:00	Common pipistrell	FP-2	12/06/2016	01:07:25	Common pipistrell	FP-2	13/06/2016	02:37:05	Common pipistrelle
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FP-2	11/06/2016	23:33:42	Common pipistrell	FP-2	11/06/2016	23:53:38	Common pipistrell	FP-2	12/06/2016	01:07:54	Common pipistrell	FP-2	13/06/2016	04:27:28	Leisler's bat
FP-2	11/06/2016	23:33:55	Common pipistrell	FP-2	11/06/2016	23:53:53	Common pipistrell	FP-2	12/06/2016	01:08:13	Common pipistrell	FP-2	13/06/2016	22:36:56	Common pipistrelle
FP-2	11/06/2016	23:34:14	Common pipistrell	FP-2	11/06/2016	23:54:08	Common pipistrell	FP-2	12/06/2016	01:22:13	Common pipistrell	FP-2	13/06/2016	23:11:51	Common pipistrelle
FP-2	11/06/2016	23:34:44	Common pipistrell	FP-2	11/06/2016	23:54:18	Common pipistrell	FP-2	12/06/2016	01:22:23	Common pipistrell	FP-2	13/06/2016	23:20:59	Common pipistrelle
FP-2	11/06/2016	23:35:18	Common pipistrell	FP-2	11/06/2016	23:54:27	Common pipistrell	FP-2	12/06/2016	01:22:34	Common pipistrell	FP-2	13/06/2016	23:31:14	Pipistrelle sp.
FP-2	11/06/2016	23:35:33	Common pipistrell	FP-2	11/06/2016	23:54:35	Common pipistrell	FP-2	12/06/2016	01:22:45	Common pipistrell	FP-2	13/06/2016	23:53:01	Common pipistrelle
FP-2	11/06/2016	23:35:45	Common pipistrell	FP-2	12/06/2016	00:00:23	Common pipistrell	FP-2	12/06/2016	01:23:01	Common pipistrell	FP-2	13/06/2016	23:59:46	Leisler's bat
FP-2	11/06/2016	23:36:02	Common pipistrell	FP-2	12/06/2016	00:00:50	Common pipistrell	FP-2	12/06/2016	01:23:09	Common pipistrell	FP-2	14/06/2016	00:04:38	Common pipistrelle
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FP-2	11/06/2016	23:43:49	Common pipistrell	FP-2	12/06/2016	00:01:46	Common pipistrell	FP-2	12/06/2016	02:05:45	Common pipistrell	FP-2	14/06/2016	01:04:00	Common pipistrelle
FP-2	11/06/2016	23:43:59	Common pipistrell	FP-2	12/06/2016	00:02:02	Common pipistrell	FP-2	12/06/2016	02:05:51	Common pipistrell	FP-2	14/06/2016	01:04:10	Common pipistrelle

ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-2	14/06/2016	22:45:08	Common pipistrell	FP-2	15/06/2016	23:17:35	Common pipistrell	FP-2	16/06/2016	00:46:06	Leisler's bat	FP-2	16/06/2016	03:47:50	Common pipistrelle
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FP-2	14/06/2016	23:08:59	Common pipistrell	FP-2	15/06/2016	23:22:47	Common pipistrell	FP-2	16/06/2016	00:47:45	Leisler's bat	FP-2	16/06/2016	04:19:05	Common pipistrelle
FP-2	14/06/2016	23:10:17	Common pipistrell	FP-2	15/06/2016	23:25:11	Leisler's bat	FP-2	16/06/2016	00:48:13	Leisler's bat	FP-2	16/06/2016	22:29:21	Leisler's bat
FP-2	14/06/2016	23:12:28	Leisler's bat	FP-2	15/06/2016	23:27:29	Common pipistrell	FP-2	16/06/2016	00:48:27	Common pipistrell	FP-2	16/06/2016	22:51:14	Common pipistrelle
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FP-2	15/06/2016	00:10:47	Leisler's bat	FP-2	15/06/2016	23:36:24	Common pipistrell	FP-2	16/06/2016	00:48:46	Leisler's bat	FP-2	16/06/2016	22:51:33	Common pipistrelle
FP-2	15/06/2016	01:07:37	Common pipistrell	FP-2	15/06/2016	23:38:16	Common pipistrell	FP-2	16/06/2016	00:49:59	Common pipistrell	FP-2	16/06/2016	22:51:47	Common pipistrelle
FP-2	15/06/2016	01:07:48	Common pipistrell	FP-2	15/06/2016	23:38:39	Common pipistrell	FP-2	16/06/2016	00:49:59	Leisler's bat	FP-2	16/06/2016	22:52:00	Common pipistrelle
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FP-2	15/06/2016	02:11:59	Common pipistrell	FP-2	16/06/2016	00:07:48	Common pipistrell	FP-2	16/06/2016	01:05:48	Common pipistrell	FP-2	16/06/2016	22:54:35	Common pipistrelle
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FP-2	15/06/2016	22:31:08	Common pipistrell	FP-2	16/06/2016	00:25:52	Leisler's bat	FP-2	16/06/2016	01:07:02	Leisler's bat	FP-2	16/06/2016	23:01:15	Common pipistrelle
FP-2	15/06/2016	23:00:04	Common pipistrell	FP-2	16/06/2016	00:26:05	Common pipistrell	FP-2	16/06/2016	01:09:20	Leisler's bat	FP-2	16/06/2016	23:01:34	Common pipistrelle
FP-2	15/06/2016	23:01:21	Common pipistrell	FP-2	16/06/2016	00:26:05	Leisler's bat	FP-2	16/06/2016	01:16:05	Common pipistrell	FP-2	16/06/2016	23:03:19	Common pipistrelle
FP-2	15/06/2016	23:02:23	Common pipistrell	FP-2	16/06/2016	00:29:44	Leisler's bat	FP-2	16/06/2016	01:16:44	Common pipistrell	FP-2	16/06/2016	23:04:20	Common pipistrelle
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FP-2	15/06/2016	23:03:15	Common pipistrell	FP-2	16/06/2016	00:30:48	Leisler's bat	FP-2	16/06/2016	01:16:53	Leisler's bat	FP-2	16/06/2016	23:05:07	Common pipistrelle
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FP-2	15/06/2016	23:11:48	Common pipistrell	FP-2	16/06/2016	00:41:25	Common pipistrell	FP-2	16/06/2016	03:19:26	Soprano pipistrelle	FP-2	16/06/2016	23:36:08	Common pipistrelle
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ID	Date	Time	Bat Species	ID	Date	Time	Bat Species	ID	Date	Time	Bat Species
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FP-2	17/06/2016	02:47:08	Common pipistrell	FP-2	17/06/2016	03:22:05	Common pipistrell	FP-4	05/08/2016	22:48:03	Common pipistrelle
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FP-2	17/06/2016	03:06:53	Common pipistrell	FP-2	17/06/2016	03:42:00	Common pipistrelle				
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FP-2	17/06/2016	03:12:50	Common pipistrell	FP-4	30/07/2016	23:59:03	Common pipistrelle				
FP-2	17/06/2016	03:14:36	Common pipistrell	FP-4	31/07/2016	22:28:03	Common pipistrelle				
FP-2	17/06/2016	03:15:08	Common pipistrell	FP-4	31/07/2016	22:58:03	Common pipistrelle				
FP-2	17/06/2016	03:15:24	Common pipistrell	FP-4	31/07/2016	22:58:03	Soprano pipistrelle				
FP-2	17/06/2016	03:16:37	Common pipistrell	FP-4	31/07/2016	23:28:03	Common pipistrelle				
FP-2	17/06/2016	03:17:58	Common pipistrell	FP-4	31/07/2016	23:58:03	Pipistrelle sp.				

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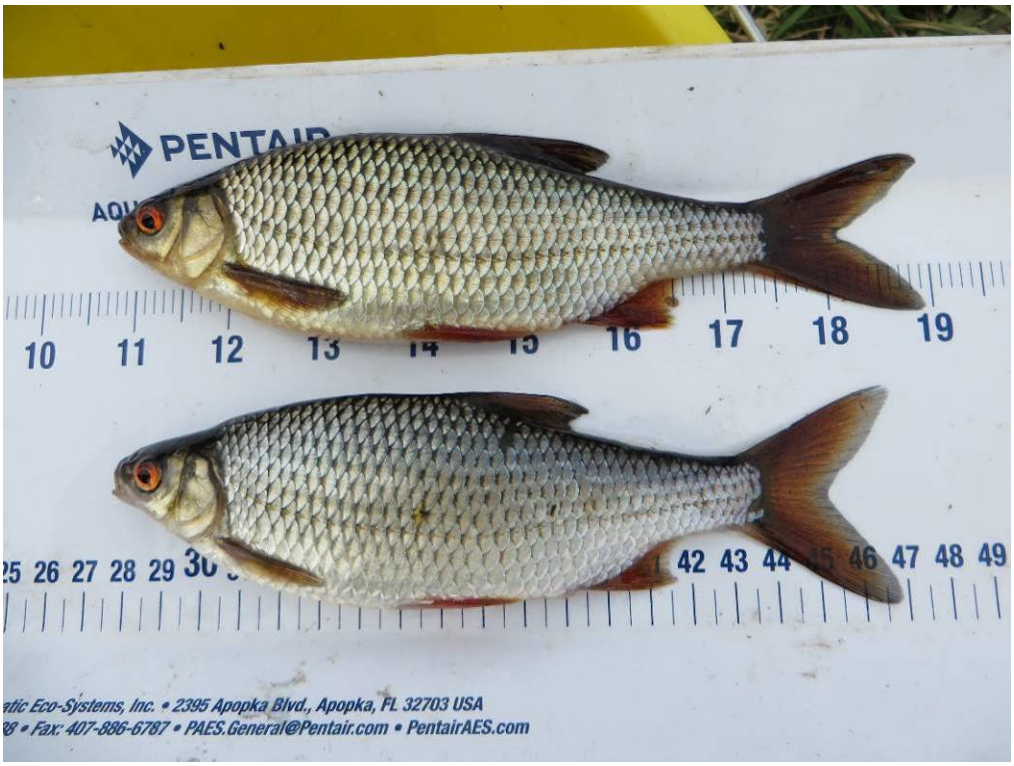

FINAL REPORT 04-08-15

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2. METHODS

2.1 Site locations

Site locations are presented in Appendix 1. It is noted that one site (FW-01) was dried out and a substitute site was selected (FW-47).

2.2 Chemical water quality survey

Chemical water quality samples were taken at all sites during the weeks ending 1st August 2014, 29th August 2014, 10th October 2014, and 7th November 2015. Samples were taken from each site using a swing sampler and were stored in cooler boxes. They were collected each evening by courier and delivered overnight to Alcontrol Laboratories (UK). The full list of parameters tested, and the level of detection used, is presented in Appendix 2. The following physico-chemical parameters were assessed: pH, Colour, Chemical Oxygen Demand, Biochemical Oxygen Demand, Total Dissolved solids, Total Suspended Solids, Total Organic Carbon, Total Alkalinity (as CaCO3), Total Phosphorous, Ammonical Nitrogen as N, Nitrate, Nitrite, Chloride, Sulphate, Calcium, Sodium, Magnesium, Potassium, Beryllium, Aluminium, Tin, Iron, Boron, Chromium, Manganese, Nickel, Cobalt, Silver, Lead, Copper, Zinc, Arsenic, Selenium, Cadmium, Antimony, Barium, Uranium and DRO/EPH (C8-40).

Onsite measurements of Dissolved Oxygen, Electrical Conductivity and Water temperature were also taken by ECOFACT staff on-site using portable meters. Each site was assigned a chemical status on a scale of High-Good-Moderate-Poor-Bad based on water quality standards given in Surface Water Regulations (DOEHLG, 2009), the Freshwater Fish Directive (78/659/EEC) and the Salmonid Water Regulations (1998).

2.3 Habitat surveys

Habitat assessment was carried out on, and in the vicinity of each site using the methodology given in the Environment Agency's 'River Habitat Survey in Britain and Ireland Field Survey Guidance Manual 2003' (EA, 2003) and the Irish Heritage Council's 'A Guide to Habitats in Ireland' (Fossitt, 2000). All the waterbodies were assessed in terms of:

- Stream width and depth and other physical characteristics;
- Substrate type, listing substrate fractions in order of dominance, i.e. large rocks, cobble, gravel, sand, mud etc.;
- Flow type, listing percentage of riffle, glide and pool in the sampling area;
- Instream vegetation, listing plant species occurring and their percentage coverage of the stream bottom at the sampling site (as applicable) and on the bankside;
- Estimated cover by bankside vegetation, giving percentage shade of the sampling site.

The morphological status of the watercourses surveyed was categorised on a scale of High-Good-Moderate-Poor-Bad.

2.4 Fish surveys

2.3.1 Teleosts

An electrical fishing survey was undertaken at all sites under authorisation from the Department of Communication, Energy and Natural Resources under Section 14 of the Fisheries Act (1980). It is noted that some of the watercourses were too small to complete a full survey, but all were checked for presence / absence of fish. Sites were surveyed following the methodology outlined in the CFB (2008) guidance "*Methods for the Water Framework Directive - Electric fishing in wadable reaches*". A portable electrical fishing unit (Smith Root-LR 24 backpack or Marine Electrics Safari Researcher 660D) was used during the assessments. Fishing was carried out continuously for 20 minutes at each of the sites located on the larger watercourses, and for at least 5 minutes at the smaller stream sites. Stop nets were used at each of the larger watercourse sites. Captured fish were collected into a container of river water using dip nets. On completion of the survey fish were then anaesthetised using a solution of 2-phenoxyethanol, identified, and measured to the nearest mm using a measuring board. Subsequent to this the fish were allowed to recover in a container of river water and were the released alive and spread evenly over the sampling area. No mortalities were recorded.

Following completion of the fishing the dimensions and physical habitat characteristics of each site were recorded. Results of the investigations were considered in relation to Catch per Unit Effort (CPUE) indices; fish number/m^2 and fish number/minute fishing.

The surveys were carried out under ideal environmental conditions; normal-low water levels and bright days. However, visibility was still poor at many of the sites due to apparently high dissolved solids / colour and instream vegetation. Luxuriant instream vegetation affected efficiency at numerous sites. Electrical fishing in the Killinagh Upper Stream (FW- 40) and the upper Figile River at FW-44 was confined to small pockets of water as these parts of the watercourses were largely choked with vegetation. Due to the extent of instream vegetation and depth of the Figile River at Sites FW-36 and the Lullymore East River at Site FW-37, difficulties were experienced with regard to electrical fishing. Soft peaty substrates along with depths greater than 1m at these sites prevented electrical fishing being carried out from within the channel. The small size of these watercourses prevented electrical fishing from a boat and the tainted colour of these waters ruled out a snorkelling survey. At these locations, electrical fishing was carried out from the bank.

Vegetation also presented difficulties during the electrical fishing investigations carried out at Site FW-41 on the Slate River and FW-17. Electrical fishing at Site FW-37 was limited to a width of ca. 1m - despite the channel being an overall wetted width of nearly 4m - owing to the presence of emergent vegetation at the right side of the channel. At Site FW-41, rafts of vegetation encroaching from the banks provided refuge for fish. To capture fish at this site, it was necessary to push the anode of the electrical fishing machine into and under submerged vegetation and withdraw the anode. In some heavily vegetated parts of this site, fish were detected (heard splashing) but not

captured. It is noted that most fish at this site evaded capture due to vegetative cover. Fish were not captured in the thalweg (part of the river conveying the bulk of water) at this location.

Soft substrates at Site FW-12 on the Esker Stream, Site FW-18 on the Ballaghassaan Stream, Site FW-23 on the Kilmurry River and Site FW-30 made negotiation difficult. Movement along these channels was at a slow rate which reduced efficiency.

Water depth and river vegetation made electrical fishing impractical at Site FW-07. Methodology for fish surveying by snorkelling given in Johnson *et al.* (2007) was used to assess fish at Site FW-07 on the Castlejordan River. Snorkel surveys are widely used to monitor fish populations in streams and to estimate both relative and total abundance (Slaney and Martin, 1987). A variety of fish species can be assessed using snorkel surveys; however, salmonids, due to their territorial nature in freshwater and propensity for using habitats with high water clarity, are the group for which snorkel surveys are most frequently conducted. Snorkelling is often feasible in places where other methods are not; for example, deep clear water with low conductivity makes electrofishing prohibitive (Johnson *et al.,* 2007). Snorkelling was not feasible in many watercourses due to poor visibility (peat stained water). Snorkelling can also be used to assess fish distribution, presence/absence surveys, species assemblages (i.e., diversity), some stock characteristics (e.g., length estimation), and habitat use. A wet suit was worn during this survey to provide insulation.

Fish were identified with reference to the Freshwater Biological Association's publication 'Key to British Freshwater Fish with notes on their ecology and distribution' (Maitland, 2004).

2.3.2 Lampreys

Juvenile lamprey surveys generally followed the methodology for ammocoete surveys given in the manual 'Monitoring the River, Brook and Sea Lamprey, *Lampetra fluviatilis*, *L. planeri* and *Petromyzon marinus* by Harvey & Cowx (2003). Electrical fishing for juvenile lampreys was carried using 1m^2 sub-site enclosures. A total of 3 x 1 m^2 enclosures were fished at each site where suitable habitat was present and where conditions allowed. Electrical fishing for juvenile lampreys was carried out in the most suitable juvenile lamprey habitats that could be found habitat taking cognisance of habitat suitability outlined in O'Connor (2006). Identification followed the manual 'Identifying Lamprey. A Field key for Sea, River and Brook Lamprey' by Gardiner (2003). It is noted that most channels within the study area did not have optimal juvenile lamprey habitats due to their low gradient and channelised nature.

Heavily vegetated sides of channels could also often not be assessed for lamprey sampling. These areas and parts of rivers too deep to perform electrical fishing were sampled by agitation sampling. With agitation sampling, substrates are rapidly disturbed by kicking and fine mesh dip net is swept over the disturbed area. In the case of very soft substrates, the dip net was used to remove silt from the river and this silt was examined for the presence of lampreys on the bank of the river. Lampreys were detected in this manner at Site FW-16 for example.

2.4 Aquatic macroinvertebrate surveys

2.4.1 General benthic macroinvertebrate surveys

Benthic macroinvertebrates can be used as an indicator of water quality and were collected at each survey location using standard methodology on one occasion. Benthic macroinvertebrates, or aquatic insects are small stream-inhabiting creatures that are large enough to be seen with the naked eye and spend all or part of their life cycle in or on the stream bottom. The name benthic macroinvertebrate means bottom-dwelling (benthic) and small organisms without backbones (invertebrate). Benthic macroinvertebrates have adapted to life in a stream, utilizing all habitat niches. For example, some are adapted to higher velocity portions of the stream, some live below the bottom of the stream, some crawl for food, while others let the food come to them. Healthy streams can have several hundred different kinds of benthic macroinvertebrates with total numbers ranging in the thousands. Biotic indices (Q-rating, BMWP, ASPT and EPT) were used to rate the biological status of the study sites which were largely representative of the watercourses in the study area. Macroinvertebrate samples were taken in accordance with I.S. EN ISO 5667-3:2004: Water Quality – Sampling – Part 3: Guidance on the Preservation and Handling of Water Samples and ISO 7828: Water Quality – Methods of biological sampling – Guidance on Hand net sampling of aquatic benthic macro-invertebrates.

Qualitative sampling of benthic (or bottom dwelling) macroinvertebrates was undertaken at all survey sites using kick-sampling (Toner *et al.*, 2005). This procedure involved the use of a 'D' shaped hand net (mesh size 0.5 mm; 350 mm diameter) which was submerged on the river bed with its mouth directed upstream. The substrate upstream of the net was then kicked for one minute in order to dislodge invertebrates, which were subsequently caught in the net. Where possible, this procedure was undertaken at three points along/across the watercourse. Stone washings and vegetation sweeps were also undertaken to ensure a representative sample of the fauna present at each site was collected. Macroinvertebrate sampling was restricted to sweeps at numerous sites, owing to river depth, or due to the presence of substrates entirely of peat, or a combination of these limiting factors. For example, this approach was deployed at Site FW-15, Site FW-23 and Site FW-34 where the watercourse was not entered and where sampling was carried out from the water's edge or from the bank. In situations where standard biological sampling could not be carried out, such as the three site named above, extra exertion was given to the sweep sampling.

All samples of invertebrates were combined for each site and live sorted on the river bank and fixed in ethanol for subsequent laboratory identification. The relative abundance of macroinvertebrates was recorded on-site at each site.

2.4.2 Mussel surveys

The potential for the Freshwater Pearl Mussel *Margaritifera margaritifera* to occur at each site was also assessed. Mussel surveys were undertaken at all sites where there was suitable habitat. FPM

habitat suitability was assessed with reference to Conserving Natura 2000 Rivers Ecology Series No. 2 'Ecology of the Freshwater Pearl Mussel' (Skinner *et al.* (2003). It is noted that very few of the sites had any potential and only *Anodonta* sp. mussels were recorded during these surveys.

2.4.3 Crayfish surveys

Dedicated white-clawed crayfish *Austropotamobius pallipes* surveys were undertaken at every site under licence from National Parks and Wildlife Service (NPWS). Methodology for White-clawed Crayfish surveying followed recognised procedures (hand searching, sweep netting) given in the manual 'A technical manual for monitoring white-clawed crayfish *Austropotamobius pallipes* in Irish lakes' by Reynolds *et al.* (2010). Hand searches were carried by snorkelling in water 20cm or more and with a bathyscope in shallower waters. Snorkelling was carried out using a snorkel, mask and wet suit. A total of 100 potential refuges (ten patches each with ten potential refuges) were investigated at each location where hand searches were conducted. Habitat considered to offer the best potential refuges was selected at each site. Potential refuges are places that can shelter crayfish and include spaces under rocks, logs, holes in banks, crevices between stonework in structures and instream objects such as tyres etc. Following the examination of each refuge, the refuge type, where applicable was reinstated to its original position insofar as possible e.g. rocks repositioned to their original location and orientation. Boulders greater than 30cm were not moved during hand searching due to the possibility of damage to crayfish and their refuges. The catch of crayfish was expressed as a number per 100 refuges.

A hand-held pond net (408cm X 205cm, mesh size 1 mm) was used for sweep sampling. One standard sweep of the net was considered a sampling unit. A standard sweep was executed by drawing the net along one metre of submerged river vegetation as quickly as possible. This procedure was carried out in an upward and upstream direction insofar as possible. Alternatively, a standard sweep was executed by drawing the net along one metre of bottom substrate, forward and back once along the same track, taking one second per movement. Ten sweeps were carried out per site at various locations around weirs. Effort (CPUE) was recorded as number of crayfish per standard sweep.

Records were taken of all captured White-clawed crayfish at each site (numbers of crayfish, life stage, and method of capture). Any unusual anatomical features such as a missing cheliped was noted, or if a specimen had recently moulted. For juvenile and adult crayfish, total length TL (excluding claws) was measured using vernier callipers. TL is from the tip of the rostrum to the end of the telson (tail). Hatchlings were not measured due to their frailty. White clawed crayfish of TL ≤ 15mm were classed as hatchlings. Crayfish in the length range 16-50mm were recorded as juveniles and specimens having a total length of greater than 50mm were classed as adults, in accordance with Reynolds (2006).

2.5 Biological water quality

Benthic macroinvertebrates were used as an indicator of water quality at the study sites. Macroinvertebrate data was assembled into indices for comparison between sites. The Quality Rating (Q) System (Toner *et al*, 2005) is the standard biotic index which is used by the Environmental Protection Agency. This method categorises invertebrates into one of five groups, depending on their sensitivity to pollution. Where possible, Q-ratings were derived for sites. Further details on the Q-rating system and its relationship to the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. 272 of 2009) are provided in Appendix 7.

The other main biotic index used was the BMWP score. In the revised BMWP scheme (Walley and Hawkes, 1997) biotic index of water quality, each family recorded in the sample is assigned a habitat specific score. This score depends on the pollution sensitivity of the invertebrate family together with the characteristics of the site where the invertebrates were found. A site is classed as one of the following depending on substrate type: riffle (>= 70% boulders and pebbles), pool (>= 70% sand and silt) or riffle/pool (the remainder). The BMWP score is the sum of the individual scores of the families recorded at each site - a family scores if present. A higher BMWP score is considered to reflect a better water quality and a score over 100 is indicative of very good water quality. Table X shows revised BMWP scores and Table X gives the BMWP scoring system. Each site was assigned a biological status on a scale of High-Good-Moderate-Poor-Bad.

Each site was allocated an Average Score Per Taxa (ASPT). A weakness of the BMWP system, in common with many other score systems, is the effect of sampling effort. A prolonged sampling period can be expected, under most circumstance, to produce a higher final score than a sample taken quickly. To overcome this inherent weakness of the BMWP system, it became common practice to calculate the ASPT. The ASPT index calculation is based on the average value of each taxa (families) sampled is calculated by summing up the indicator values and their division by numbers of taxa (families) sampled and ranges from 0 to 10. A high ASPT index values indicates thus high ecological status and low values indicate bad/degraded ecological status. In general, the higher the number of taxa present, the better the biological quality of the reach, especially where the ASPT values are high (greater than 5.5).

The EPT index (Lenat, 1988) uses three orders of aquatic insects that are easily sorted and identified: Ephemeroptera (mayflies), Plecoptera (stoneflies and Trichoptera (caddisflies), and is commonly used as an indicator of water quality. The EPT Index is based on the premise that high-quality streams usually have the greatest species richness. Many aquatic insect species are intolerant of pollutants and will not be found in polluted waters. The greater the pollution, the lower the species richness expected, as only a few species are pollutant tolerant

Results

3.2.15 Site FW-16

Site FW-16 was located on the 3rd order Esker River (EPA segment code 14_251) in the Barrow catchment. FW-16 was located in the townland of Esker, approximately 7.5km east of Daingean. The Esker River joins the Daingean River 300m downstream of the site. The Daingean River flows into the Figile River at Clonbulloge Village.

Improved agricultural grassland (GA1) was the terrestrial habitat of the area surrounding the site. The site was located at the downstream side of the R402 regional road bridge crossing. The vicinity of the site had a high percentage riffle (50%) and a moderately steep gradient; this gave the site a habitat classification of 'eroding river (FW1)'. Downstream and upstream of the site, low gradients and sluggish nature gave these sections of river a classification of 'depositing river (FW2)'. This section of river was deemed to be in moderate morphological status. The channel banks were 1.2m high and at a 60° slope. The banks exhibited 100% vegetation cover. The wetted width of the channel was 4.5m. The mean and maximum depths of the channel were 20cm and over 100cm respectively. This section of stream a water velocity of 0.35m/s; the third highest water velocity of all the sites studied. The Siltation of the substrate was heavy. The substrate was composed of cobble rubble (70%) with rock, gravel and fine all being 10% respectively.

This site was surveyed by electrofishing for 20 minutes. A total area of 60m^2 was surveyed. The fish species found were Stone Loach (N=28), Brown Trout (N=5), Dace (N=2) and Minnow (N=2). The recorded lengths of the Stone Loach ranged between 3.8cm and 8.6cm. The recorded sizes of the Brown Trout ranged between 7.3cm and 8.1cm. Crayfish were found to be present at Site FW-16. During the sweep sampling hatchling Crayfish (N=12), adult Crayfish (N=4) and juvenile Crayfish (N=3) were captured. During the hand searching survey juvenile crayfish (N=12) and crayfish hatchlings (N=6) were captured. A total of 100 cobble stone refuges were searched. Brook lamprey (N=1) was captured while biological sampling in a depth of over 1m. However, poor visibility and water depth prevented a specific lamprey survey to be conducted in optimal habitat. Shallower areas along the surveyed reach comprised of rocky substrates unsuitable for juvenile Lamprey. It is likely that suitable habitat occur in deeper parts of the river. Heavy rainfall the night before increased the turbidity and depth of the watercourse. Approximately 20% of this site was covered by in-stream vegetation; however the majority of this was encroachment of Reed canary-grass *Phalaris arundinacea.* Dense stands of Fools watercress *Apium nodiflorum and* Watercress *Rorippa nastertium-aquaticum* were also found in-stream.

A rich instream macroinvertebrate community was recorded at this location. Macroinvertebrates across 21 families were recorded, this broad assemblage attributed to the occurrence of both riffled and sluggish habitat at this site. Ephemeropterans were well represented with larvae of pollution sensitive (Group A) *Ecdyonurus* sp. and group B *P. cincta* present, and group C larvae of *B. rhodani* and *Serratella ignita* numerous and common respectively. Four families of caddisfly were also present: cased *Halesus digitatus* of Limnephilidae, and caseless *H. siltali* of Hydropsychidae, *Rhyacophila dorsalis* of Rhyacophilidae and *Plectronemia conspersa* of Polycentropodidae. Small numbers of true fly larvae of *Selenium* sp. and green chironomids were recorded. *A. pallipes* and *A. aquaticus* of Order Crustacea were scarce. Bugs recorded at this site included *Aphelocheirus aestivalis* and *Notonecta* sp. Biological water quality at this site was rated 'Q3-4, Slightly polluted' using EPA freshwater biological monitoring criteria. This rating corresponds to WFD 'Moderate' status. 'Very good' water quality is implied by the BMWP index where this site scored 127.9, interpreted as 'Unpolluted, unimpacted'. Similarly, the ASPT and EPT scores of 6.4 and 8 respectively are indicative of good water quality.

Dissolved oxygen levels at the site ranged from 6.84ppm (70%) (during round 1) to 7.9ppm (69.2%) (during round 4). Conductivity ranged from 625 µs/cm (round 1) to 308 µs/cm (round 3). Water temperature varied from 8.3°C (round 4) to 16.6°C (round 1). Total Alkalinity ranged from 115mg/l to 310mg/l, pH ranged from 7.69 to 8.29. Magnesium ranged from 4.96mg/l to 11.80mg/l. Calcium ranged from 45.4mg/l to 103.0mg/l. Total Phosphorous ranged from below the level of detection to 60.8µg/l., Nitrate as NO_3 ranged from 4.84mg/l to 9.97mg/l and Nitrite as NO_2 ranged from 0.054mg/l to 0.160mg/l which was elevated in relation to the European Communities (Quality of Salmonid Waters) Regulations, 1988. Total Ammoniacal Nitrogen ranged from below the level of detection to 1.98mg/l, thereby failing in three rounds out of four with regard to SWR (2009) AA-EQS. Total Dissolved Solids ranged from 204mg/l to 424mg/l.

Total Suspended Solids ranged from below the level of detection to 12.8mg/l and may have been higher than this at the time of the aquatic ecology survey. True Colour ranged from 58.9mg/l Pt/Co to 1160.0mg/l Pt/Co. BOD ranged from below the level of detection to 2.29mg/l, thereby failing, in one round only, to meet EQS of 1.5mg/l per SWR (2009) GS. COD ranged from 19.6mg/l to 62.9mg/l which was again elevated. Potassium levels ranged from 1.82mg/l to 3.12mg/l with a survey mean of 2.74mg/l. Chloride levels are not of concern. Manganese was within an acceptable range. With regard to metals, levels of Arsenic, Copper & Zinc were good. Chromium ranged from below the level of detection to 5.0µg/l exceeding the limit of 3.4µg/l for Chromium VI in one round out of four, with regard to SWR (2009) AA-EQS. Lead remained consistently below the level of detection at 0.06µg/l. Finally, in relation to Hydrocarbons were all below the level of detection.

3.2.18 Site FW-19

Site FW-19 was located on the 1st order Rathvilla/Rathclonbracken Stream (EPA segment code 14_1334) in the Barrow catchment. Site FW-19 was located in the townland of Sandyhill, approximately 8km east of Daingean. The Rathvilla/Rathclonbracken Stream flows into the Daingean 200m downstream (west) of site FW-19.

There is bridge crossing the stream at the Site. The surrounding area was scrub (WS1). This low gradient watercourse was deeply drained was deemed to be a 'drainage ditch (FW4)' and was found to be in bad morphological status. Site FW-19 was flanked by dense hedgerows on the right bank. The left bank was found to have been recently modified by mechanical works, and hence denuded. Bank cover was approximately 35%. Bank height was 2m and at a 70° slope and of a trapezoidal profile. The wetted width of the channel was 1.8m. In-stream vegetation cover was low (approximately 15%). The mean and maximum depths of the watercourse were 10cm and 30cm respectively. The siltation of the substrate was heavy. The substrate was composed of a deep layer of fine sediment.

This site was surveyed by electrofishing for 5 minutes. A total area of 35m^2 was surveyed. The only fish species found were Three-spined Stickleback (N=6) and Minnow (N=3). The site was sweep sampled and hand searched for crayfish. However, no crayfish were present. A juvenile lamprey survey was carried out however none were found. A sparse stand of Mare's-tail *Hippuris vulgaris* made up the 15% of in-stream vegetation at the site. The shade and canopy cover limited the aquatic plant growth.

Macroinvertebrates in 12 families were recorded at this location. As expected macroinvertebrate richness was low taking into account the sub-optimal habitat at this site. Odonates present were larval *I. elegans* and the migrant hawker *Aeshna mixta.* The beetle community consisted of *Gyrinus* sp., *D. marginalis* and *Nebrioporus depressus elegans.* Larvae of the alderfly *Sialis* sp. was common. Other macroinvertebrates recorded at this site were *G. duebeni, Pisidium* sp. and *P. contortus.* This location was deemed unsuitable with regard to the EPA Q determination scheme, with considerations for the absence of riffled habitat and suboptimal macroinvertebrate habitat. The BMPW score for this site (40.8) signifies 'Moderate' water quality and is interpreted as 'Moderately Impacted'. The ASPT of 4.53 and EPT of 0 are indicative of poor water quality.

During the water quality surveys, Dissolved oxygen levels at the site varied largely throughout the sampling; they ranged from 5ppm (42.2%) (during round 4) to 9.15ppm (87.2%) (during round 3). Conductivity was stable throughout the study, it was 581 µs/cm during rounds 1, 2 and 4. Conductivity was 561 µs/cm during round 3 temperature varied largely throughout the study; from 7.8°C (round 4) to 20.7°C (round 1). This was the largest temperature variation recorded in the study. Total Alkalinity ranged from 165mg/l to 265mg/l, pH ranged from 7.85 to 8.50. Magnesium ranged from 6.58mg/l to 8.88mg/l. Calcium ranged from 99.5mg/l to 108.9mg/l. Total Phosphorous ranged from below the level of detection to 21.7µg/l., Nitrate as NO3 ranged from 1.43mg/l to 7.56mg/l and Nitrite as NO2 ranged from below the level of detection to 0.071mg/l which was elevated in relation to the European Communities (Quality of Salmonid Waters) Regulations, 1988.. Total Ammoniacal Nitrogen ranged from below the level of detection to 1.22mg/l – this site attained a good status in only one round out of four, with regard to SWR (2009) AA-EQS. Furthermore and with reference to the EPA Parameters of Water Quality 2001 (EPA PWQ 2001), it should be noted that Ammoniacal Nitrogen at levels above 0.3mg/l is of concern due to the risk of conversion to un-ionised ammonia (NH3) which is harmful to freshwater aquatic life and game fish in particular –

obviously this limit has been exceeded at this site. Total Dissolved Solids ranged from 364mg/l to 387mg/l. Total Suspended Solids ranged from below the level of detection to 4.5mg/l. True Colour ranged from 54.5mg/l Pt/Co to 663mg/l Pt/Co. BOD ranged from below the level of detection to 2.26mg/l thereby failing to meet EQS of 1.5mg/l per SWR (2009) GS – good in three rounds out of four. COD ranged from 24.4mg/l to 47.3mg/l which was elevated in relation to EQS of 25mg/l, EPA 2001. Potassium levels stayed below the level of detection throughout. Chloride levels are not of concern. Manganese was within an acceptable range. In relation to other metals, levels of Arsenic, Copper & Zinc were good. Chromium ranged from below the level of detection to 4.32µg/l exceeding the limit of 3.4µg/l for Chromium VI in one round out of four, with regard to SWR (2009) AA-EQS. Lead remained consistently below the level of detection at 0.02µg/ - no EQS applies. Finally, in relation to Hydrocarbons: Toluene, C10-C40, C6-C10 and C6-C40 remained below the level of detection.

3.2.19 Site FW-20

Site FW-20 was located on the 4th order Figile River (EPA segment code 14_996) in the Barrow catchment. Site FW-20 was located in the Clonbulloge Village. The Figile River is fed by the 3rd order Daingean River approximately 500m upstream (west) of site FW-20.

Site FW-20 was upstream of the R442 Bridge crossing; the Figile River flows downstream under the Clonbulloge Bridge. Land surrounding Site FW-20 was used for agriculture; improved agricultural grassland (GA1). Residential housing was in the vicinity of the site. The section of watercourse at FW-20 was found to be a 'depositing/ lowland river (FW2)'. The medium gradient stretch of watercourse had been drained and of moderate morphological status. The east bank of the watercourse was flanked by treeline (WL2). The banks were covered in riparian vegetation. Filamentous Algae was present. The wetted with of the channel was 6m. Flow characteristics were glide (80%) and pool (20%). Flow velocity was approximately .15m/s. The siltation of the substrate was found to have been heavy. The substrate was composed of Cobble (30%), Gravel (20%), Rock (15%) and fine (15%).

This site was surveyed by electrofishing for 20 minutes. A total area of 50m^2 was surveyed. The fish species found were Roach (N=9) Dace (N=5), Stone Loach (N=5), Pike (N=4), Perch (N=2), Minnow (N=1), and Gudgeon (N=1). The Roach recorded varied in length from 3.1cm to 3.8cm. Dace ranged in size from 6.6cm to 10.2cm. Stone Loach lengths ranged between 6.6cm and 7.4cm. A Crayfish survey was conducted at site FW-20. During hand-searching of 100 refuges, 42 crayfish were found. Of those, 20 were crayfish hatchlings, 8 were juvenile and 14 were adults. During the 10 sweep samples 25 crayfish were caught with the following age distribution: crayfish hatchling (N=15), juvenile crayfish (N=5) and adult Crayfish (N=5). There was no juvenile lamprey habitat at this site and no lampreys were thought to occur. In-stream vegetation partially covered the water course (approximately 45%). Common club rush *Schoenoplectus lacustris* constituted much of the in-stream vegetation at the site. Also present was Watercress *Rorippa nastertium-aquaticum*, Branched bur-reed *Sparangium erectum* and Yellow iris *Iris pseudacorus.*

Macroinvertebrates in 20 families were recorded at this site. The Ephemeropterans were well represented with three species recorded. These were pollution sensitive larvae of *Heptagenia sulphurea* (small numbers) and *E. danica* (scarce) with larvae of pollution tolerant *Baetis rhodani* found in small numbers. The only Plecopteran recorded was larval *L. hippopus* which was present. Fair numbers of caseless caddisfly larvae of *H. pellucidula* were recorded while *Polycentropus kingi* was found in small numbers. Less pollution sensitive damselfly larvae of *C. splendens* were present, the only Odonate recorded here. The beetle *Elmis* sp., and the snails *Lymnaea peregra* and *A. lacustris* were all present at this location. Crustaceans recorded were *G. duebeni* (numerous), *A. aquaticus* (small numbers) and White-clawed crayfish *A. pallipes* (scarce). The bugs *H. stagnorum, A. aestivalis* and *Gerris* sp. ranged from present to scarce at this site. Using the EPA Q determination scheme, biological water quality at this site was rated 'Q3-4, slightly polluted', corresponding to WFD 'Moderate' status. With regard to the BMWP score of 126, water quality is interpreted as 'Unpolluted, unimpacted' using this biotic index. The ASPT of 6.63 is suggestive of very good water quality and the EPT of 6 indicates the same.

During the chemical water quality surveys, Dissolved Oxygen levels at the site ranged from 6.04ppm (54%) (during round 4) to 6.91ppm (67.2%) (during round 3). Conductivity ranged from 631 µs/cm (round 1) to 331 µs/cm (round 4). Water temperature varied from 9.3°C (round 4) to 18.9°C (round 1). Total Alkalinity ranged from 210mg/l to 280mg/l, pH ranged from 7.77 to 8.39. Magnesium ranged from 5.30mg/l to 9.08mg/l. Calcium ranged from 76.3mg/l to 118.0mg/l. Total Phosphorous ranged from 28.1µg/l to 66.1µg/l, Nitrate ranged from 5.07mg/l to 8.82mg/l and Nitrite ranged from 0.068mg/l to 0.171mg/l which was elevated in relation to the European Communities (Quality of Salmonid Waters) Regulations, 1988. Total Ammoniacal Nitrogen ranged from below the level of detection to 0.382mg/l – this site thereby attained a good status in only two rounds out of four, with regard to SWR (2009) AA-EQS. Total Dissolved Solids ranged from 293mg/l to 442mg/l. Total Suspended Solids ranged from below the level of detection to 12mg/l. True Colour ranged from 61.1mg/l Pt/Co to 1310.0mg/l Pt/Co. BOD ranged from below the level of detection to 2.34mg/l, thereby failing to meet EQS of 1.5mg/l per SWR (2009) GS in two rounds out of four. COD ranged from 28.3mg/l to 67.1mg/l which was consistently elevated also. Potassium levels ranged from 2.02mg/l to 3.18mg/l with a survey mean of 2.74mg/l. Natural levels of Chloride of 15mg/l to 35mg/l per EPA (2001) were exceeded on two rounds with levels of 49.0mg/l and 42.60mg/l recorded – FW20 being the only site with elevated levels. Manganese was within an acceptable range. In relation to other metals, levels of Arsenic, Copper & Zinc were good. Chromium ranged from below the level of detection to 4.77µg/l exceeding the limit of 3.4µg/l for Chromium VI in one round out of four, with regard to SWR (2009) AA-EQS. Lead ranged from below the level of detection to 0.08µg/l with an overall survey mean of 0.05µg/l. Finally, in relation to Hydrocarbons: Toluene, C10-C40, C6-C10 and C6-C40 remained below the level of detection.

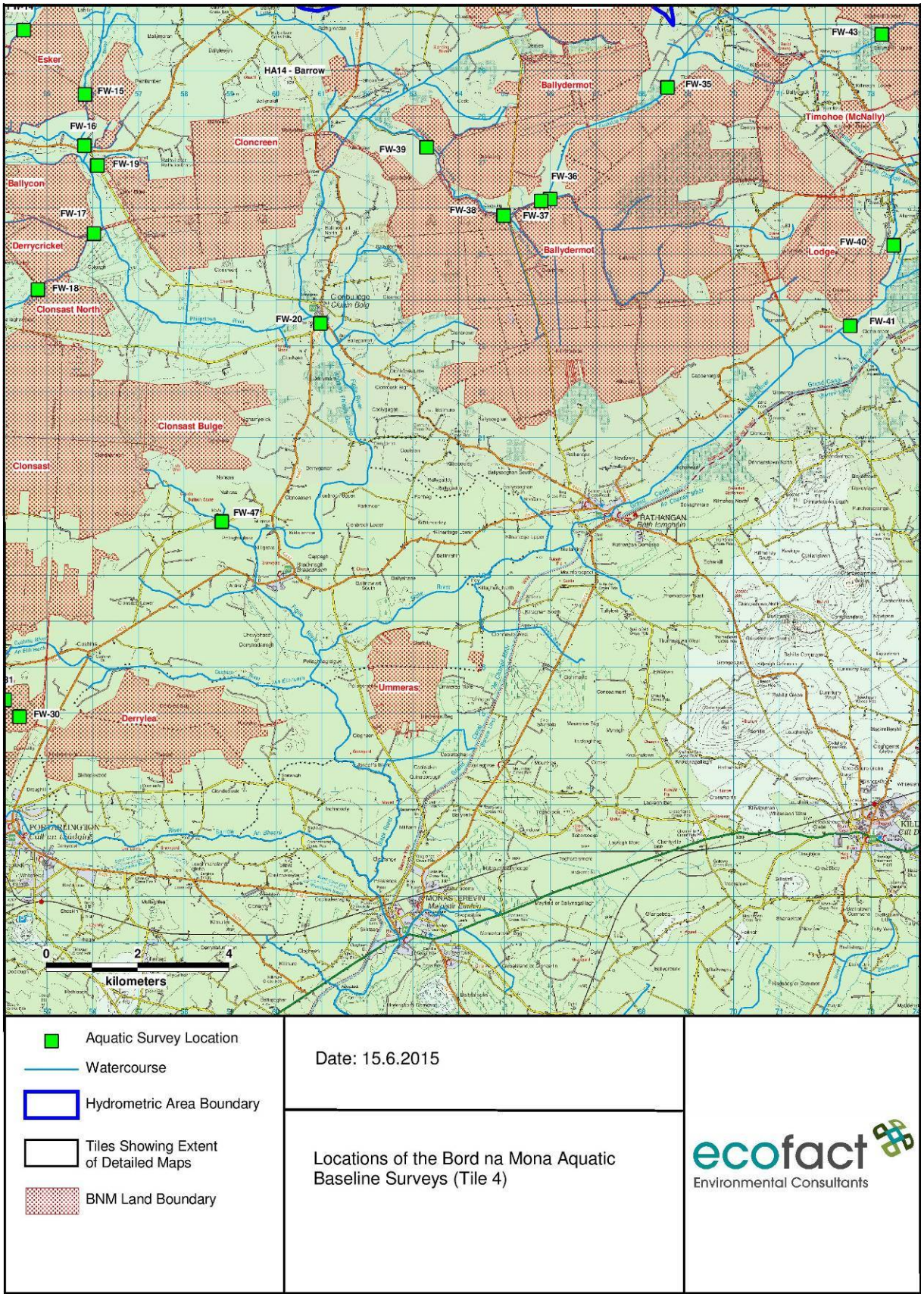


Figure A1.5 Location of aquatic survey sites (Tile 4).

Location:	**Grid Reference:**
Turbine 1 and Site Compound	E256801 N226497
Author	**Date:**
JH	10/06/2016
Photo: See below	
Site and vegetation description Milled peat 90% bare peat *Eriophorum angustifolium* in patches Drains vegetated with Birch Low Birch scrub in general area	**Notes:**
Species List (Common Name) Birch Cats ear Soft Rush Common Cotton-grass Pine	**Scientific Name** *Betula pubescens* *Hypochaeris radicata* *Juncus effuses* *Eriophorum angustifolium* *Pinus spp.*

Location	**Grid Reference**
Turbine 2	E257042 N225890
Author	**Date**
JH	10/06/2016
Photo: See below	
Site and vegetation description Bare peat Some Willow on drains	**Notes:**
Species List (Common Name) Vegetation by drains, very little on bare peat. Silverweed Marsh Arrowgrass Common Cotton-grass Marsh Pennywort Watermint Bulrush Creeping Thistle Creeping bent-grass Coltsfoot Floating Sweet-grass Canary Reed-grass Marsh Bedstraw Cat's Ear	**Scientific Name** *Potentialla anserine* *Triglochin palustris* *Eriophhorum angustifolium* *Hydrocotyle vulgaris* *Mentha aquatica* *Typha latifolia* *Cirsium arvense* *Agrostis stolonifera* *Tussilago farfara* *Glyceria fluitans* *Phalaris arundinaceae* *Galium palustre* *Hypochaeris radicata*

Location	**Grid Reference**
Turbine 3	E257418 N225413
Author JH	**Date**10/06/2016
Photo: See below	
Site and vegetation description Bare peat, close to ponding areas. Vegetated partially	**Notes:**
Species List (Common Name) Vegetation by drains, very little on bare peat. Marsh Arrowgrass Common Cotton-grass Creeping Bent-grass Purple Moore-grass Birch Willow Coltsfoot Cat's Ear Horsetail Mouse-ear Jointed Rush	**Scientific Name** *Triglochin palustris* *Eriophhorum angustifolium* *Agrostis stolonifera* *Molinia caerulea* *Betula pubescens* *Salix spp.* *Tussilago farfara* *Hypochaeris radicata* *Equisetaceae agg.* *Cerastium fontanum* *Juncus articulatus*

Location	**Grid Reference**
Turbine 4	E258010 N225205
Author	**Date**
JH	10/06/2016
Photo: See below	
Site and vegetation description Former milled peat, dense swards of Common Cotton-grass (*Eripophorum angustifolium*). Birch in adjacent drains	**Notes:**

Species List (Common Name)	**Scientific Name**
Marsh Arrowgrass	*Triglochin palustris*
Common Cotton-grass	*Eriophhorum angustifolium*
Dandelion	*Taraxacum offinale agg.*
Birch	*Betula pubescens*
Coltsfoot	*Tussilago farfara*
Horsetail	*Equisetaceae agg.*
Rosebay Willowherb	*Chamerion angustifolium*

Location	**Grid Reference**
Turbine 5	E258615 N225271
Author	**Date**
JH	10/06/2016
Photo: See below	
Site and vegetation description Bare peat Vegetated drains	**Notes:**
Species List (Common Name)	**Scientific Name**
Bulrush Marsh Arrowgrass Willow Floating Sweet-grass Creeping Bent-grass Rosebay Willowherb	*Typha latifolia* *Triglochin palustris* *Salix spp.* *Glyceria fluitans* *Agrostis stolonifera* *Chamerion angustifolium*

Location	**Grid Reference**
Turbine 6	E259207 N225504
Author	**Date**
JH	10/06/2016
Photo: See below	
Site and vegetation description Bare/marl peat beside dense Willow and Birch scrub 4-5m high. Birch and Willow scrub has Bramble (*Rubus fruticosus agg.*) and Yorkshire Fog (*Holcus lanatus*) understory	**Notes:**

Species List (Common Name)	**Scientific Name**
Horsetail	*Equisetaceae agg.*
Colts Foot	*Tussilago farfara*
Annual Meadow-grass	Poa annua
Spear Thistle	*Cirsium vulgare*
Marsh Thistle	*Cirsium palustre*
Soft Rush	*Juncus effusus*

Location	**Grid Reference**
Turbine 7	E260147 N225822
Author	**Date**
JH	10/06/2016
Photo: See below	
Site and vegetation description Vegetated cut peat	**Notes:**

Species List (Common Name)	**Scientific Name**
Common Cotton –grass	*Eripiophorum angustifolium*
Arrowgrass	*Triglochin palustris*
Bulrush	*Typha latifolia*
Yorkshire Fog	*Holcus lanatus*
Willow	*Salix spp.*
Soft Rush	*Juncus effusus*
Marsh Thistle	*Cirsium palustre*
Cat's Ear	*Hypochaeris radicata*
Horsetail	*Equisetaceae agg.*
Birch	*Betula pubescens*
Colts Foot	*Tussilago farfara*

Location	**Grid Reference**
Turbine 8	E260303 N226419
Author	**Date**
JH	10/06/2016
Photo: See below	
Site and vegetation description Bare milled peat, vegetated drains	**Notes:**
Species List (Common Name) Creeping Bent-grass Soft Rush Jointed Rush Floating Sweet-grass Creeping Thistle Dandelion Horsetail Colts Foot	**Scientific Name** *Agrostis stolonifera* *Juncus effusus* *Juncus articulatus* *Glyceria fluitans* *Cirsium arvense* *Taraxacum officinale agg.* *Equisetaceae agg.* *Tussilago farfara*

Location Turbine 9	**Grid Reference**
Author PR	**Date**10/06/2016
Photo: None available	
Site and vegetation description Regenerating milled peat to south of central scrub. Bare ground in places otherwise dominated by *Juncus* and *Holcus* with *Agrostis*, Birch and Willow to south	**Notes:**
Species List (Common Name)	**Scientific Name**
Soft Rush	*Juncus effuses*
Yorkshire Fog	*Holcus lanatus*
Creeping Bent-grass	*Agrostis stolonifera*
Common Cotton-grass	*Eriophorum angustifolium*
Colts Foot	*Tussilago farfara*
Marsh Thistle	*Cirsium palustre*
Birch	*Betula spp.*
Willow	*Salix spp.*
Common Sorrell	*Rumex acetosa*
Great Willowherb	*Epilobium hirsutum*
Floating Sweet-grass	*Glyceria fluitans*
Hawkbit	*Leontodon spp.*
Creeping Thistle	*Cirsium arvense*
Dandelion	*Taraxacum officinale agg.*
Horsetail	*Equisetaceae agg.*
Sow Thistle	*Sonchus spp.*
Toad Rush	*Juncus bufonius*
Creeping Thistle	*Cirsium arvense*
Dandelion	*Taraxacum offincinale agg.*
Wild Carrot	*Daucus carota*

Location	**Grid Reference**
Turbine 10	E 258749,N225901
Author PR	**Date**10/06/2016
Photo: None available	
Site and vegetation description Actively milled peat to the north of regenerating grassland and willow and birch scrub.	**Notes:**

Species List (Common Name)	**Scientific Name**
Floating Sweet-grass	*Glyceria fluitans*
Creeping Bent-grass	*Agrostis stolonifera*
Toad Rush	*Juncus bufonius*
Knotgrass	*Polygynum spp.*
Bulrush	*Typha latifolia*
Common Cotton-grass	*Eriophorum angustifolium*
Colts Foot	*Tussilago farfara*
Birch	*Betula spp.*
Willow	*Salix spp.*
Soft Rush	*Juncus effuses*
Creeping Bent-grass	*Agrostis stolonifera*
Common Sorrell	*Rumex acetosa*
Cuckoo Flower	*Cardamine pratensis*
Marsh Thistle	*Cirsium palustre*
Yorkshire Fog	*Holcus lanatus*
Horsetail	*Equisetaceae agg.*
Sitka Spruce (sapling)	*Picea sitchensis*
Hawkbit	*Leontodon spp.*

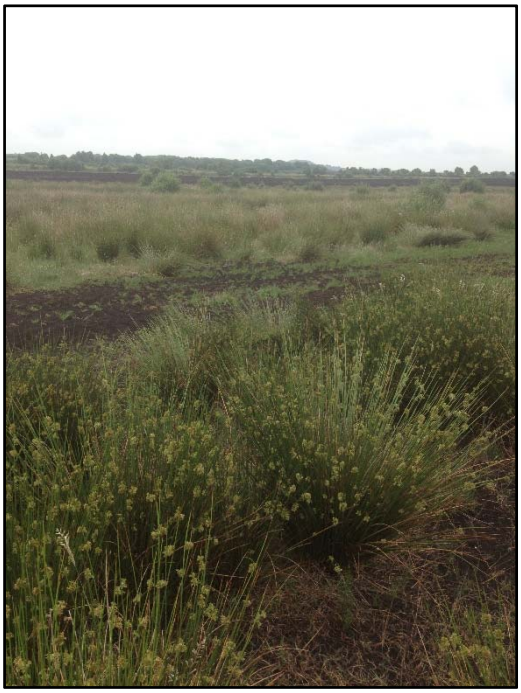
Location	**Grid Reference**
Turbine 11	E258107, N225818
Author	**Date**
JH	10/06/2016
Photo: None available	
Site and vegetation description Regenerated surface on milled peat south of rail track.	**Notes:**

Species List (Common Name)	**Scientific Name**
Birch	*Betula pubescens*
Willow	*Salix cinerea*
Yorkshire Fog	*Holcus lanatus*
Marsh Arrowgrass	*Triglochin palustris*
Common Mouse-ear	*Cerastium fontanum*
Soft Rush	*Juncus effuses*
Common Cotton-grass	*Eriophorum angustifolium*
Cat's Ear	*Hypochaeris radicata*
Rosebay Willowherb	*Chamerion angustifolium*

Location	**Grid Reference**
Turbine 12	E257620 N226171
Author	**Date**
JH	10/06/2016
Photo: None available	
Site and vegetation description Cutover peat colonised by Yorkshire Fog (*Holcus lanatus*) dominated grassland. Adjacent to large flowing drain.	**Notes:**

Species List (Common Name)	**Scientific Name**
Dandelion	*Taraxacum offinale agg.*
Marsh Arrowgrass	*Triglochin palustris*
Creeping Thistle	*Cirsium arvense*
Willow	*Salix cinerea*
Groundsel	*Senecio vulgaris*
Coltsfoot	*Tussilago farfara*
Soft Rush	*Juncus effuses*
Rosebay Willowherb	*Chamerion angustifolium*
Cat's ear	*Hypochaeris radicata*
Marsh Thistle	*Cirsium palustre*
Canary Reed-grass	*Glyceria fluitans*
Creeping Bent-grass	*Agrostis stolonifera*

Location	**Grid Reference**
Turbine 13	E258347, N226393
Author	**Date**
PR	10/06/2016
Photo: see below	
Site and vegetation description Cut over raised bog (milled), regenerating with non-bog vegetation at edge of actively milled peat. Soft Rush (*Juncus effuses*), Yorkshire Fog (*Holcus lanatus*) and bare ground dominant.	**Notes:**
Species List (Common Name)	**Scientific Name**
Soft Rush	*Juncus effuses*
Yorkshire Fog	*Holcus lanatus*
Dandelion	*Taraxacum offinale agg.*
Horsetail	*Equisetaceae agg.*
Knotgrass	*Polygonum aviculare*
Rosebay Willowherb	*Chamerion angustifolium*
Willow (sapling)	*Salix cinerea*
Hawkbit	*Leontodon spp.*
Creeping Bent-grass	*Agrostis stolonifera*
Jointed Rush	*Juncus articulatus*
Common Orache	*Atriplex patula*



Location	**Grid Reference**
Turbine 14	E259015, N226468
Author	**Date**
PR	10/06/2016
Photo: see below	
Site and vegetation description Actively milled peat. Vegetation only present in drains	**Notes:**

Species List (Common Name)	**Scientific Name**
Creeping Bent-grass	*Agrostis stolonifera*
Canary Reed-grass	*Glyceria fluitans*
Bulrush	*Typha latifolia*
Jointed Rush	*Juncus articulatus*
Soft Rush	*Juncus effuses*
Marsh Arrowgrass	*Triglochin palustris*
Willow (sapling)	*Salix cinerea*
Rosebay Willowherb	*Chamerion angustifolium*
Coltsfoot	*Tussilago farfara*
Common Cotton-grass	*Eriophorum angustifolium*
Sow Thistle	*Sonchus spp.*

Location	**Grid Reference**
Turbine 15	E259626, N226622
Author PR	**Date**10/06/2016
Photo: see below	
Site and vegetation description Milled peat surrounded by regenerating scrub, some Creeping Bent-grass (*Agrostis stolonifera*) on milled peat with Rosebay Willowherb (*Chamerion angustifolium*), Common Cotton-grass (*Eriophorum angustifolium*) and Horsetail (*Equisetaceae agg.*) Train tracks nearby.	**Notes** Sedge Warbler, Skylark, Willow Warbler , Pheasant

Species List (Common Name)	**Scientific Name**
Soft Rush	*Juncus effuses*
Horsetail	*Equisetaceae agg.*
Rosebay Willowherb	*Chamerion angustifolium*
Marsh Thistle	*Cirsium palustre*
Common Sorrell	*Rumex acetosa*
Birch	*Betula pubescens*
Willow	*Salix cinerea*
Bramble	*Rubus fruticosus agg.*
Common Ragwort	*Senecio jacobaea*
Yorkshire Fog	*Holcus lanatus*
Creeping Bent-grass	*Agrostis stolonifera*
Herb Robert	*Geranium robertianum*
Hawkbit	*Leontodon spp.*
Creeping Thistle	*Cirsium arvense*
Dandelion	*Taraxacum offinale agg.*
False Oat-grass	*Arrhenatherum elatius*

Location	**Grid Reference**
Turbine 16	E260132, N227002
Author	**Date**
PR	10/06/2016
Photo: see below	
Site and vegetation description Intensively milled peat. Bare over much of location. Vegetation in drains and between rows infrastructure crossing main drain at this location.	**Notes** Bird of prey heard. Pigeon
Species List (Common Name)	**Scientific Name**
Soft Rush Toad Rush Jointed Rush Yorkshire Fog Creeping Bent-grass Bulrush Coltsfoot Creeping Thistle Willow Sow Thistle Hawkbit Marsh Arrowgrass	*Juncus effuses* *Juncus bufonius* *Juncus articulatus* *Holcus lanatus* *Agrostis stolonifera* *Typha latifolia* *Tussilago farfara* *Cirsium arvense* *Salix cinerea* *Sonchus spp.* *Leontodon spp.* *Triglochin palustris*

Location	**Grid Reference**
Turbine 17	E260311, N227596
Author	**Date**
PR	10/06/2016
Photo: see below	
Site and vegetation description Actively milled peat. Sparse vegetation in drains.	**Notes:**

Species List (Common Name)	**Scientific Name**
Marsh Arrowgrass	*Triglochin palustris*
Jointed Rush	*Juncus articulatus*
Bulrush	*Typha latifolia*
Coltsfoot	*Tussilago farfara*

Location	**Grid Reference**
Turbine 18	E259633, N227344
Author	**Date**
PR	10/06/2016
Photo: none available	
Site and vegetation description Very intensively milled peat. No vegetation outside of drains.	**Notes:** Meadow pipit, Skylark

Species List (Common Name)	**Scientific Name**
Coltsfoot	*Tussilago farfara*
Soft Rush	*Juncus effuses*
Jointed Rush	*Juncus articulatus*
Creeping Bent-grass	*Agrostis stolonifera*
Rosebay Willowherb	*Chamerion angustifolium*
Willow	*Salix cinerea*
Toad Rush	*Juncus bufonius*
Bulrush	*Typha latifolia*
Common Cotton-grass	*Eriophorum angustifolium*
Common Ragwort	*Senecio jacobaea*

Location	**Grid Reference**
Turbine 19	259041, 227084
Author	**Date**
PR	10/06/2016
Photo: none available	
Site and vegetation description Actively milled peat. No vegetation outside of drains.	**Notes:** Meadow pipit, Blackbird
Species List (Common Name) Coltsfoot Soft Rush Jointed Rush Creeping Bent-grass Rosebay Willowherb Willow	**Scientific Name** *Tussilago farfara* *Juncus effuses* *Juncus articulatus* *Agrostis stolonifera* *Chamerion angustifolium* *Salix cinerea*

Location	**Grid Reference**
Turbine 20	E259006, N227710
Author	**Date**
PR	10/06/2016
Photo: see below	
Site and vegetation description Birch and sally scrub at edge of milled peat. Approx 2.5 -3 m in in height (will ultimately be bog woodland – non annex). Bare peat on access for machinery through it.	**Notes:** Willow Warbler, Blackcap
Species List (Common Name)	**Scientific Name**
Birch Willow Soft Rush Hawkbit Bramble Rosebay Willowherb Common Sorrell	*Betula pubescens* *Salix cinerea* *Juncus effuses* *Leontodon spp.* *Rubus fruticosus agg.* *Chamerion angustifolium* *Rumex acetosa*

Location	**Grid Reference**
Turbine 21	E259825, N227955
Author	**Date**
PR	10/06/2016
Photo: see below	
Site and vegetation description Actively milled peat. No vegetation except in drains.	**Notes:**
Species List (Common Name)	**Scientific Name**
Coltsfoot Soft Rush Creeping Bent-grass Marsh Arrowgrass Hawkbit Rosebay Willowherb	*Tussilago farfara* *Juncus effuses* *Agrostis stolonifera* *Triglochin palustris* *Leontodon spp.* *Chamerion angustifolium*

Location	**Grid Reference**
Met Mast	E2556613 N2226788
Author	**Date**
JH	10/06/2016
Photo: see below	
Site and vegetation description Bare peat. Vegetated drain. Marsh Arrowgrass (*Triglochin palustris*) and Creeping Bent-grass on bare peat.	**Notes:**

Species List (Common Name)	**Scientific Name**
Marsh Arrowgrass	*Triglochin palustris*
Heath Rush	*Juncus squarrosus*
Common Mouse-ear	*Cerastium fontanum*
Marsh Thistle	*Cirsium palustre*
Willow (in drain)	*Salix cinerea*
Soft Rush (in drain)	*Juncus effuses*
Common Cotton-grass (in drain)	*Eriophorum angustifolium*
Cuckoo Flower (in drain)	*Cardamine pratensis*
Cat's ear	*Hypochaeris radicata*
Rosebay Willowherb	*Chamerion angustifolium*
Bulrush	*Typha latifolia*
Tormentil	*Potentilla erecta*

Location	**Grid Reference**
South Compound and Substation	E258342 N224942
Author	**Date**
JH	10/06/2016
Photo: see below	
Site and vegetation description Bare peat and actively milled peat.	**Notes:**
Species List (Common Name)	**Scientific Name**
Marsh Arrowgrass Common Cotton-grass Soft Rush Willow Marsh Pennywort	*Triglochin palustris* *Eriophorum angustifolium* *Juncus effuses* *Salix cinerea* *Hydrocotyle vulgaris*

Location	**Grid Reference**
Substation East	E260518, N266977
Author	**Date**
JH	10/06/2016
Photo: see below	
Site and vegetation description Recolonising bare ground (GS2) Cut over and drained but recovering with grasses and rushes. No Annex I or sensitive herbs present. Just to east of highly modified drainage channel.	**Notes:**
Species List (Common Name) Creeping Bent-grass Yorkshire Fog Soft Rush Cuckoo Flower Canary Reed-grass Dandelion Horsetail Creeping Thistle	**Scientific Name** *Agrostis stolonifera* *Holcus lanatus* *Juncus effuses* *Cardamine pratensis* *Glyceria fluitans* *Taraxacum offinale agg.* *Equisetaceae agg.* *Cirsium arvense*

Location	**Grid Reference**
Borrow Pit	E258490, N226920
Author	**Date**
JH	10/06/2016
Photo: see below	
Site and vegetation description Worked quarry area surrounded with earth banks and cliffs undisturbed areas surrounding pit with Willow and Birch scrub. Pond area also. Disturbed areas with grassy vegetation	**Notes:** Sand Martin, Stonechat, Chaffinch
Species List (Common Name)	**Scientific Name**
Rosebay Willowherb	*Chamerion angustifolium*
Coltsfoot	*Tussilago farfara*
Common Sorrell	*Rumex acetosa*
Goldenrod	*Solidago virgaurea*
Sow Thistle	*Sonchus spp.*
Creeping Thistle	*Cirsium arvense*
Yorkshire Fog	*Holcus lanatus*
Cocksfoot	*Dactylis glomerata*
White Clover	*Trifolium repens*
Creeping Bent-grass	*Agrostis stolonifera*
Creeping Cinquefoil	*Potentilla reptans*
Bramble	*Rubus fruticosus agg*
Red Raspberry	*Rubus idaeus*
Red Clover	*Trifolium pratense*
Common Spotted Orchid	*Dactylorhiza fuchsia*
Blue Fleabane	*Erigeron acer*
Flora Protection Order Spp.	
Basil Thyme	*Acinos arvensis*

Vascular Plants (160)	
Scientific Name	**Common Name**
Achillea millefolium	Yarrow
Achillea ptarmica	Sneezewort
Acinos arvensis	Basil Thyme
Agrostis capillaris	Common Bent
Agrostis stolonifera	Creeping Bent
Alnus glutinosa	Alder
Alopecurus geniculatus	Marsh Foxtail
Anagallis tenella	Bog Pimpernel
Angelica sylvestris	Wild Angelica
Anthoxanthum odoratum	Sweet Vernal-grass
Anthriscus sylvestris	Cow Parsley
Arrhenatherium elatius	False Oat-grass
Bellis perennis	Daisy
Betula pubescens	Downy Birch
Blechnum spicant	Hard Fern
Briza media	Quaking Grass
Calluna vulgaris	Ling
Calystegia sepium	Hedge Bindweed
Cardamine pratensis	Cuckoo flower
Carex disticha	Brown Sedge
Carex echinata	Star Sedge
Carex flacca	Glaucous Sedge
Carex nigra	Common Sedge
Carex ovalis	Oval Sedge
Carex panicea	Carnation Sedge
Carex viridula ssp. *oedocarpa*	Common Yellow Sedge
Centaurea nigra	Common Knapweed
Cerastium fontanum	Common Mouse-ear
Chamaerion angustifolium	Rosebay
Cirsium arvense	Creeping Thistle
Cirsium palustre	Marsh Thistle
Cirsium vulgare	Spear Thistle
Corylus avellana	Hazel
Crataegus monogyna	Hawthorn
Cynosurus cristatus	Crested Dogstail
Cytisus scoparius	Broom
Dactylis glomerata	Cocksfoot
Dactylorhiza fuchsii	Common Spotted Orchid
Dactylorhiza maculata	Heath Spotted Orchid
Daucus carota	Wild Carrot
Deschampsia cespitosa	Tufted Hair-grass
Deschampsia flexuosa	Wavy Hair-grass
Digitalis purpurea	Foxglove
Drosera rotundifolia	Round-leaved Sundew
Dryopteris filix-mas	Common Male Fern
Epilobium brunnescens	New Zealand Willowherb
Epilobium hirsutum	Great Willowherb
Epilobium montanum	Broad-leaved Willowherb
Epilobium palustre	Marsh Willowherb
Equisetum fluviatile	Water Horsetail
Equisteum arvense	Field Horsetail
Erica cinerea	Bell-heather
Erica tetralix	Cross-leaved Heath
Erigeron acer	Blue fleabane
Eriophorum angustifolium	Common Cottongrass
Eriophorum vaginatum	Harestail Cottongrass

Euphrasia arctica	Eyebright
Fagus sylvatica	Beech
Festuca rubra	Red Fescue
Filipendula ulmaria	Meadowsweet
Fraxinus excelsior	Ash
Galium aparine	Goosegrass
Galium saxatile	Heath Bedstraw
Geranum robertianum	Herb Robert
Glyceria fluitans	Floating Sweet-grass
Hedera helix	Ivy
Heracleum sphondylium	Hogweed
Holcus lanatus	Yorkshire Fog
Hydrocotyle vulgaris	Marsh Pennywort
Hypericum androsaemum	Tutsan
Hypochaeris radicata	Common Catsear
Hieracium pilosella	Mouse-ear Hawkweed
Ilex aquifolium	Holly
Juncus acutiflorus	Sharp-flowered Rush
Juncus articulatus	Jointed Rush
Juncus bufonius	Toad Rush
Juncus conglomeratus	Compact Rush
Juncus effusus	Soft Rush
Lapsana communis	Nipplewort
Lathyrus pratensis	Meadow Vetchling
Leucanthemum vulgare	Ox-eye Daisy
Linum catharticum	Fairy Flax
Lonicera periclymenum	Honeysuckle
Lotus corniculatus	Birdsfoot Trefoil
Luzula multiflora	Heath Woodrush
Matricaria discoidea	Pineappleweed
Menyanthes trifoliata	Bogbean
Molinia caerulea	Purple Moor Grass
Myositis discolor	Changing Forget-me-not
Narthecium ossifragum	Bog Asphodel
Nuphar lutea	Yellow Water-lily
Odontites vernus	Red Bartsia
Pedicularis sylvatica	Lousewort
Persicaria maculata	Redshank
Phalaris arundinacea	Reed Canary-grass
Phleum pratense	Timothy
Phragmites australis	Common Reed
Phyllitis scolopendrium	Hartstongue Fern
Picea sitchensis	Sitka Spruce
Pinus contorta	Lodgepole Pine
Plantago lanceolata	Ribwort Plantain
Plantago major	Greater Plantain
Poa annua	Annual Meadow-grass
Poa pratensis	Smooth Meadow-grass
Poa trivialis	Rough Meadow-grass
Polygala serpyllifolia	Heath Milkwort
Potamogeton natans	Broad-leaved pondweed
Potentilla anserina	Silverweed
Potentilla sterilis	Barren Strawberry
Potentilla erecta	Tormentil
Prunella vulgaris	Selfheal
Prunus spinosa	Blackthorn
Pteridium aquilinum	Bracken
Quercus petraea	Sessile Oak

Ranunculus acris	Meadow Buttercup
Ranunculus flammula	Lesser Spearwort
Ranunculus repens	Creeping Buttercup
Rhinanthus minor	Yellow Rattle
Rhynchospora alba	White-beaked Sedge
Rubus fruticosus agg.	Bramble
Rubus idaeus	Raspberry
Reseda luteola	Weld
Reseda lutea	Wild Mignonette
Rumex acetosa	Common Sorrel
Rumex acetosella	Sheep's Sorrel
Rumex crispus	Curled Dock
Rumex hydrolapathum	Water Dock
Rumex obtusifolius	Broad-leaved Dock
Sagina procumbens	Procumbent Pearlwort
Salix aurita	Eared Willow
Salix caprea	Goat Willow
Salix cinerea ssp. oleifolia	Rusty Willow
Sambucus nigra	Elder
Scrophularia auriculata	Water Figwort
Senecio aquatica	Marsh Ragwort
Senecio jacobaea	Common Ragwort
Senecio vulgaris	Groundsel
Solidaga virgaurea	Goldenrod
Sonchus asper	Prickly Sow-thistle
Sorbus aucuparia	Rowan
Sparganium erectum	Branched Bur-reed
Stellaria graminea	Lesser Stitchwort
Stellaria media	Chickweed
Succisa pratensis	Devilsbit Scabious
Taraxacum officinale agg.	Dandelion
Trichophorum germanicum	Deergrass
Trifolium pratense	Red Clover
Trifolium repens	White Clover
Triglochin palustris	Marsh Arrowgrass
Tussilago farfara	Coltsfoot
Typha latifolia	Reedmace
Ulex europaeus	Gorse
Urtica dioica	Nettle
Vaccinium myrtilus	Bilberry
Veronica beccabunga	Brooklime
Veronica chamaedrys	Germander Speedwell
Veronica officinalis	Heath Speedwell
Vicia sepium	Bush Vetch
Viola palustris	Marsh Violet
Viola riviniana	Common Dog Violet