VIETNAM INFRASTRUCTURE DEVELOPMENT
AND FINANCE INVESTMENT JOINT STOCK COMPANY

MONITORING REPORT ON

ECOSYSTEM CHANGE AND BIOLOGICAL RESOURCE

THE EXPRESSWAY HA NOI – HAI PHONG PROJECT
The Third monitoring of locations of packages

Address: 8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri Commune, Tu Liem, Ha Noi

Owner
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Consultancy
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Hanoi, September 2012

Quantitative analysis phytoplankton by couting chamber Sedgwick - Raffter (20mm x 50mm x 1mm) volume 1ml.

II. THE SURVEY RESULTS

II.1. The higher plants

The initial survey results at the monitoring sites in the researching area of the highway Ha Noi-Hai Phong project identified 180 higher plants species belonging to 63 familias. The species composition was discovered very rich and habitat distribution. Research results are illustrated in table 2.

+ The structure of species composition following plants phylum

At present Viet Nam identified 8 tracheophyta, in which the positions in area of highway Ha Noi-Hai Phong identified species the same with higher plants occupying 12.5%. However, the report identified the distribution of magnolia phylum which is only at the monitoring site.

+ The structure of species composition following plant families

The distribution of number of species is not equal, in which there are 180 species in 63 families: 19 families have only 1 species; 15 families have 2 species; 5 families have 3 species; 3 families have 4 species; 3 families have only 5 species; 3 families have 6 species; 5 families have 7 species; 3 families have 6 species; 1 family has 8 species and 2 families have 12 species. The family has the most species are Lamiaceae, poaceae and alliaceae (8 species).

+ The structure of species composition are distributed to habitat:

The survey sites on the highway Ha Noi – Hai Phong mostly located in the terrain is private house, ponds, and gardens with vegetation, field, farm produce and a trench for draining water and the coastal lowland. Thus vegetation in here is distributed to habitat as follows:

- The residential quarter (pond, garden): the plants in here are mainly vegetation, fruit trees, bonsai, timber trees, etc. At 4 survey sites found 119 higher plants belonging to 40 families in this habitat. For example: asteraceae, alliaceae, cucurbitaceae, caryphyllaceae, fabaceae, nymphaeceae, cyperaceae, plantaginaceae.

- Rice field, crops, lakes, irrigation cannals: vegetation in here is mainly agricultural crops, food for human and animal. At 4 survey sites, we found 121 species belonging to 49 families in this habitat. For example: Combretaceae, Ebenaceae,

16.	*Polyscias balfouriana* Bail		+		+	2
	7. ASCLEPIADACEAE					
17.	*Telosma cordata* (Burm.f.) Merr.	+	+	+	+	2
	8. ASTERACEAE					
18.	*Ageratum conyzoides* L.	+	+	+	+	1
19.	*Artemisia vulgaris* L.		+			1
20.	*Bidens pilosa* L.			+	+	1
21.	*Bidens tripartita* L.			+		1
22.	*Blumea balsamifera* (L.) DC.	+				1
23.	*Cichorium intybus* L.		+			1
24.	*Eupatorium fortunei* Turcz		+			1
	9. BASELLACEAE					
25.	*Basella rubra* L.	+	+	+		1, 2
	11. CAESALPINIACEAE					
26.	*Bauhinia acuminata* L.			+		1, 2
27.	*Bauhinia purpurea* L.		+			2
28.	*Delonix regia* (Hook.) Raf.	+		+		2
29.	*Gleditsia australis* Hemsl.		+			2
30.	*Tamarindus indica* L.		+	+		2
	12. CAPPARACEAE					
31.	*Cleome speciosa* Raf.			+	+	2,3
	13. CARICACEAE					
32.	*Carica papaya* L.	+	+			1, 2
	14. CARYOPHYLLACEAE					
33.	*Dianthus superbus* L.		+			1
	15. CASUARINACEAE					1
34.	*Casuarina cunninghamiana* Miq.			+	+	1,3
	16. COMBRETACEAE					
35.	*Terminalia catappa* L.		+			2
	17. CONVOLVULACEAE					
36.	*Ipomoea alba* L.		+	+		1, 2,3
37.	*Ipomoea aquatica* Forssk.	+	+	+	+	1
38.	*Ipomoea batalas* (L.) Lam.	+	+	+		1
39.	*Ipomoea cairica* (L.) Sw.	+	+	+	+	1
40.	*Ipomoea nil* (L.) Roth		+			1
41.	*Ipomoea* purpurea (L.) Kunth			+		1
	18. CRASSULACEAE					
42.	*Kalanchoe pinnata* (Lam.) Oken	+				1,2
	19. CUCURBITACEAE					
43.	*Citrullus lanatus* (Thunb.) Nakai		+			1
44.	*Cucumis sativus* L.		+	+		1
45.	*Cucurbita moschata* (Duch. ex Lam.) Poir.		+			1
46.	*Lagenaria siceraria* (Mol.) Stanley	+	+			1
47.	*Luffa cylindrica* (L.) Roem.		+			1
48.	*Momordica charantia* L.	+	+			1
	20. EBENACEAE					
49.	*Diospyros decandra* Lour.		+			2

II.2. The fauna

II.2.1. The structure of animal composition

The animal composition is found at 4 survey sites, it is initial identified as poor, maily distribution to habitiat as follows: Insectivora, Chiroptera, Rodentia with Muridae, Chiroptera are the most popular. The survey results identified at site no.1 has 8 species, at site no. 2, 3 have 7 species, and at site no.4 has 5 species (table 3). The mostly recorded species are common species in the private house and field, including some ones harm to agriculture and disease hosts such as: *Mus caroli, Mus musculus, R. flavipectus.*

Table 3: Animals list

No.	Scientific name	Survey position				Habitat distribution
		1	2	3	4	
	I- INSECTIVORA					
	1. Soricidae					
1	*Suncus murinus*	+		+		1
	II- Chiroptera					
	2. Pteropodidae					
2	*Rousettus leschenaulti*	+	+	+	+	1,2
3	*Megaerops ecaudatus*	+	+			1,2
	3. Vespertilionidae					
4	*Pipistrellus javanicus*	+	+	+		1,2
5	*Pipistrellus coromandra*	+	+	+	+	1,2,3
	III- Rodentia					
	4. Muridae					
6	*Mus caroli*	+	+	+	+	2,3
7	*Mus musculus*	+	+	+	+	1
8	*R. flavipectus*	+	+	+	+	1
Total		**8**	**7**	**7**	**5**	

Note:

Distribute to habitat:

1: The residential quarter (pond, garden)

2: The agricultural (rice, farm produce), lake, a trench for draining water

3: The coastal lowland.

II.2.2. The structure of bird composition

With the directly observation field, survey people, analysis the results of former authors about the birds in survey positions, the report found 28 bird species belonging

to 17 families, 5 ordines (table 4).

Compared with the research on the structure of birds, we found that the birds composition appears at the survey positions around highway Ha Noi – Hai Phong is poor, with about 18 – 20 species at site no. 1, 2, 3 and 4. The difference in species composition between the observation positions are very low, may be due to the mobitity and flexibility group.

Table 4: The birds list

No.	Scientific name	Survey position				Habitat Distribution
		1	2	3	4	
	I- **FALCONIFORMES**					
	1- ACCIPITRIDAE					
1	*Milvus migrans (lineatus)*			+	+	1,2,3
	II- **CHARADRIIFORME**					
	2 - CHARADRIIDAE					
2	*Charadrius dubius*	+	+		+	1,3
	3 - SCOLOPACIDAE					
3	*Actitis hypoleucos*			+	+	1,3
	III- COLUMBIFORMES					
	4- COLUMBIDAE					
4	*Streptopelia tranquebarica*	+	+	+	+	1,2,3
5	*Streptopelia chinensis*		+	+	+	1,2,3
	IV - CORACIIFORMES					
	5- ALCEDINIDAE					
6	*Alcedo atthis*	+			+	1,2,3
7	*Halcyon smyrnensis*	+	+		+	1,2,3
8	*Halcyon pileata*	+	+	+	+	1,2
	V - PASSERIFORMES					
	6- ALAUDIDAE					
9	*Alauda gulgula*			+	+	1,2,3
	7- Hirundinidae					
10	*Hirundo rustica*	+			+	1,2,3
11	*Hirundo daurica*		+	+	+	1,2,3
	8- MOTACILLIDAE					
12	*Motacilla flava*	+		+		1,2
13	*Motacilla alba*	+	+	+	+	1,2
14	*Anthus novaeseelandae*	+	+		+	1,2,3
	9- PYCNONOTIDAE					
15	*Pycnonotus jocosus*	+	+			1,2
16	*Pycnonotus cafer*	+				1

	10- LANIIDAE					
17	*Lanius schach*		+	+		1,2
	11- TURDINAE					
18	*Copsychus saularis*	+	+	+	+	1,2,3
19	*Saxicola torquata*		+		+	1,2,3
	12- SYLVIIDAE					
20	*Cisticola juncidis*	+	+	+	+	2,3
21	*Orthotomus atrogularis*	+	+	+	+	1,2,3
	13- MUSCICAPIDAE					
22	*Muscicapa dauurica*		+	+		1,2,3
	14- PARIDAE					
23	*Parus major*			+		1,2
	15- DICAEIDAE					
24	*Dicaeum concolor*	+	+	+	+	1,2,3
25	*Dicaeum cruentatum*	+	+	+	+	1,2,3
	16- EMBERIZIDAE					
26	*Emberiza fucata*	+		+		1,2
27	*Emberiza aureola*	+	+			1,2
	17- PLOCEIDAE					
28	*Passer montanus*			+	+	1,2
Total		18	18	19	20	

Note:

Distribute to habitat:

1: The residential quarter (pond, garden)

2: The agricultural (rice, farm produce), lake, a trench for draining water

3: The coastal lowland.

II.2.3. The structure of reptiles and emphibian composition

In general, the reptiles-emphibian compositions at the survey sites in area of highway Ha Noi to Hai Phong are identified as poor. The report identified 10 reptiles belonging to 5 families, 1 ordo and 9 emphibian species belonging to 4 families, 1 ordo (table 5, table 6).

Table 5: The reptile list

No.	Scientific name	Survey position				Habitat Distribution
		1	2	3	4	
	I- SQUAMATA					
	1. Gekkonidae					
1	Hemidactylus frenatus	+		+	+	1,2
2	H. stejnegeri	+	+	+	+	1
	2. Scincidae					
3	Mabuya longicaudata	+	+	+	+	1,2
4	Mabuya multifasciata		+	+		1,2,3
	3. Lacertidae					
5	Takydromus sexlineatus			+	+	1,2,3
	4. Xenopeltidae					
6	Xenopeltis unicolor	+	+	+		2,3
	5. Colubrridae					
7	Amphiesma stolata	+		+	+	2,3
8	Elaphe radiata	+	+			2
9	Ptyas korros		+	+		1,2,3
10	Xenochrophis piscator	+	+	+	+	1,2,3
Total		7	7	9	6	

Note:

Distribute to habitat:

1: The residential quarter (pond, garden)

2: The agricultural (rice, farm produce), lake, a trench for draining water

3: The coastal lowland.

Table 6: The amphibia list

No.	Scientific name	Survey position				Habitat distribution
		1	2	3	4	
	I- ANURA					
	1. Bufonidae					
1	*Bufo melanostictus*	+	+	+		1
	2. Hylidae					
2	*Hyla simplex*	+	+	+	+	1,2,3
	3. Ranidae					
3	*Occidozyga lima*	+	+	+		1,2,3
4	*Rana guentheri*	+	+	+	+	1,2,3
5	*Rana kuhlii*	+		+		2,3
6	*Rana limnocharis*	+	+	+	+	1,2,3
7	*Rana macrodactyla*		+	+		2,3
	4. Microhylidae					
8	*Kaloula pulchra*	+	+			1,2
9	*Microhyla pulchra*	+	+	+	+	2,3
Total		8	8	8	4	

Note:

Distribute to habitat:

1: The residential quarter (pond, garden)

2: The agricultural (rice, farm produce), lake, a trench for draining water

3: The coastal lowland.

II.2.4. The structure of insect composition

At 4 survey positions, the insect composition has 105 species belonging to 56 families, 12 ordonies. In which, the numer of Lepidoptera is max, 24 species (about 23% species total), after that is Diptera, 23 species (22%), and Coleoptera: 17 species (16%); the others are left.

In the natural ecosystem, the number of Coleoptera is always max (about 25-48%); the latter is Diptera (14-25%); and Hymenoptera and Lepidoptera (Ta Huy Thinh et al, 2003). However, the insect at the survey positions represent ecosystem which is influenced by human.

In the total 105 identified species, there are 46 agricultural pests species occupying 44% of total species, the natural enemies of pests are 12 species occupying 11%; the medicine and veterinary insects are 6 species occupying 5-6%. The composition and quantity of agricultural pests species, their natural enemies and veterinary insects reglect that the ecosystem in area of highway Ha Noi – Hai Phong is agricultural ecosystem.

At the survey positions, the report identified 99 species at no.1; at no.2 has 94 species; at no.3 has 95 species and at site no.4 has 74 species of the total 105 species.

Table 7: The insects list

No.	Scientific name	Survey position				Habitat	Notes
	I. ODONATA	1	2	3	4		
	1. Coenagridae						
1	*Agriocnemis sp.*	+	+	+	+	1	
	2. Libelulidae						
2	*Orthetrum sp.*	+			+	1,2	
	3. Libellagidae						
3	*Rhinocypha sp.*	+	+			1,2,3	
	II. EPHEMEROPTERA						
	4. Ephemeridae						
4	*Ephemera sp.*	+		+		1,2	

	III. BLATTODEA						
	5. Balttidae						
5	*Periplaneta sp.*	+		+		2	
	6. Phyllodromidae						
6	*Phyllodromia sp.*	+	+			1	
	IV. MATODEA						
	7. Mantidae						
7	*Empusa sp.*	+		+	+	2	TĐ
	V. DERMAPTERA						
	8. Forficulidae						
8	*Anisolabis sp.*	+	+	+		1,2	TĐ
	VI. ORTHOPTERA						
	9. Acrididae						
9	*Oxya velox* Fabr.	+	+	+		1	SH
10	*Oxya chinensis* Thunb.	+	+	+		1	SH
11	*Artractomorpha sinensis* Boliva	+	+	+	+	1	SH
12	*Acrida willemse* Dirch	+	+	+	+	1,3	SH
	10. Tettigidae						
13	*Acanthalobus sp.*		+	+		1,3	
	11. Tettigonidae						
14	*Conocephalus sp.*	+	+	+	+	2	SH
	12. Triductylidae						
15	*Triductylus sp.*	+	+	+			
	13. Gryllidae						
16	*Brachytrupes portentosus* (Linn.)			+		1	SH
17	*Gryllus testaceus* Walker		+			1	SH
	14. Gryllotalpidae						
18	*Gryllotalpa africana* Pal. de Beauv.	+	+	+	+	1	SH
	VII. HETEROPTERA						
	15. Pentatomidae						
19	*Scotinophora lurida* Burm.	+	+	+		1,2	SH
20	*Tessaratoma papillosa* Drury.	+	+	+		2	SH
21	*Dalpada oculata* Fabr.	+	+	+	+	1	
22	*Nezara viridula* Linn.	+	+	+	+	1,2	SH
	16. Coreidae						
23	*Leptocorisa acuta* Thunb.	+	+	+		1,2	SH
24	*Mictis tenebrosa* Fabr.	+	+	+	+	1,2	SH
25	*Cletus pulctiger* Thunb.	+	+	+		1,2	SH
	17. Scutelleridae						
26	*Fitha sp.*	+		+		2	
	VIII. HOMEPTERA						
	18. Cicadellidae						
27	*Deltocephalus dorsalis* Motsch.	+	+	+		1	SH
28	*Tettigoniella spectra* Distant	+	+	+		1	SH
29	*Tettigoniella viridis* Stal	+	+	+	+	1	SH
30	*Nephotettix bipunctatus* Fabr.	+	+	+		1	SH
	19. Delphacidae						
31	*Nilaparvata lugens* Stal	+	+	+		1	SH
	20. Aphididae						
32	*Aphidid G.sp.*	+	+	+		3	
	IX. HYMENOPTERA						

	21. Ichneumonidae						
33	*Xanthopimpla punctata* Fabr.	+	+	+		1,2	TĐ
	22. Braconidae						
34	**Apanteles sp.**	+	+	+		1	TĐ
35	*Braconid G.sp.*	+	+	+		1	TĐ
	23. Vespidae						
36	*Polistes olivaceus*	+	+	+	+	1,2	
37	*Vespa affinis*	+	+	+	+	1,2,3	
	24. **Sphecidae**						
38	*Sphex sp.*	+	+	+		2	
	25. Apidae						
39	*Megapis sp.*	+	+	+	+	2	
40	*Xylocopa sp.*	+	+	+	+	1,2	
41	*Apid G.sp.*	+	+	+	+	3	
	X. COLEOPTERA						
	26. Chrysomelidae						
42	*Lema oryzae* Kuwayana	+	+	+	+	1	SH
43	*Lema honorata* Baly					1	SH
44	*Aulacophora indica* (Gmelin)	+	+	+	+	1,2,3	SH
45	*Dicladispa boutani* Weise	+	+	+		1	SH
46	*Monolepta signata* Oliv.	+	+	+	+	1,3	SH
47	*Phyllotreta striolata* Fabr.	+	+	+	+	1	SH
	27. Carabidae						
48	*Mimocalliuris sp.*	+	+	+	+	1	TĐ
49	*Drypta lineola* Chaudoir	+	+	+	+	1	TĐ
50	*Chlaenius inops* Chaudoir	+	+	+	+	1	TĐ
	28. Coccinellidae						
51	*Verania discolor* (Fabricius)	+	+	+	+	1,2,3	TĐ
52	*Monochilus sexmaculata* (Fabr.)	+	+	+	+	1,2	TĐ
	29. Staphylinidae						
53	*Paederus fuscipes* Curt	+	+	+	+	1	TĐ
	30. Curculionidae						
54	*Mypomeces squamosus* Fabriciu	+	+	+	+	1,2	SH
55	*Platymycterus sieversi* Reitter	+	+	+	+	1,2	SH
56	*Phytoscaphus sp.*	+	+	+	+	2	SH
	31. Elateridae						
57	*Agonischius sp.*	+			+	2	
	32. Lampyridae						
58	*Luciola sp.*	+	+	+	+	1,2	
	XI. DIPTERA						
	33. Cerdomyiidae						
59	*Pachydiplosis oryzae* Wood-Mason	+	+	+	+	1	SH
	34. Sciomyzidae						
60	*Sepedon sp.*	+	+	+	+	1,2	
	35. Tabanidae						
61	*Tabanus sp.1*	+	+	+	+	1,2	TY
62	*Tabanus sp.2*	+	+	+	+	1	TY
63	*Tabanus sp.3*	+	+	+	+	1,2,3	TY
64	*Tabanus sp.4*	+	+	+	+	2	TY
	36. Syrphidae						
65	*Megaspis sp1*	+	+			1	

66	*Megaspis sp2*	+	+	+		1	
67	*Megaspis sp3*			+	+	1	
	37. Stratiomyidae						
68	*Stratiomyid G. sp.*	+	+	+	+	1,3	
	38. Sarcophagidae						
69	*Parasarcophaga albiceps* Meigen	+	+	+	+	1,2	YH
	39. Calliphoridae						
70	*Lucilia bazini* Seguy	+	+	+	+	2	
71	*Lucilia cuprina* (Wied.)	+	+	+	+	1,2	YH
72	*Chrysomyta megacephala* Fabr.	+	+	+	+	1,2	YH
	40. Muscidae						
73	*Musca convexifrons* S-W	+	+	+	+	2	TY
74	*Musca sorbeus* Wd.	+	+	+	+	1,2	YH
75	*Musca domestica* L.	+	+	+	+	1,2	YH
76	*Lispe orientalis* Wied.	+	+	+	+	1,2	
77	*Atherigona orientalis* Schiner	+	+	+	+	1,2	
78	*Stomoxys calcitrans* (LinnĐ)	+	+	+	+	1,2	TY
	41. Dolichopodidae						
79	*Argyra sp.*					1	
	42. Tachinidae						
80	*Eurysthaea sp.*	+	+			1	TĐ
	43. Culicidae						
81	*Culex sp.*	+	+	+	+	2,3	YH
	XII. LEPIDOPTERA						
	44. Hesperiidae						
82	*Erionota turus* Evans	+	+	+	+	1,2	SH
83	*Parnara guttata* Bremer & Grey	+	+	+	+	1,2	SH
	45. Danaidae						
84	*Danaus genutia* Cramer	+	+	+	+	1,2	
85	*Euploea mulciber* Cramer	+	+	+	+	2	
	46. Pieridae						
86	*Pieris brassicae* (Linn.)	+	+	+	+	1,2	SH
	47. Nymphalidae						
87	*Junonia atlites (Linn.)*	+	+	+	+	2	
88	*Cynitia lepidea* (Butler)	+	+	+	+	2	
	48. Papilionidae						
89	*Papilio polytes* Linn.	+	+	+	+	2	SH
90	*Papilio demoleus* Linn.	+	+	+	+	2	
91	*Papilio paris* Linn.	+			+	2	
	49. Satyridae						
92	*Melanitis leda* Linn.	+	+	+	+	1	SH
	Lycaenidae						
93	*Pseudozizeeria maha* (Kollar)	+	+	+	+	1,3	
	50. Noctuidae						
94	*Agrotis ypsilon* Rott.	+	+	+	+	1,2	SH
95	*Heliothis armigera* Huber	+	+	+	+	1,2	SH
96	*Leucania separata* Walker	+	+	+	+	1	SH
97	*Plusia eriosoma* Doubleday	+	+	+	+	1,2	SH
98	*Prodenia litura* Fabr.	+	+	+	+	1	SH
	51. Lymantriidae						
99	*Orgyia postica* Walker	+	+	+	+	1	SH

100	*Porthesia scintillans* Walker	+	+	+	+	1	SH
	52. Geometridae						
101	*Acidalia lactea* Butler	+	+	+	+	1	SH
	53. Eucleidae						
102	*Scopelodes anthela* Swinhoe	+	+	+	+	1,2	SH
	54. Pyralidae						
103	*Cnaphatocrocis medinalis* Guenee	+	+	+	+	1	SH
	55. Plutellidae						
104	*Plutella xylostella* L.	+	+	+	+	1	SH
	56. Phyllocnistidae						
105	*Phyllocnistis citrella* Stainton	+	+	+	+	2	SH
Total		99	94	95	74		

Note:

Distribute to habitat:

1: The residential quarter (pond, garden)

2: The agricultural (rice, farm produce), lake, a trench for draining water

3: The coastal lowland.

SH – The agricultural pest

TĐ – The natural enemies of pest

YH – The medicine insects

TY – The veterinary insects

II.3. The Plankton

2.3.1. The Phytoplankton

It's defined 71 species from 14 family in 3 seaweed branches is cyanobacteria, silica algae and tảo Giáp. The branch of silica algae has the largest number of spices (60 spices);tảo giáp branch has 8 spices and cyanobacteria branch has 3 spices. Phytoplankton in Lach Tray river(4th point) has the largest number of spices (42 spices). table 8

Table 8: The phytoplankton list

STT	Scientific name	1	2	3	4
	CYANOBACTERIA				
	Hormogoneae				
	Oscillatoriaceae				
1	*Trichodesmium thiebauti*	+	+	+	+
2	*Oscillatoria formosa*			+	
3	*Oscillatoria limosa*	+	+	+	+
	SI LIC BACILLARIOPHYTA				
	Centrales				

	Coscinodiscaceae				
4	*Coscinodiscus gigas*	+		+	
5	*Coscinodiscus gigas var. pratexta*		+		+
6	*Coscinodiscus nobilis*	+		+	
7	*Coscinodiscus jonesianus*	+	+	+	+
8	*Coscinodiscus thorii*		+		+
9	*Planktoniella sol*	+		+	+
10	*Hemidiscus hardmanianus*		+		
11	*Hemidiscus curneiformis*	+		+	
	Leptocylindraceae				
12	Dactyliosolen antarcticus	+		+	+
	Skeletonemaceae				
13	Lauderia borealis		+	+	
14	*Stephanopisix palmeriana*	+			+
	Thalasiosiraceae				
15	Thalassiosira subtilis			+	+
	Rhizosoleniaceae				
16	Rhyzosolenia alata	+			+
17	*Rhyzosolenia alata f. gracilima*			+	
18	*Rhyzosolenia calcar - avis*	+			+
19	*Rhyzosolenia imbricata*	+		+	
20	Rhyzosolenia imbricata var. shrubsolei		+		+
21	*Rhyzosolenia styliformis*	+			
22	*Rhyzosolenia styliformis var. longissima*		+		+
23	*Rhyzosolenia stolterfothii*	+			
24	*Rhyzosolenia bergonii*		+	+	
25	*Rhyzosolenia setigera*	+			+
	bacteriaceae				
26	Bacteriastrum hyalinum	+	+		+
27	*Bacteriastrum varians*	+			+
28	*Bacteriastrum delicatulum*	+			
29	*Bacteriastrum comosum*	+			+
	chaetoceraceae				
30	Chaetoceros peruvianus	+	+		+
31	*Chaetoceros denticulatus*			+	
32	*Chaetoceros brevis*	+		+	+
33	*Chaetoceros affinis*	+		+	
34	*Chaetoceros compresus*	+			+
35	*Chaetoceros coarctatus*	+			+
36	*Chaetoceros decipiens*		+		
37	*Chaetoceros lorenzianus*			+	
38	*Chaetoceros distans*	+			+
39	*Chaetoceros diversus*	+			+
40	*Chaetoceros cuvisetus*			+	
41	*Chaetoceros pseudocurvisetus*				+
42	*Chaetoceros costratus*			+	+
	biddulphiaceae				
43	Biddulphia sinensis			+	

44	*Biddulphia regia*	+			
45	*Dithilium sol*	+			+
46	*Dithilium brightwellii*			+	+
47	*Hemiaulus sinensis*		+		+
48	*Cerataulina. compacta*			+	
	eucampiaceae				
49	Climacodium biconcavum			+	+
50	*Streptotheca thamensis*		+		+
	pennales				
	fragillariaceae				
51	Thalassionema nitzschioides	+		+	
52	*Thalassiothrix frauenfelldii*	+			+
	naviculaceae				
53	*Gyrosigma spenceri*			+	
54	*Gyrosigma strigille*			+	
55	Pleurosigma afine			+	
56	*Pleurosigma naviculaceum*				+
57	*Navicula cancellata*			+	+
	nitzschiaceae				
58	Nitzschia paradoxa			+	
59	*Nitzschia closterium*			+	+
60	*Nitzschia sigma var. intercedens*	+			+
61	*Nitzschia pungens*		+		+
62	*Nitzschia longissima*		+	+	
63	*Nitzschia lorenzianus*				+
	PYRROPHYTA				
	dinoflagellta				
	peridiniidae				
64	*Ceratium longirostrum .*	+			
65	*Ceratium furca (ehr.) var bergia*	+			+
66	*Ceratium massiliense (gourret)*			+	
67	*Ceratium tripos (o.f. muller) nitzsch*		+		+
68	*Ceratium breve*		+		+
69	*Ceratium macroceros*	+		+	+
70	*Ceratium deflexum (kofoid)*	+			
71	*Peridinium grani fo. mite*		+		+
	Total	35	20	34	42

In density structure of phytoplankton in this area, tảo Silic is prevailed,it's normally has over 90% of number and clearly water characteristic. At the area which we did the project, the density of phytoplankton approximate in other area

Table 9. The density of Plytoplankton

Survey position	Table 9: The numbers of phytoplankton cells (10^3 average/L)			
	Euglenophyta	Cyanobacteria	Pyrophyta	Total
1	19160 (92,8)	0	1473 (7,2)	**20634**

Survey position	Table 9: The numbers of phytoplankton cells (10^3 average/L)			
	Euglenophyta	Cyanobacteria	Pyrophyta	Total
2	13605 (91,6)	680 (4,54)	566 (3,8)	**14852**
3	18140 (95,2)	0	907 (4,8)	**19047**
4	12494 (90,2)	1133 (8,2)	226 (1,6)	**13854**

2.3.2. The zooplankton

We was defined 19 zooplanktoz .spices and group of spices. – Copepoda has the largest number of spices. In the composition of zooplanktoz,it's not defined the different about number between survey points (Table 10).

Table 10. Zooplanktos spices composition

No	Scientific name	1	2	3	4
	COPEPODA				
	CALANOIDA				
	Eucalanidae				
1	*Eucalanus subcrssus* Giesb.	+		+	
	Paracalanidae				
2	*Paracalanus parvus* (Claus)	+	+	+	+
3	*Acrocalanus gracilis* Giesb.	+	+	+	+
4	*A. gibber* Giesb.		+	+	+
	Pseudodiaptomidae				
5	*Pseudodiaptomus incisus* Shen et Lee	+			+
	CYCLOPOIDA				
	Oithonidae				
6	*Oithona simplex* Farran	+	+		+
7	*O. similis* (Claus)	+	+	+	+
	Oncaeidae				
8	*Oncaea venusta* Philippi	+	+	+	+
	Cyclopidae				
9	*Mesocyclops leuckarti* (Claus)	+	+	+	+
10	*Microcyclops varicans* (Sars)	+	+	+	+
11	*Thermocyclops hyalinus* (Rehberg)	+	+	+	+
12	*Thermocyclops taihokuensis* (Harada)	+	+	+	+
	HARPACTICOIDA				
	Ectinosomidae				
13	*Microsetella norvegica* Boeck				+
	BRANCHIOPODA				

	CLADOCERA				
	Bosminidae				
14	*Bosmina longirostris* (O. F. Mỹller)	+	+	+	+
	Sididae				
15	*Diaphanosoma sarsi* Richard	+	+	+	+
	Daphniidae				
16	*Moinodaphnia macleayi*	+	+	+	+
	ROTATORIA				
	Monogononta				
	Asplanchnidae				
17	*Asplanchna sieboldi*(Leydig)	+	+	+	+
	Other Groups				
18	*Crustacea*	+	+	+	+
19	*Mollusca*		+		
	Total	16	16	15	17

2.3.3. The benthic

Zoobenthic spices composition in survey's time was defined 17 spices in 14 family, 4 bộ and 3 classes(table 11). In which, the class of gastropoda has the largest number of spices. In there, Zoobenthic spices composition have not any spices which written at Red List of Viet Nam 2007. The density of zoobenthic is from 16-20 animal/m2. The living mass is normally 5g/m2. .

Table 11: The zoobenthos system list

STT	Scientific name	1	2	3	4
	MOLLUSCA				
	BIVALVIA				
	Veneroida				
	Corbiculidae				
1	*Corbicula cyreniformis* Prime	+		+	+
2	*Corbicula moreletiana* (Prime)	+	+	+	
	GASTRPOPODA				
	Basommatophora				
	Lymnaiedae				
3	*Lymnaea viridis* Quoy et Gaimard	+	+		+
	Planorbidae				
4	*Gyraulus heudei* (Clessin)		+	+	+
5	*Polypylis hemisphaerula* (Benson)	+	+	+	+
	Mesogastropoda				
	Ampullariidae				
6	*Pomacea canaliculata* (Lamarck)	+	+	+	+
	Thiaridae				
7	*Melanoides tuberculatus* (Muller)	+			+
8	*Sermyla tornatella* (Lea)		+	+	+
9	*Tarebia granifera* (Lamarck)	+	+	+	
10	*Thiara scabra* (Muller)	+	+		+

	Viviparidae				
11	*Angulyagra boettgeri* (Heude)	+	+	+	+
12	*Angulyagra polyzonata* (Frauenfeld)	+	+	+	+
13	*Sinotaia aeruginosa* (Reeve)	+	+		+
	ARTHROPODA				
	CRUSTACEA				
	MALACOSTRACA				
	Decapoda				
	Atyidae				
14	*Caridina flavilineata* Dang			+	+
15	*Caridina subnilotica* Dang	+		+	+
	Palaemonidae				
16	*Macrobrachium hainanense* Parisi	+	+	+	+
	Parathelphusidae				
17	*Somaniathelphusa dugasti* (Rathbun)	+	+	+	+
		14	13	13	15

2.3.4. Pisces spices composition

The pisces spices composition at survey points and around area, we was defined 34 spices ,13 family from 6 bộ (clupeiformes; characiformes; cyprinformes; siluriformer; synbranchiformes; perciformes). Spices composition between 15-30 spices (table 12). In general, some popular spices dispose in huge area. It was not defined any spices in Red List of Viet Nam 2007.

Table 12 . The pisces spices compositions at survey points

TT	Scientific name	(1)	(2)	(3)	(4)
	CLUPEIFORMES				
	engraulidae				
1.	*coilia grayii* richardson, 1844	+		+	+
	CHARACIFORMES				
	prochilodontidae				
2.	*prochilodus argenteus* spix & agassiz, 1829	+	+		+
	CYPRINIFORMES				
	cyprinidae				
3.	*cyprinus rubrofuscus* lacepède, 1803	+	+	+	+
4.	*carassius auratus auratus* (linnaeus, 1758)	+	+		
5.	*carassioides acuminatus* (richardson, 1846)	+	+	+	
6.	*osteochilus salsburyi* nichol & pope, 1927	+		+	
7.	*cirrhinus molitorella* (valenciennes,1844)	+	+		
8.	*puntius semifasciolatus* (gunther, 1868)		+	+	
9.	*puntius brevis* (bleeker, 1850)		+		+
10.	*opsarichthys bidens* gunther, 1873	+	+	+	
11.	*metzia lineata* (pellegrin, 1907)		+	+	

12.	*hainania serrata* koller, 1927	+			+
13.	*chanodichthys erythropterus* (basilewsky, 1855)	+			
14.	*hemiculter leucisculus* (basilewsky, 1855)	+	+		+
15.	*megalobrama terminalis* (richardson, 1946)	+	+	+	
16.	*hypophthalmichthys molitrix* (valenciennes, 1844)	+	+	+	+
17.	*acheilognathus tonkinensis* (vaillant, 1892)		+		
18.	*saurogobio immaculatus* koller, 1927	+			+
19.	*hemibarbus macracanthus* lo, yao & chen, 1977	+		+	
20.	*hypophthalmichthys nobilis* (richardson, 1845)	+	+	+	+
21.	*ctenopharyngodon idella* (valenciennes, 1842)	+	+	+	+
22.	*cirrhinus mrigala* hamilton, 1822	+	+	+	+
	cobitidae				
23.	*misgurnus anguillicaudatus* (cantor, 1842)		+	+	+
	SILURIFORMES				
	cranogranidae				
24.	*cranoglanis henrici* vaillant, 1893	+			+
	claridae				
25.	*clarias fuscus* lacepede, 1803	+	+		+
26.	*clarias gariepinus* burchell, 188	+	+		
	loricariidae				
27.	*hypostomus punctatus* valenciennes, 1840	+	+		+
	SYNBRANCHIFORMES				
	monopteridae				
28.	*monopterus albus* zuiew, 1793	+		+	+
	mastacembelidae				
29.	*mastacembelus armatus* lacepede, 1800	+			
	perciformes				
	anabantidae				
30.	*anabas testudineus* bloch, 1792	+			+
	osphronemidae				
31.	*macropodus opercularis* linneaus, 1758	+	+		+
	gobiidae				
32.	*glossogobius giuris* hamilton, 1822	+	+		+
	cichlidae				
33.	*oreochromis mosambicus* peters, 1852	+	+		
34.	*oreochromis niloticus* linnaeus, 1758	+	+		+
	Total	29	24	15	20

III. CONCLUSION

At the survey locations specific to ecosystem where is building highway Ha Noi- Hai Phong, the initial report evaluates all of the fauna and flora on land and water, then show some conclusions:

1 - The flora on land is less rich, including 180 species belonging to 63 families, in which magnolia phylum is only. The structure of species composition has distribution to habitat clearly.

2 – The fauna has distribution to habitat on the different from collection samples, in which:

Animal: The poor composition with 8 species are identified in 3 ordies: Insectivora, Chiroptera and Rodentia with Muridae, flittermouse are population.

Bird: Identified 28 species belonging to 17 families, 5 ordies. In which, at the survey positions, the number of birds is from 18 to 20 species.

The reptiles-emphibian compositions are identified as poor. The report identified 10 reptiles belonging to 5 families, 1 ordo and 9 emphibian species belonging to 4 families, 1 ordo.

The insect composition has 105 species belonging to 56 families, 12 ordonies. In which, the numer of Lepidoptera is max, 24 species (about 23% total of species), after that is Diptera, 23 species (22%), and Coleoptera: 17 species (16%); the others are left. With the appearance of agricultural pests majority. That demonstrates the highway will go through the agricultural ecosystem.

3 – The phytoplankton: identify 145 species, in which Cyanobacteria has 12 species occupying 8%; Chlorophyta has 38 species occupying 27%; Bacillariophyta has 11 species occupying 8%; Euglenophyta has 79 species occupying 54%; Pyrophyta has 5 species occupying 3%. Especially, the frequency of Euglenophyta in the positions relate to the organic pollution because the Phytoplankton often live in nutrient-rich organic, which lying between 66,70 to 1336,80.10^3 tb/L.

4 - The zooplankton: identify 32 species belonging to 13 families, 4 ordies, 2 classes and 2 phylums. In which Copepoda has 13 species, Branchiopoda has 8 species, Rotatoria has 11 species.

5 - The benthic: 20 benthic species belonging to 14 families, 3 phylums. That

includes Mollusca: 15 species, Arthropoda: 4 species, Insecta: 1 species. This is the important group in aquatic ones with the role of environmental indicators.

The biological indicator through monitoring of composition and structure of fauna and flora communities on land and water is very important to evaluation of environmental quality, habitat, etc. Thus, the collection of data by authors contributes importantly to assess environmental impacts effectively.

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