Practical Report

A SURVEY OF INSECTS IN THE MANGROVE FOREST AT THE MOUTH OF THE BANGPAKONG RIVER IN THAILAND

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Abstract

The dipteran fauna in a mangrove forest at the mouth of the Bangpakong River in Thailand was sampled at intervals of approximately two weeks throughout one year. Samples were collected during the hours of daylight and darkness. A total of 390 samples were examined, in which 73 species were identified representing 3 suborders, 18 superfamilies, 32 families and 32 genera. Diversity of these insects was greatest for mosquitoes and punkies with 14 and 11 species respectively present. The importance of these taxa to medicine, veterinary and forestry was discussed.

Keywords*: Bangpakong River, diversity, dipteran fauna, mangrove, Thailand.*

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Introduction

Natural resources of mangrove forests are directly and indirectly useful to humans and other animals. The mangrove ecosystem is composed of biotic and abiotic components. Insects in the mangrove forests contribute importantly to the various food chains and also to human and veterinary medicine. Among the insects, those in the order Diptera (flies) are prominent in their numbers and influence. Some species are beneficial in their ecological roles as predators and parasites and as pollinators of economically important plants. Others contribute to soil fertility by breaking down dead plant tissues. Some are parts of the food chain of fish, crabs, small shrimps and other animals. In mangrove forest at the mouth of the Bangpakong River, the kinds of species of dipterans are not known yet. So the diversity of the dipterans in mangrove forest in this region should be discovered by this project.

Methodology

Eleven index stations were established to represent the ecological subregions within the mangrove forest at the mouth of the Bangpakong River (Figs. 1-3). At intervals of approximately two weeks, samples were collected from each of the eleven index stations. At each interval, samples were collected by day and by night. Day samples of adult dipterans were collected with sweep nets, while light traps were used at

night. Immature dipterans were collected from water and trees with a dip net and an aspirator. Adults were killed in chloroform, then, transferred to sample boxes for subsequent identification. Immature dipterans were brought back to the laboratory and reared to the adult stage for identification. Each sample was examined for species diversity using the taxonomic keys.

Results

The dipteran fauna in a mangrove forest at the mouth of the Bangpakong River was sampled at intervals of approximately two weeks throughout one year. A total of 390 samples were examined, in which 73 species were identified representing 3 suborders, 18 superfamilies, 32 families and 32 genera (Table1).

Discussion and Conclusion

In the dipteran fauna in a mangrove forest at the mouth of the Bangpakong River, diversity was greatest for Culicidae (mosquitoes) and Ceratopogonidae (punkies) with the presence of 14 and 11 species, respectively. Besides these there were many species of Tabanidae (horse flies), Muscidae (house flies) and Calliphoridae (blow flies). Other families present included Stratiomyidae (soldier flies), Ephydridae (shore flies), Dolichopodidae (long-legged flies), Surphidae (surphid flies), Drosophilidae (pomace flies), Sarcophagidae (flesh flies), Tachnidae (tachnid flies), Sciaridae (dark-winged fungus flies) and Pipunculidae (big-headed flies), but each was represented by only a few species. The families in which taxa could not be identified as to species were Trichoceridae, Tipulidae, Psychodidae, Chironomidae, Anisopodidae, Mycetophilidae, Asilidae,

Figure 1 Mangrove forest of the mouth of Bangpakong River, Thailand.

Figure 2 Location of insects survey of the mouth of Bangpakong River, Gulf of Thailand.

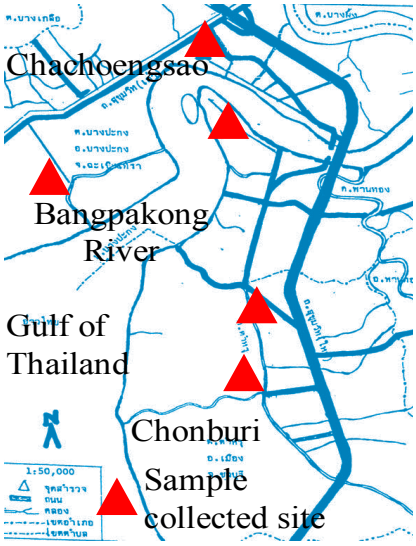

Figure 3 Spots of insects survey of the mouth of Bangpakong River, Gulf of Thailand

Platypezidae, Tephritidae, Sepsidae, Sciomyzidae, Lauxaniidae, Chamaemyiidae, Canaceidae, Chloropidae, Agromyzidae, Trixoscelididae and Anthomyiidae. Some of these insects are beneficial through their roles as predators and parasites while others are harmful to plants and animals, particularly as vectors of disease. Consequently, they are of great agricultural, forestry, medical and veterinary importance. Many dipterans are also important components in the mangrove ecosystem.

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Table 1 Dipteran fauna in a mangrove forest at the mouth of the Bangpakong River

No.	Scientific Name	Family	Superfamily	Division	Suborder	Common Name
1	-	Trichoceridae	Tipuloidea		Nematocera	winter crane flies
2	-	Tipulidae	Tipuloidea		Nematocera	crane flies
3	-	Psychodidae	Psychodoidea		Nematocera	moth flies, sand
4	*Aedes aegypti*	Culicidae	Culicoidea		Nematocera	mosquitoes
5	*Aedes lorrainea*	Culicidae	Culicoidea		Nematocera	mosquitoes
6	*Aedes platylepidus*	Culicidae	Culicoidea		Nematocera	mosquitoes
7	*Aedes vigilax*	Culicidae	Culicoidea		Nematocera	mosquitoes
8	*Anopheles aconitus*	Culicidae	Culicoidea		Nematocera	mosquitoes
9	*Culex gelidus*	Culicidae	Culicoidea		Nematocera	mosquitoes

Table 1 (continued)

No.	Scientific Name	Family	Superfamily	Division	Suborder	Common Name
10	*Culex quinquefasciatus*	Culicidae	Culicoidea		Nematocera	mosquitoes
11	*Culex sitiens*	Culicidae	Culicoidea		Nematocera	mosquitoes
12	*Culex tritaeniorhynchus*	Culicidae	Culicoidea		Nematocera	mosquitoes
13	*Culex vagans*	Culicidae	Culicoidea		Nematocera	mosquitoes
14	*Mansonia bonneae*	Culicidae	Culicoidea		Nematocera	mosquitoes
15	*Mansonia indiana*	Culicidae	Culicoidea		Nematocera	mosquitoes
16	*Mansonia uniformis*	Culicidae	Culicoidea		Nematocera	mosquitoes
17	*Mimomyia luzomensis*	Culicidae	Culicoidea		Nematocera	mosquitoes
18	*Uranotaenia* sp.	Culicidae	Culicoidea		Nematocera	mosquitoes
19	*Atrichopogon* sp.	Ceratopogonidae	Culicoidea		Nematocera	punkies
20	*Culicoides flavescens*	Ceratopogonidae	Culicoidea		Nematocera	punkies
21	*Culicoides flumineus*	Ceratopogonidae	Culicoidea		Nematocera	punkies
22	*Culicoides gemellus*	Ceratopogonidae	Culicoidea		Nematocera	punkies
23	*Culicoides geminus*	Ceratopogonidae	Culicoidea		Nematocera	punkies
24	*Culicoides orientalis*	Ceratopogonidae	Culicoidea		Nematocera	punkies
25	*Culicoides*	Ceratopogonidae	Culicoidea		Nematocera	punkies
26	*Culicoides peregrinus*	Ceratopogonidae	Culicoidea		Nematocera	punkies
27	*Culicoides schultzei*	Ceratopogonidae	Culicoidea		Nematocera	punkies
28	*Culicoides shortti*	Ceratopogonidae	Culicoidea		Nematocera	punkies
29	*Culicoides similis*	Ceratopogonidae	Culicoidea		Nematocera	punkies
30	*Culicoides simislis*	Ceratopogonidae	Culicoidea		Nematocera	punkies
31	*Forcipomyia* sp.	Ceratopogonidae	Culicoidea		Nematocera	punkies
32	-	Chironomidae	Culicoidea		Nematocera	midges
33	-	Anisopodidae	Anisopodoidea		Nematocera	wood gnats
34	-	Mycetophilidae	Mycetophiloidea		Nematocera	fungus gnats
35	*Sciara* sp.	Sciaridae	Mycetophiloidea		Nematocera	fungus gnats
36	*Hermetia* sp.	Stratiomyidae	Tabanoidea		Brachycera	soldier flies
37	*Ptecticus* sp.	Stratiomyidae	Tabanoidea		Brachycera	soldier flies
38	*Stratiomyia* sp.	Stratiomyidae	Tabanoidea		Brachycera	soldier flies
39	*Stratiomys* sp.	Stratiomyidae	Tabanoidea		Brachycera	soldier flies
40	*Chrysops vespa*	Tabanidae	Tabanoidea		Brachycera	horse flies
41	*Tabanus atratus*	Tabanidae	Tabanoidea		Brachycera	horse flies
42	*Tabanus brunipennis*	Tabanidae	Tabanoidea		Brachycera	horse flies
43	*Tabanus lineola*	Tabanidae	Tabanoidea		Brachycera	horse flies
44	-	Asilidae	Asiloidea		Brachycera	robber flies
45	*Dolichopus* sp.	Dolichopodidae	Empidoidea		Brachycera	long-legged flies

Table 1 (continued)

No.	Scientific Name	Family	Superfamily	Division	Suborder	Common Name
46	*Melanderia* sp.	Dolichopodidae	Empidoidea		Brachycera	long-legged flies
47	*Tomosvaryella* sp.	Platypezidae	Phoroidea	Aschiza	Cyclorrhapha	flat-footed flies
48	*Eristalis* sp.	Pipunculidae	Syrphoidea	Aschiza	Cyclorrhapha	big-headed flies
49	-	Syrphidae	Syrphoidea	Aschiza	Cyclorrhapha	syrphid flies
50	-	Tephritidae	Tephritoidea	Schizophora	Cyclorrhapha	fruit flies
51	-	Sepsidae	Sciomyzoidea	Schizophora	Cyclorrhapha	sepsids
52	-	Sciomyzidae	Sciomyzoidea	Schizophora	Cyclorrhapha	marsh flies
53	-	Lauxaniidae	Lauxanioidea	Schizophora	Cyclorrhapha	lauxaniid flies
54	-	Chamaemyiidae	Lauxanioidea	Schizophora	Cyclorrhapha	aphid flies
55	-	Canaceidae	Milichioidea	Schizophora	Cyclorrhapha	beach flies
56	*Ephydra* sp.	Ephydridae	Drosophiloidea	Schizophora	Cyclorrhapha	shore flies
57	*Drosophila* sp.	Drosophilidae	Drosophiloidea	Schizophora	Cyclorrhapha	pomace flies
58	-	Chloropidae	Chloropoidea	Schizophora	Cyclorrhapha	chloropid flies
59	-	Agromyzidae	-	Schizophora	Cyclorrhapha	leaf miner flies
60	-	Trixoscelididae	-	Schizophora	Cyclorrhapha	trixoscelidid flies
61	-	Anthomyiidae	Muscoidea	Schizophora	Cyclorrhapha	anthomyiid flies
62	*Fannia* sp.	Muscidae	Muscoidea	Schizophora	Cyclorrhapha	house flies
63	*Hydrotaea* sp.	Muscidae	Muscoidea	Schizophora	Cyclorrhapha	house flies
64	*Limnophora* sp.	Muscidae	Muscoidea	Schizophora	Cyclorrhapha	house flies
65	*Musca asiatica*	Muscidae	Muscoidea	Schizophora	Cyclorrhapha	house flies
66	*Musca domestica*	Muscidae	Muscoidea	Schizophora	Cyclorrhapha	house flies
67	*Musca sorbens*	Muscidae	Muscoidea	Schizophora	Cyclorrhapha	house flies
68	*Chrysomyia*	Calliphoridae	Oestroidea	Schizophora	Cyclorrhapha	blow flies
69	*Hemipyrellia ligurriens*	Calliphoridae	Oestroidea	Schizophora	Cyclorrhapha	blow flies
70	*Melinda scutellata*	Calliphoridae	Oestroidea	Schizophora	Cyclorrhapha	blow flies
71	*Parasarcophaga knabi*	Sarcophagidae	Oestroidea	Schizophora	Cyclorrhapha	flesh flies
72	*Archytas* sp.	Tachinidae	Oestroidea	Schizophora	Cyclorrhapha	tachinid flies
73	*Winthemia* sp.	Tachinidae	Oestroidea	Schizophora	Cyclorrhapha	tachinid flies