

State Fauna Series, 19



Fauna of Andaman and Nicobar Islands (Part-1)



ZOOLOGICAL SURVEY OF INDIA

State Fauna Series, 19

FAUNA OF ANDAMAN AND NICOBAR ISLANDS (Part-1)

Edited by
The Director
Zoological Survey of India, Kolkata



**Zoological Survey of India
Kolkata**

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FAUNA OF ANDAMAN AND NICOBAR ISLANDS

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No. 19 (Part-1)

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OVERVIEW

K. VENKATARAMAN

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

The Andaman and Nicobar Islands comprised of an arcuate chain of more than 572 islands, islets and rocks spreading in more than 800 km in Bay of Bengal. They are also commonly known as Bay islands. They lie between latitudes 6°45' N and 13°41' N and longitudes 92°12' E and 93°57' E. These islands cover an area of 8239 sq. km. and a coast line of 1962 km. The islands have undulating terrain and intervening valley mostly covered with dense tropical rain forests. These islands have more than 86% of the land under forest cover and 35% of the area is allotted to tribal reserves. Besides, more than 2000 sq. km. area is also notified under protected areas viz. National Parks, Wildlife Sanctuaries and Biosphere Reserve. Mangrove vegetation is also protected, which is about 11% of the total forest area.

These islands with 0.25 percent of geographical area of India harbour about 8% of living resources, half of which are land bound. The living resources of Andaman and Nicobar islands include about 3500 species of plants, 58 species of mammals, 280 species of birds, 85 reptiles, 18 amphibians, 1485 fishes, 2506 insects, 1663 molluscs, 840 crustaceans and about 1000 other invertebrates.

The Andaman and Nicobar Islands support a unique biodiversity due to their zoogeographical position. Falling within the Indo-West Pacific Region, the inland fauna and flora of these islands exhibit dual zoogeographical affinity. Separated by ten degree channel, the northerly Andaman group of islands shares greater faunal and floristic affinities with the Indo-Chinese sub region of the

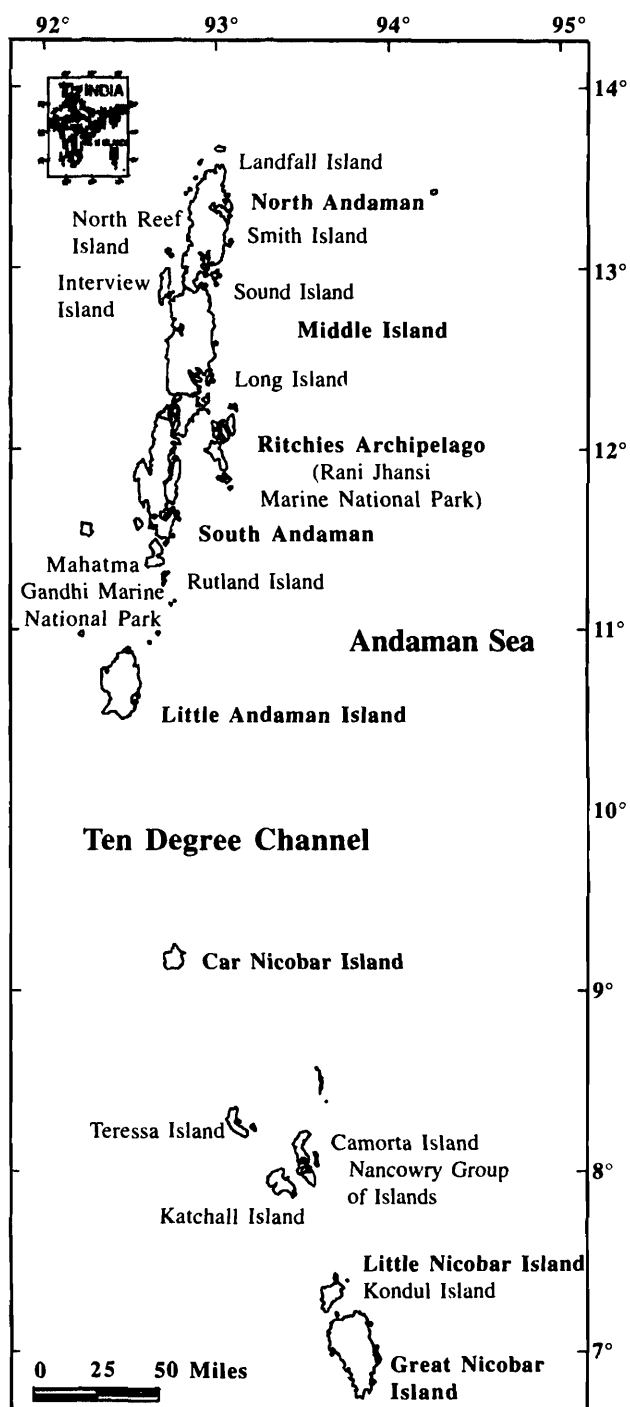


Fig. 1 : Map of Andaman & Nicobar Islands

Indian region; the Nicobar group of Islands, on the other hand, has more Indo-Malayan elements, both in flora as well in the fauna.

The long isolation of these islands from the sub-continent has resulted in high endemicity of terrestrial faunal and floral elements. More than 10% of the plants are endemic. More are endemic in case of animals. Among the invertebrates, the butterfly has more than 70 % of endemism in sub-species level. Due to the topography, the distribution of fauna in these islands varies from island to island. Some animals are restricted to certain areas in Andamans, some to Nicobar, while others are common to both the group of islands. Sometimes, a species is even confined to a particular island.

VEGETATION

The Nature has endowed the islands with lush green luxuriance covering almost from the water's edge to the hilltops. Sir Harry Champion, a renowned Forester, had aptly remarked that Forests in its Pristine Glory" if it is found in South East Asia, it is in Andamans. Due to centuries of isolation, these forests remained untouched by man till 1788, when the first settlement was established. Both compositionally and taxonomically, the forests present a variety, which hardly match anywhere else in the area of similar extent.

There are interesting differences in vegetation composition between various islands of the Andamans, between various islands of the Nicobars, and between the Andamans and Nicobars. South Andaman forest has a profuse growth of epiphytic vegetation, mostly ferns and orchids; the Middle Andamans harbour mostly moist deciduous forests; North Andamans is characterised by wet-evergreen type, with plenty of woody climbers. The northern island of the Nicobars are marked by a complete absence of evergreen forest, while such forest form the dominant vegetation in the central and southern island of the Nicobars. Grassland occur only in

the Nicobars, and while deciduous forest are common in the Andamans, they are almost absent in the Nicobars. Several species are endemic to either of the two island groups—the Tree fern *Alsophila albosetacea* to the Nicobars, the major timber species *Dipterocarpus spp.* (Gurjan) and *Pterocarpus dalbergioides* (Padauk) to the Andamans.

Zoogeography

The zoogeography of Andaman and Nicobar islands are close to Indo-Malayan region, which is considered to be a "faunistic centre" from which other subdivisions of the Indo-west Pacific Region recruited their fauna (Ekman, 1953). The faunal groups of Indo-west Pacific found on the shores of Andaman and Nicobar Islands are Giant clams, sea moths, whittings, rabbit fishes and plesiopids. Out of 50 species of sea snakes from the Indo-Pacific region 26 are reported from the waters off these islands. Dugong, a marine mammal which is endemic to Indo-West Pacific is recorded off these Islands. There are many more such marine animals which are typical of Indo-West Pacific and occur in these islands. In our present knowledge these islands shows high degree of endemism on terrestrial and freshwater organisms, but not on marine animals.

Soil

The soil cover is two to five metres thickness in the hilly tracts. Top of ridges and along the river courses are covered by alluvial soil, the block and valleys by diluvial soil and coastal areas are admixed with sand, silty clay and diluvial soil with fine fragments of coral lime. In general soil is mild to moderately acidic with appreciably high humus on top.

Climate

These islands are tropical and the temperature ranges 23°-31°C. The annual rainfall of the mountainous parts of the southern islands is about 300 cm whereas the islands of north get lesser rainfall. Expect for three dry months (December-

February) sky remains overcast with clouds. The warm weather extends from March to April when there is the least precipitation. In the May southwest monsoon breaks over the area and continues till October end, at this time there is full fledged cyclonic storms.

Topography

The archipelago of geographical area (8249 km²) is surrounded by the coral reefs, rocky areas and mangrove swamps. Muddy grounds are limited and are found only in protected bays and creeks. The continental shelf which runs up to 100 fathoms

Table-1 : Faunal diversity of Andaman and Nicobar Islands.

Sl. No.	Faunal group	World	India	A & N Islands	Endemic	% in A & N Islands
1	Sponges	5100	519	112	5	21.6
2	Platyhelminthes (Polycladida)	400	19	19	?	100.0
3	Corals (Including hard corals, soft corals and gorgonians)	700	600	600	—	100.0
4	Earthworms	4000	585	21	7	3.6
5	Leeches	500	59	10	—	16.9
6	Polychaetes	8000	428	191	—	44.6
7	Arthropoda					
	Arachnids	120	21	14	?	66.7
	Crustacean	24375	2970	837	56	28.2
	Spiders & Scorpions	35810	1352	113	28	8.4
	Centipedes	3000	100	17	?	17.0
	Millipedes	7500	162	5	?	3.1
	Insects	867391	59353	2274	485	3.8
8	Gastrotricha	2500	88	32	6	36.4
9	Chinorincha	100	10	4	2	40.0
10	Mollusca				—	
	Land	15000	950	110	75	11.6
	Freshwater	8765	284	51	12	18.0
	Marine (Except opisthobranchia)	56235	32751	1282	2	3.9
	Opisthobranchia	6500	434	220	?	50.7
16	Siphunculata	202	38	25	?	65.8
17	Echinodermata	6226	765	430	2	56.2
18	Fishes	31723	2546	1485	2	58.3
19	Amphibians	550	219	23	3	10.5
20	Reptiles	5817	456	104	23	22.8
21	Aves	9026	1250	284	105	22.7
22	Mammals	4629	410	62	33	15.1
	Total	1104169	106115	8325	846	7.8

depth is very narrow, only 225 miles in width, broader on the western side and becomes very deep there after the deepest known depth is 4198m east of car Nicobar Island. The sea water is less saline on the east coast than in the west which supports more coral reefs. The Little Andaman and Nicobar Islands except Great Nicobar lying on the south are flat, sandy islands, probably of most recent origin, formed by coral formations.

History of investigation

In the year 1896 Francis Day, a well known army officer and fishery biologist, visited Andaman

and Nicobar Islands and recorded the occurrence of 136 species of fishes in the Andaman waters. A. Alcock published "a *Naturalist in Indian Seas*" in 1902 by the results from the survey vessel *Investigator* during 1875-1925 about the physics, chemistry, biology and geology of the Andaman Sea. Subsequently, the most outstanding and comprehensive study of the Andaman Sea was carried out from 1913 to 1925 by the Former Director of Zoological Survey of India, Surgeon Major R. B. Seymour Sewell and results were published in the *Memoirs of the Asiatic Society*

Table-2 : Group-wise details of the fauna included in the present part.

Sl. No.	Faunal Group	Order	Families	Genera	No. of Species/ subspecies
1.	Insecta	Collembola	03	11	18
2.		Thysanura	02	02	03
3.		Odonata	11	39	69
4.		Orthoptera : Acridoidae	2	18	22
5.		Coleoptera	Silvanidae	09	16
6.			Colydiidae	08	08
7.			Bothrideridae	03	04
8.			Erotylidae	05	09
9.			Languriidae	02	02
10.			Endomychidae	02	03
11.			Discolomidae	01	03
12.			Monotomidae	05	07
13.			Inopeplidae	01	04
14.			Propalticidae	01	01
15.			Dytiscidae	08	15
16.			Staphylinidae	10	19
17.		Hymenoptera	Sphecidae	11	12
18.			Encyrtidae	18	25
19.	Crustacea	Infraorder Brachyura	56	246	521
	Total No. of species			761	

of Bengal (Vol. IX, Nos.1-8, 1925-1935). Since then several international expeditions were conducted by many research ships, viz. *Challenger*, *Valdivia*, *Siboga*, *Galatea* and *Vitiaz* to Andaman as it attracted with rich marine wealth. During the course of International Indian Ocean Expedition, the oceanographic surveys were undertaken by the research vessels *NS Kistna*, *RV Cerano* and *RV Anton Bruun* in this sea during 1970s. The National Institute of Oceanography has undertaken 2 cruises during 1970 and 3 cruises during 1980 by *R.V. Gaveshani* and studied the physics, chemistry and Biology and the findings were *Indian Journal of Marine Sciences*, Vol.10 (3), 1981. Recently, National Institute of Ocean Technology undertaking surveys in Andaman Sea to explore its productivity besides studying hydrobiological features.

Biological Diversity of Andaman and Nicobar Islands

The Union Territory of Andaman and Nicobar Islands are considered as *Paradise of Biological Diversity*, About 8325 species of Fauna, of which 834 species are endemic, while about 2500 species of Flora reported, of which 261 species are endemic. Among them 63.7 per cent of Biota belongs to Marine habitat. It is known that 32 out of 33 animal phyla found in these islands exist in sea. The details of the fauna reported from Andaman and Nicobar Islands are presented in Table-1.

The present part of the document includes 20 chapters pertaining to invertebrates. Insects comprising of 240 species and crabs 521 species (Table-2). Among the insects, only six orders viz., Collembola, Thysanura, Odonata, Orthoptera, Coleoptera and Hymenoptera are dealt. The first four orders are comprehensively studied; however 12 families of order Coleoptera and two families of Hymenoptera are included. For the first time consolidated information on Collembola of Andaman and Nicobar Islands involving 18 species under 11 genera of 3 families are studied. The key to the families, genera and species have also been provided. Only three species of Thysanura are reported. Altogether, 69 species/subspecies belonging to 39 genera under 11 families of Odonata are reported. The Orthoptera : Acridoidae is reported comprising 22 species under 2 families and 18 genera. The 12 families of Coleoptera viz. Silvanidae (16 species), Colydidae (8 species), Bothrideridae (4 species), Erotylidae (9 species), Languriidae (2 species), Endomychidae (3 species), Discolomidae (3 species), Monotomidae (7 species), Inopeplidae (4 species), Propalticidae (1 species), Dytiscidae (33 species), Staphylinidae (147 species) and two families of Hymenoptera viz. Spheidae (12 species) and Encyrtidae (25 species) are dealt in the document. Diversity and distribution of 521 species belonging to 246 genera and 56 families of brachyuran crabs is also included.

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- Ramakrishna, Raghunathan, C, and Sivaperuman, C. 2010. Recent Trends in the Biodiversity of Andaman and Nicobar Island, 1-542. (Published by the Director, Zool. Surv. India, Kolkata).

INSECTA : COLLEMBOLA (APTERYGOTA)

A.K. HAZRA AND G.P. MANDAL

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

INTRODUCTION

The first taxonomic study of Collembola from India is of Ritter (1911). Imms (1912) made significant contribution on Indian collembola. The knowledge of Indian Collembola was further enriched through the contribution of several workers like Carpenter (1913, 1917 & 1924), Handschin (1920), Mukherjee (1932), Denis (1936), Salmon (1957-64), Baijal (1955-58), Choudhuri (1963, 1966), Yosii (1966a, b) Mitra (1967-2001), Prabhoo (1971, 80) and Hazra & Mandal (1995 to till date).

The present study of Collembolan fauna is based on collection made during 2004 from Andaman & Nicobar Islands by Zoological Survey of India, as a part of the Action Plan on State Fauna. The key to the families, genera & species have been provided for easy identification of the taxa. The classification followed here after Christiansen & Bellinger (1980).

SYSTEMATIC ACCOUNT

Order COLLEMBOLA

Suborder ARTHROPLEONA

Key to the superfamilies of ARTHROPLEONA

1. First thoracic segment dorsally distinct with dorsal setae
..... PODUROIDEA Womersley, 1933
- First thoracic segment without dorsal setae and frequently more or less reduced or hidden dorsally by mesothoracic segment
..... ENTOMOBRYODEA Womersley, 1933

Key to the families of PODUROIDEA

1. Pseudocelli present, at least on antennal base or dorsum of fifth abdominal segment
..... ONYCHIURIDAE, Gervais, 1841
- Pseudocelli absent
..... HYPOGASTRURIAE Bourlet, 1839

Key to the families of ENTOMOBRYODEA

Hind coxae usually with trochanteral organ. Abdomen IV appreciably longer than abdomen III. Scales present or absent, often ciliated. Furcula well developed
..... ENTOMOBRYIDAE, Tomosvary, 1882

Hind coxae without trochanteral organ. Abdomen III and IV usually subequal; the abdomen IV never more than one and onehalf times as long as abdomen III, the other posterior abdominal segments often fused. Scales usually not present ISOTOMIDAE, Börner, 1913

Key to the subfamilies of ENTOMOBRYIDAE

1. Dentes dorsally crenulated and curving upwards basally in the line with manubrium
..... ENTOMOBRYINAE, Schaeffer, 1896
- Dentes not crenulated, straight and usually forming a basal angle with manubrium 2
2. Dental scale absent 3
- Dental spine present on the basal portion of the dentes only
..... TOMOCERINAE, Schaeffer, 1896
3. Eyes and pigment absent; dentes with large dorsal scale without apical lobe
..... CYPHODERINAE, Börner, 1913

Family HYPOGASTRURIDAE

Subfamily HYPOGASTRURINAE

Absence of true pseudocelli and the simplicity of the sense organ of the third antennal segment are best recognized of this family. Mandible with a basal molar plate is easily seen of this subfamily.

Genus *Hypogastrura* Bourlet, 1839

1. *Hypogastrura indovaria* Salmon, 1970

1970. *Hypogastrura indovaria* Salmon, *Trans. Biol. Sci.*, 12(13) : 149.

Material examined : Cipighat near Centre for agriculture farm, Port Blair, 13.3.2004, Coll. A.K. Hazra & Party, 24 exes.

Diagnostic characters : Body length upto 0.8 mm. Brownish black fields. Sparse to heavy clothing of short and long curved simple setae. Antennae shorter than head. P.A.O. very irregular consists of 4-12 indistinct disconnected lobes. With or without central boss., abd. VI with two long anal spines on papillae. Tenant hairs never clavate. Mucro finely granulate and spoon-shaped with two distinct lamellae.

Distribution : India : Andaman Islands, Uttarakhand, Arunachal Pradesh, Manipur, Mizoram, Sikkim.

Genus *Xenylla* Tullberg, 1869

2. *Xenylla obscura* Imms, 1912

1912. *Xenylla obscura* Imms, *Proc. Zool. Soc. London*, 80-125.

1970. *Xenylla obscura* Salmon, *Roy. Soc. N. Z. Biol. Sci.*, 12(13) : 145-152.

Material examined : Panighat, Way to Mount Harriet, Port Blair, 13.3.2004, Coll. A.K. Hazra, 26 exs.

Diagnostic characters : Body length upto 1.4 mm; elongate in shape; colour indigo-blue, segmental margins and ventral side pale. Antennae ratio as 10 : 12 : 14. P.A.O. absent. Unguis carinate, without lateral teeth, but with 1, 1, 1 inner tooth near the apex. Unguiculas absent. Ventral tube with 4 + 4 setae. Tenant hair, 2, 2, 2 very long and capitate at the end. Dentes and mucro

separated. Mucro short, obtuse anal blunt on apex, with a narrow rounded lamella, which is often very obscure.

Distribution : India : Andaman Islands, Uttarakhand, Arunachal Pradesh, Manipur, Nagaland, Sikkim and Maharashtra.

Family ENTOMOBRYIDAE

Subfamily ENTOMOBRYINAE

Schaeffer, 1896

Body with hairs or scales or both the chaetotaxy of head and trunk and eye numbers are useful in identifying the members of this family. Dentes crenulated dorsally. Mucrone falcate with basal spine, it is short and hook-like.

Genus *Lepidocyrtus* Bourlet, 1839

The genus is represented by five species from Andaman Islands.

Key to the species of *Lepidocyrtus*

1. VI-th abdominal segment with elongate cerciform tergum
.....*Lepidocyrtus caudatus* Carpenter, 1917
- VI-th abdominal segment without elongate cerciform tergum 2
2. Dental lobe with accessory apparatus
.....*L. (Acrocyrtus) malayanus* Yosii, 1959
- Dental lobe without accessory apparatus 3
3. Th. II is very prominent and protruded over the head, Abd. II : IV = 1 : 7
..... *L. magnificus* Carpenter, 1917
- Th. II is protruded considerably over the head 4
4. Th. II is slightly protruded over the head. Th. II, III as 75 : 25. Abd. III : IV as 3 : 12
..... *L. (Acrocyrtus) heterolepis* Yosii, 1959
- Th. II is moderately hanging over the head. Th. II : III as 2 : 1. Abd. III : IV as 1 : 3
..... *L. (s. str.) curvicollis* Bourlet
3. *Lepidocyrtus caudatus* Carpenter, 1917
1917. *Lepidocyrtus caudatus* Carpenter, *Rec. Ind. Mus. Cal.* 8(ix) : 561-568.

Material examined : Mount Harriet, Port Blair, 13.3.2004, Coll. A.K. Hazra & Party, 4 exs.

Diagnostic characters : Mesonotum slightly prominent, half as long as metanotum. Abd. IV six times as long as Abd. III. Abd. VI. prolonged into a slender cerci form process. Colour pale yellow with violet patches on antennal segments, a violet spot on Th. II and Abd. III, IV and V.

Distribution : India : Andaman Islands, Uttarakhand, Arunachal Pradesh, Manipur, Sikkim.

4. *Lepidocyrtus (Acrocyrtus) malayanus* Yosii, 1959

1959. *Lepidocyrtus (Acrocyrtus) malayanus* Yosii, *Contr. Biol. Lab. Kyoto. Univ.*, 10 : 28.

Material examined : Horticulture farm, Cipighat, South Andaman, 14.3.2004, Coll. A.K. Hazra & Party, 35 exs.

Diagnostic characters : Body length 2.5 mm. Ground colour brownish white, antennal distally with bluish pigment from Ant. II. Eye 6 + 6. Scales are present dorsally upon Ant. I and II. Ration of Antennal segs. = 9 : 18 : 11 : 23; Ths II : III = 7 : 3; Abd. III : IV = 1 : 5. Manubrium : dentes = 9 : 8. Dorsal appendix of dental lobe is prominent, acutely pointed in profile.

Distribution : India : Andaman Islands, Uttarakhand, Arunachal Pradesh, Manipur, Sikkim; Singapore.

5. *Lepidocyrtus (s. str.) magnificus* Carpenter, 1924

1924. *Lepidocyrtus (s. str.) magnificus* Carpenter, *Rec. Ind. Mus. Cal.*, 26 : 285-289.

Material examined : Haprigang, South Andaman, 14.3.2004, Coll. A.K. Hazra & Party, 52 exs.

Diagnostic characters : Mesonotum four times as long as metanotum. Abd. IV. Seven times as long as Abd. III. Antennae twice as long as head. Colour pale-yellow with Ant. III and IV, edges of Th. II and III and last abdominal segment dark violet. Relatively short III antennal segment. Mucro stout with strong teeth, the dorsal spine short.

Distribution : India : Andaman Islands, Uttarakhand, Arunachal Pradesh, Manipur, Sikkim, Mizoram, Assam, Tripura (West Distt.).

6. *Lepidocyrtus (Acrocyrtus) heterolepis* Yossi, 1959

1959. *Lepidocyrtus (Acrocyrtus) heterolepis* Yossi, *Cont. Biol. Lab. Kyoto. Univ.*, 10 : 33.

Material examined : Road side nallah near Shyamnagar, Havelock, 15.3.2004, Coll. A.K. Hazra & Party, 32 exs.

Diagnostic characters : Length upto 1.6 mm. Antennae uniformly bluish pigmented. A transverse stripe along the fore margin head. Eyes black. Ant. segment ratio as 15 : 30 : 28 : 48. Th. II. is slightly protruded over the head. Th. II, III as 75 : 25. Abd. III : IV as 3 : 12. Manubrium; Dens as 24 : 28. Mucro bidentate, two teeth sub equal and with a basal spine.

Distribution : India : Andaman Islands, Uttarakhand, Arunachal Pradesh, Manipur; Singapore, Malay.

7. *Lepidocyrtus (s. str.) curvicollis* Bourlet

1959. *Lepidocyrtus (s. str.) curvicollis* Yosii, *Cont. Biol. Lab. Kyoto. Univ.*, 10 : 23.

Material examined : Bed side nallah, Shyamnagar, Havelock, 15.3.2004, Coll. A.K. Hazra & Party, 26 exs.

Diagnostic characters : Body up to 2.0 mm. Ground colour white with slight brownish tinge. Antennal bluish distally from Ant. II. Basal two segments of each leg slightly pigmented to blue. Eyes black. A black spot is present between eyes. Ant. : Head as 2 : 1. Ant. segmented ratio as 1 : 2 : 3. Antennae scaled from the basis until to the basal part of Ant. IV. Meso thorax is moderately hanging over the head. Th. II : III as 2 : 1. Abd. III/IV as 1 : 4. Legs are scaled until to the tibiotarsus. Manubrium : Dens = 25 : 26. Dentes without dental appendix. Mucro bidentate and with a basal spine.

Distribution : India : Andaman Islands, Uttarakhand, Arunachal Pradesh; Europe (Belgium).

Genus *Dicranocentrus* Schott, 19258. *Dicranocentrus indicus* Bonet, 1930

1966. *Dicranocentrus indicus* Yosii. Kyoto Univ. Sci. Expd. Karakoram & Hindukush, 8 : 330-405.

Material examined : M.G. College Campus area, Mayabander, 18.3.2004, Coll. A.K. Hazra & Party, 52 exs.

Diagnostic characters : Body length upto 3.2 mm. Antenna reddish violet in colour. Eye black. Antennae '5' jointed. Ant. I being subdivided. Ant. IV is elongated, distinctly annulated. Manubrium is dorsally beset with many plumose setae. No dental spine. Mucro is bidentate equally and with or without a basal spine. Dentes dorsally crenulated and with one blunt ciliated seta.

Distribution : India : Andaman Islands, Uttarakhand, Arunachal Pradesh, Manipur, Mizoram, Nagaland, Maharashtra (Bombay); Formosa, South Pacific Island.

Genus *Sinella* Brook, 18829. *Sinella curviseta* Brook, 1882

1966. *Sinella curviseta* Yosii, J. Coll. Arts. & Sci. Chiba. Univ. 4(4) : 461-531.

Material examined : Coconut plantation area Avis Island, North Andaman, 18.3.2004, Coll. A.K. Hazra & Party, 10 exs.

Diagnostic characters : White with pigment limited to eyes; body with scattering of reddish pigment granules. Eyes with on separate patches, apical half of the third antennal segment with many extremely minute blunt setae. Clavate tenant hair. Unguis with minute apical tooth, unguiculus acuminate. Basal spine of mucro very long.

Distribution : India : Andaman Islands, Uttarakhand, Arunachal Pradesh, Sikkim.

Genus *Siera* Ritter, 191110. *Siera indica* (Ritter) 1911

1911. *Callistocyrtus indicus* : Ritter.

1930. *Pseudosira indica* Bonet

1911. *Drepanura punctata* : Ritter, Syn.

1936. *Lepidocyrtinus unifasciatus* Denis, Syn.

1966. *Siera indica* Yosii, Kyoto Univ. Sci. Exp. 1955; 8 : 333-405.

Material examined : Crab Island, North Andaman, 18.3.2004, Coll. A.K. Hazra & Party, 4 exs.

Diagnostic characters : Body length 1.8 mm. Slender in general forms. Body colour brownish with bluish pigments. Yellowish brown pigments cover the whole of Abd. II, III as well as some spots of head and Th. II. Ant. segment ratio as 7 : 9 : 9 : 45. Antennae scaled dorsally until ant. III. Ant. IV faintly annulated.

Distribution : India : Andaman Islands, Uttarakhand, Arunachal Pradesh, Maharashtra.

Subfamily CYPHODERINAE

Borner, 1913

Members of this subfamily may be distinguished from other Entomobryids by the reduced numbers of ocelli, dental foliate appendages and sometimes dental spines appendage.

Genus *Cyphoderus* Nicolet, 184211. *Cyphoderus javanus* Borner 1906

1906. *Cyphoderus javanus* Borner, Mitt. Nat. Hist. Mus. Hamburg., 23 : 180.

1966. *Cyphoderus javanus* Yosii, Kyoto. Univ. Expd. Karakoram and Hindukush, 8 : 381.

1971. *Cyphoderus javanus* Prabhoo, Oriental Ins., 5(1) : 38.

Material examined : Road side nallah, Shyamnagar, Havelock, 15.3.2004, Coll. A.K. Hazra & Party, 22 exs.

Diagnostic characters : White without trace of pigment. Eyes lacking, elongated mucro with a well developed lamellate ante apical tooth. Large fringed scale on dens, unguis and unguiculus both have enlarged wing like teeth.

Distribution : India : Andaman Islands, Uttarakhand, Arunachal Pradesh, Manipur, Sikkim, West Bengal (Kolkata), Kerala; Java, Malaya, Thailand, Japan.

Subfamily PARONELLINAE

Borner, 1913

This subfamily can be distinguished from other Entomobryids by the right and short dentes, presence of dental scale appendage on the terminal part of dentes. The mucrones in majority cases are plump, lobed into several teeth and are different

in shape from the members of subfamily Entomobryinae.

**Key to genera of subfamily
PARONELLINAE**

1. Body covered with scale 2
- Body not covered with scale 3
2. Dental scale appendage and 4 + 4 frontal spines present, antennal segments without thick outstanding brush setae
..... *Callyntrura* Börner
- Dental scale appendage and 4 + 4 frontal spines absent, antennal segments with thick outstanding brush setae
..... *Dicranocentroides* Schott.
3. Mucro well developed, stout, bidentate or tridentate, dental scale appendage equal or subequal to mucronal length 4
- Mucro vestigial in the form of a hook; dental scale appendage highly enlarged
..... *Yosiia* Mitra
4. Mucro with 2 apical teeth; ventral tube anteriorly on anterior face with 5 + 5 macrochaetae; 1 + 1 frontal spines reduced...
..... *Pseudosalina* Mitra
- Mucro with 3 apical teeth; ventral tube anteriorly on anterior face with 4 + 4 macrochaetae; 1 + 1 frontal spines well developed *Salina* MacGillivray

Genus *Dicranocentroides* (Imms, 1912)

The genus is represented by two species from Andaman Islands.

Key to the species of *Dicranocentroides*

1. Body devoid of dark pigmented patches
..... *Dicranocentroides flavescens* Yosii
- Body with distinct dark pigmented patches... 2
2. Ground colour of body brown with faint purple blue pigment all over body. Abd. IV with faint longitudinal strands descending from its anterior margin; tergal margin darkest; Ant. I, II, III

each with a pigmented distal ring
..... *D. indica* (Handschin, 1929)

- Thorax II totally pigmented, Abd. II with its lateral extensions and Abd. IV totally dark, no distinct transverse band on Abd. IV. In living specimens shining metallic golden pigment occurs posterior on head, Th. II, Abd. I, II, poster medially on Abd. IV
..... *D. fasciculatus* Salmon, 1957

12. *Dicranocentroides flavescens* Yosii, 1966

1966. *Dicranocentroides fasciculatus* f. n. *flavescens* Yosii, *Res. Kyoto. Univ. Sci. Exped. Karakoram and Hindukush*, 1955, **8** : 333-405.

Material examined : Mount Harriet Reserve Forests, Port Blair, 13.3.2004, Coll. A.K. Hazra & Party, 14 exs; 1 km away from Chidiatapu F/R/H, 20.3.2004, Coll. A.K. Hazra & Party, 22 exs.

Diagnostic characters : A dark patch, characteristic of the species, present on vertex in between two ocellar fields. Dark patches absent on body. Ocelli 8 + 8. Relative length index of Ant. I : II : III : IV = 15 : 17 : 12 : 19. Ths. II : III = 14 : 8.5. Legs all similar unguiculus lanceolate, acuminate with 2 external teeth. Relative length index of Abds I : II : III : IV : V : VI = 5 : 6 : 4 : 39 : 5.5 : 2. Ventral tube long with a row of macrochaetal anteriorly. Manubrium : Mucrodens 28 : 38, dentes armed with two closely apposed rows of spines on inner margin; mucro large, parallel sided with '6' teeth. Body length 2-3.5 mm.

Distribution : India : Andaman Islands, Uttarakhand, Arunachal Pradesh, Manipur, Nagaland, Mizoram and Kerala.

13. *Dicranocentroides fasciculatus* Imms, 1912

1912. *Dicranocentroides fasciculatus* Imms, *Proc. Zool. Soc. London* : 80-125.

1917. *Par'onella crassicornis* Carpenter, *Rec. Ind. Mus. Cal.*, **8** : 561-568, New Syn.

1957. *Dicranocentroides fasciculatus* Salmon, *Acta. Zool. Cracov.*, **11**(14) : 313-362.

1975. *Dicranocentroides fasciculatus* Mitra, *Rec. zool. Surv. Ind.*, **71** : 57-95.

Material examined : Mount Harriet Reserve Forests, Port Blair, 13.3.2004, Coll. A.K. Hazra

& Party, 10 exs; 5 km away from Chidiatapu F/R/H towards Munda Pahar, 20.3.2004, Coll. A.K. Hazra & Party, 32 exs.

Diagnostic characters : Th. II always with reddish to brown pigment. Abds III, IV, V usually dark brown. Head 1 + 1 dark ocellar field; Relative length index of Th II : III as 46 : 32; Relative length index of Abds I : II : III : IV : V : VI : 21 : 21 : 13 : 108 : 9 : 4. Manubrium : Mucrodens 85 : 122; each dentes armed with an inner row of spines which transit into stiff ciliated setae distally, mucro large with 5-6 teeth.

Distribution : India : Andaman Islands, Arunachal Pradesh, Nagaland, Manipur, Sikkim and Uttar Pradesh.

Genus *Salina* MacGillivray 1894 (Imms, 1912)

The genus is represented by three species from Andaman Islands.

Key to the species of *Salina*

1. Body without any pigment, sometime tergal margins of Th. II, III, abd. I, II darker
..... *S. indica*
- Body always with patches involving blue-black or orange pigment, blue-black patches sometimes suffused with orange pigment 2
2. Lateral margins of Th. II, III and Abd. I, II darker; darker pigments intrude from tergal margin of Abd. II to its postero-dorsal margin
..... *S. montana* (Imms)
- Two longitudinal bands on each side of body formed by patches present on Th. II, III and Abd. I to VI *S. striata* (Handschin)

14. *Salina indica* (Imms), 1912

1912. *Cremastocephalus indicus* Imms, *Proc. Zool. Soc. London* : 80-125.

1957. *Salina indica* Salmon, *Acta. Zool. Cracov.*, 11(14) : 313-363 (in part).

1973. *Salina indica* Mitra, *Oriental Ins.*, 7(2) : 159-202.

Material examined : Hill stream near Kadamtala Forests, North Andaman, 19.3.2004,

Coll. A.K. Hazra & Party, 34 exs. 1 km away from Chidiatapu F/R/H, 20.3.2004, Coll. A.K. Hazra and Party, 12 exs.

Diagnostic characters : Ground colour yellowish, overlaid irregularly by violet pigment which usually follows lateral edges of the terga. Ocelli on black 8 + 8. General clothing of short to medium length ciliated setae with some long, stout, and lightly flexed ciliated setae at the apex of mesotergum and along the dorsal surface of the thorax. Apex of dens with scale like appendage. Mucro bearing three plain teeth.

Distribution : India : Andaman Islands, Arunachal Pradesh, Manipur, Sikkim, Tripura (West and South distts.), West Bengal and Uttar Pradesh.

15. *Salina montana* (Imms), 1912

1912. *Cremastocephalus montanus* Imms. *Proc. Zool. Soc. London* : 80-125.

1957. *Salina montana* Salmon, *Acta. Zool. Cracov.*, 11(14) : 313-362.

1973. *Salina montana* Mitra, *Oriental Insects*, 7(2) : 159-202.

Material examined : Hill stream near Kadamtala Forests, North Andaman, 19.3.2004, Coll. A.K. Hazra & Party, 18 exs.

Diagnostic characters : Body length 2 mm. Ground colour of head and body usually white; sometime pale yellow; Head pear-shaped, with 1 + 1 dark ocellar field, each field with 8 + 8 ocelli. Relative length index of the antennal segment = 47 : 67 : 57 : 93; Ths. II : III = 29 : 17; Relative length index of Abds I : II : III : IV : V : VI = 13 : 23 : 4 : 79 : 14 : 8.5; Manubrium : Mucrodens = 58 : 63; Mucro short, broad, prominently lobed into three teeth, dental scale appendage large, striated apically, sub equal to the length of mucro.

Distribution : India : Andaman Islands, Arunachal Pradesh, Manipur, Uttar Pradesh and West Bengal.

16. *Salina striata* (Handschin, 1928)

1928. *Cremastocephalus striatus* Handschin, *Treubia* 10 : 245-270.

1929. *Salina striata* Handschin, *Rev. Suisse. Zool.*, 36 : 229-262.

1961. *Salina striatella* Yosii, *Nature and Life in South East Asia*, 1 : 171-200 (Lapses for *striata*).

Material examined : Mount Harriet Reserve Forests, Port Blair, 13.3.2004, Coll. A.K. Hazra & Party, 10 exs; 5 km away from Chidiatapu F/R/H towards Munda Pahar, 20.3.2004, Coll. A.K. Hazra & Party, 22 exs.

Diagnostic characters : Body white inclining to pale yellow; Head pear shaped dorsally, 1 + 1 frontal spines present; ocelli 8 + 8. Relative length index of Antennal segment = 22 : 33 : 42 : Th. II : III = 15 : 9. Abds I : II : III : IV : V : VI = 8 : 14 : 3 : 41 : 7 : 3; Manubrium : Mucrodens = 28 : 33. Mucro short, broad, prominently lobed into three teeth. Length upto 3 mm.

Distribution : India : Andaman Islands, Arunachal Pradesh, Assam.

Genus *Callyntrura* Börner, 1906

Single species are recorded from present survey.

17. *Callyntrura japonica* (Kinoshita, 1917)

1954. *Handschiniphysa japonica* Yosii.

1977. *Callyntrura japonica* Yosii, *Forest Res. Centre. Sepilok. Sand. East Malaysia* : 1-37.

Material examined : Hill stream near Kadamtala Forests, North Andaman, 19.3.2004, Coll. A.K. Hazra & Party, 15 exs; Road side nallah near Barma nalla, South Andaman, 21.3.2004, Coll. A.K. Hazra & Party, 32 exs.

Diagnostic characters : Body length is 3 mm. Ground colour of body is cremish white. Head is dark all over the base of the antennae are deeper in colour. Thorax is obscurely dusky all over along the marginal area of each segment. IVth abdominal segments bears a narrow transverse patch. Antennae scaled. Ventral tube deeply dark. Furca long scaled dens without spines but with prominent dorsal vesicle. Mucro elongated with teeth.

Distribution : India : Andaman Islands, Arunachal Pradesh, Manipur, Meghalaya; Japan.

Family ISOTOMIDAE,

Börner, 1913

Subfamily ISOTOMINAE Schaeffer,
1896

Head prognathus, tracheae absent. Antennae inserted in front half of head. P.A.O. usually present; always simple, mucrones short.

Genus *Isotomurus* Börner, 1906

18. *Isotomurus balteatus* (Reuter, 1876)

1876. *Isotoma balteatus* Reuter, *Med. Soc. Fauna et. Flora Fenn.*, 1 : 82.

1963. *Isotomurus balteatus* : Yosii, *Contr. Biol. Lab. Kyoto. Univ.*, 15 : 4.

Material examined : Baratang near Mud Valcano, Middle Andaman, 19.3.2004, Coll. A.K. Hazra & Party, 64 exs.

Diagnostic characters : Colour with a violettish black pigment which form distinct transverse band on the anterior margin of tergites. Antennal ratio = 10 : 15 : 16 : 26; Ant. IV with two short sub apical sense rods. P.A.O. as large as anterior ocellus. Ocelli 8 + 8. Furcula reaches forward to the ventral tube, segments as 5 : 12 : 1. Dens distinctly annulated with dorsal side; mucro with a small apical, 2 large sub apical and a large external lateral teeth.

Distribution : India : Andaman Islands, Arunachal Pradesh, Manipur, Tripura (West distt.), Kerala.

SUMMARY

The present contribution is the first consolidated record of this group of insects from Andaman Islands involving 18 species under 11 genera of 3 families.

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INSECTA : THYSANURA (APTERYGOTA)

A.K. HAZRA, G.P. MANDAL AND ANAND KUMAR A.

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

INTRODUCTION

A fairly large work has been done from the various parts of the world on Thysanura, but in comparison to the world fauna a very little is known on these insects in India. The first record of Thysanura from India is that of Escherich (1903) who described the species *Lepisma indica* and *L. gyrimiformis*. Thereafter, Silvestri (1913, 1938, 1948), Janetschek (1964), Wygodzinsky (1941, 1963, 1972, 1994) contributed to our knowledge of Indian species. Since then, works on Indian Thysanuran fauna was neglected for a long time. After that Hazra (1980, 1993) described some Indian Thysanura from West Bengal and Mendes (1990) published on zoogeographic affinities of Indian Thysanura. Extensive and intensive faunistic surveys are required to explore the total Indian fauna of Thysanura.

Silvestri (1911, 1913, 1936, 1938) described new genus of Machilidae and ten new species from the family Machilidae, Nicoletiidae and Lepismatidae, and explored several new records from Indian region.

Dover, 1922 contributed to the family Lepismatidae and Machilidae with a description of 3 species from houses and dried water weeds on the shore of Barkuda Island, and Chilka in Orissa.

Wygodzinsky (1962, '74) contributed a new genus of Machilidae and described 5 new species in the family Machilidae.

The Thysanuran fauna of Andaman & Nicobar Islands is sparse, since then the knowledge of diversity of Thysanura from this region remains still ignored due to the lack of proper survey and there exists ample scope for further exploration

of more taxa from this region. The present analysis of the composition of the species of thysanura is based on a small collection collected by Zoological Survey of India during 2004 from Andaman Islands.

SYSTEMATIC ACCOUNT

Order THYSANURA

Suborder ZYGENTOMA

Superfamily LEPISMATOIDEA

Key to the families

1. Eyes and ocelli absent Nicoletiidae
- Eyes present 2
2. Ocelli present; scales absent
..... Lepidotrichidae
- Ocelli absent; scales present Lepismatidae

Family LEPISMATIDAE

Key to the subfamilies

1. Eyes absent; general body colour white or yellowish, hypodermal pigment absent, scales, if present, white or yellowish, never forming a pattern Nicoletiinae
- Eyes present; general body colour whitish, hypodermal pigment mostly present; scales always present, often forming a definite pattern Lepismatinae

Key to the genera of Lepismatidae

1. Dorsal and abdominal setae or bristles arranged singly *Acrotelsa* Esch., 1905
- Dorsal and abdominal setae or bristles arranged in 1 + 1 or 2 + 2 bristle combs, Last tergum not sharply pointed with only 1 + 1 bristle combs *Ctenolepisma* Esch., 1905

Genus *Ctenolepisma* Escherich, 1905

1. *Ctenolepisma longicaudata* Escherich, 1905
(Fig. 1)

1905. *Ctenolepisma longicaudata* Escherich, *Zoologica* (Stuttgart), Vol. 43 : 83.

Material examined : Ross Island, South Andaman, under the tree trunk, 18.3.2004, Coll. A.K. Hazra & Party; 3 ex.

Diagnosis : Body long. The thorax is very little broader than the abdomen which is gradually tapering with relatively short segments. Length ranges from 13 mm to 15 mm, whitish in colour without marked very shun. Antennae, cerci, and median tail appendages are distinctly longer than the body length. Abdominal terga II-VI with 3 + 3 bristle combs, tergum 'X' twice as long as tergite IX, and wide at base Posteriorly last abdominal tergums distinctly truncate. Long stylets are present on sternum VIII-IX. Ovipositor long and slender.

Distribution : India : Andaman Islands, Andhra Pradesh, Sikkim, West Bengal, Uttar Pradesh, Bihar, Tripura, Manipur; USA, South Africa, Australia.

Remarks : This species is widely distributed in the tropics and subtropics of old and new world.

Suborder MICROCORYPHIA

Family MACHILIDAE

Key to the s of genera *Machilanus*

1. Abdominal sterna with only 1 + 1 eversible vesicles 2
2. Fore femora lacking sensory field only apical segment of labial palp with setulae
..... *insensilis* Wygodzinsky
- Labial palp 3 segmented, 2nd and 3rd segment with setulae occupying entire disc.
..... *lapidicola* Wygodzinsky

1. *Machilanus insensilis* Wygodzinsky, 1974
(Fig. 2)

1974. *Machilanus insensilis* Wygodzinsky, *Amer. Mus. Nov.* No. 2555 pp. 3-21.

Material examined : AVIS Island, under the tree trunk, North Andaman, 18.3.2004, Coll. A.K.

Hazra & Party; 3 ex.; Ross island, South Andaman, 3 males and 2 females under a leaf in old monument Building, 20.3.2004, Coll. A.K. Hazra & Party.

Diagnosis : Body length and general colour not recorded; intense hypodermal pigment on first segment of maxillary palp. Shape of eyes and ocelli as shown in Maximum observed length of antennae 9 mm shorter than body; antennae of male slightly thicker than those of female. Scapus of male not quite twice as long as wide. Flagellum brown colours. Sub articles of middle of antennae in both sexes with setae arranged in one or two transversal rows. Apical preserved portion of antennae with articles divided into 9-12 sub articles. Last segment more than half as long as penultimate, in both sexes. Apical segment of maxillary palp of male sub cylindrical, not swollen, narrowly rounded apically. Long hairs of undersurface of segments of maxillary palp absent, but segment V-VII with minute spine like setulae. Sensory spines of maxillary palp of male hyaline elongate except on apical portion of segment VII Apical segment of labial palp of male with setulae similar to those of maxillary palp. Field of ramose sensillae not developed. Fore tibia of male short, with only a few long spine like setae, femora of all legs of female, and of legs II and III of male without spine like setae. Number of spine like setae on tibiae; tibia I, 0; tibia II, male, 3-5, female, 7 or 8; tibia III, male, 6-8, female, 10-12; spine like setae on tibia III arranged in three irregular series Genital appendages of male reaching level of apex of coxites IX; parameres attaining level of apex of penis. Genital opening narrow, elongate, surrounded by field of short hairs. Parameres with 1 + 4 or 1 + 5 articles, the apical about as long as the basal one. Ovipositor of primary type slender, elongate, attaining level of apex of terminal spine of stylus IX. Anterior gonapophyses with 50 or 51 articles, their chaetotaxy has basal five segments bare. Basal portion of gonapophyses lightly, apical half more heavily pigmented, distal articles with irregular unpigmented areas.

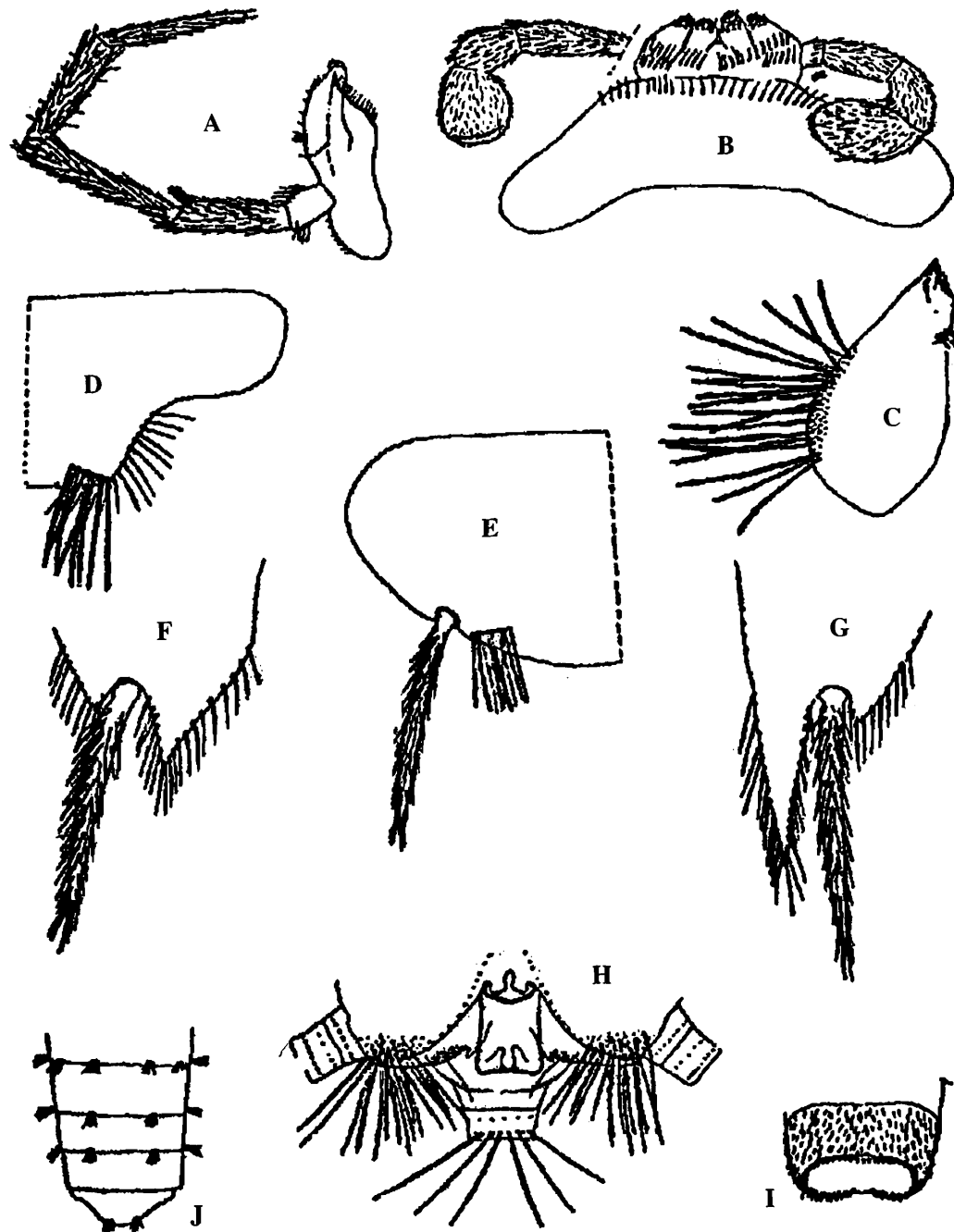


Fig. 1 : *Ctenolepisma longicaudata*, A. Maxillary Palp, B. labium & labial palp, C. mandible, D. half 'x' tergum, E. Sternum VIII, F. Subcoxae and Stylet of Sternum IX of male, G. Sternum IX of female, H. anal plates, I. Penis, J. tip of female gonapophysis.

Distribution : India : Andaman Island, Andhra Pradesh and Kashmir.

3. *Machilanus lapidicola* Wygodzinsky, 1974

1974. *Machilanus lapidicola* Wygodzinsky, *Amer. Mus. Nov.* No. 2555 pg. 3-21.

Diagnosis : Maximum body length observed 13 mm in female. Body colour yellowish-white, compound eyes large, below the anterior margin of eyes a pair of ocelli. Thorax dorsally not flattened and convexed. Apical segment of maxillary palp of female 7 segmented, sub cylindrical and pointed distally, II-VII segments of maxillary palp with abundant setulae; apical segment of labial palp moderately widened, labial palp 3 segmented, 2nd and 3rd segment with setulae occupying entire disc; femora of all pairs of legs of female without spine like setae; abdomen with II-VI with a pair of stylets; 2 + 2 exsertile vesicle found between in II-V segment; posterior angle of sternum V approximately 110 degrees; ovipositor stout, secondary type, attaining level of middle of styli IX.

Material examined : Mount Harriet Reserve Forests, Port Blair, 13.3.2004, Coll. A.K. Hazra and Party, 3 ex.

Distribution : India : Port Blair (A&N), Sikkim (Ravangla, Kashmir).

Remarks : This species is the first record from the Port Blair (A&N), earlier recorded only from Kashmir.

SUMMARY

The present paper deals with 3 species under 2 genera distributed over 2 families of Thysanura were recorded from Andaman Island. The species *Ctenolepisma longicaudata* and *Machilanus lapidicola* are recorded for the first time from Andaman Islands; this paper is the first detailed attempt on this order from Andaman Islands.

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INSECTA : ORTHOPTERA : ACRIDOIDEA

ANITA DEY

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

INTRODUCTION

Superfamily Acridoidea includes short-horned grass-hoppers. They are characterised by short antennae, prosternum often with tubercle, hind femur adapted for leaping, wings well developed or brachypterous, stridulatory mechanism may or may not be present, tympanal auditory organs normally present on either side at the base of abdomen, and hind tarsi always three segmented. The first record of Acrididae was reported by Willemse (1921) from Andaman & Nicobar Islands. Later on, Uvarov (1927) recorded another species from there. Recently, Shishodia (1993) reported 16 more species. Thus, a total of 18 species have been reported so far from these islands.

Present paper deals with 22 species, distributed under 18 genera, 7 subfamilies and 2 families, out of which four species are new records from Andaman & Nicobar Islands, and are marked with an asterisk (*). During this study, it is observed that some genera like, *Acrida*, *Phlaeoba*, *Leva*, *Dittopternis*, *Oedaleus*, *Trilophidia*, *Hieroglyphus*, *Eyprepocnemis*, *Cyrtacanthacris* (Fam. Acrididae) and *Chrotogonus*, *Poekilocerus* (Fam. Pyrgomorphidae) are very common on Main land but are absent in Andaman & Nicobar Islands. It is also noticed that species like *Atractomorpha crenulata*, *Aiolopus thalassinus tamulus*, *Oxya hyla hyla* and *Stenocatantops splendens* are found these in large numbers.

This study is based on the materials available in Zoological Survey of India, Kolkata. The identified material are deposited in National

Zoological Collection, Zoological Survey of India, Kolkata. Keys for families, subfamilies, genera and species are given in this paper. Diagnostic characters and distribution of each species are also provided. Distribution of all the species in Andaman & Nicobar Islands are presented on a separate table.

SYSTEMATIC ACCOUNT

Order ORTHOPTERA

Suborder CAELIFERA

Superfamily ACRIDOIDEA

Key to the families

1. Foveolae of the vertex contiguous, superior and forming the extremity of the fastigium; stridulatory mechanism absent PYRGOMORPHIDAE
- Foveolae of the vertex lateral or inferior, never forming the tip of the fastigium; stridulatory mechanism present ACRIDOIDEA

Family PYRGOMORPHIDAE

Key to the genera

1. Antennae remote from the eyes, placed in front of the ocelli 2
- Antennae near the eyes and inserted below the ocelli. (Pronotum strongly tuberculate above, with two large contiguous humps in front) *Aularches* Stål
2. Tegmina long and narrow; body moderately slender *Atractomorpha* Saussure
- Tegmina rather short and broad; body very robust *Tagasta* Bolivar

Genus *Atractomorpha* Saussure, 1862

Key to the species and subspecies

1. General body form not exceptionally slender; fastigium of vertex comparatively short; male abdomen with apex more obtuse; always with a membraneous area at the posterior margin of lateral pronotal lobe
..... *crenulata* (Fabricius)
- General body form very slender; fastigium of vertex very long; apex of male abdomen acute; usually with a membraneous area near the posterior margin of lateral pronotal lobe
..... *p. psittacina* (De Haan)

1. *Atractomorpha crenulata* (Fabricius)

1793. *Truxalia crenulata* Fabricius *Ent. Syst.*, 2 : 18.

1969. *Atractomorpha crenulata* : Kevan & Chen, *Zool. J. Linn. Soc.*, 48 : 187.

Material examined : 1 ♂, Port Blair, 5.iii.1959, Coll. K.K. Tiwari; 1 ♂, S. Andaman, Baratang, 12.iii.1964, Coll. B.S. Lamba; 2 ♂, Port Blair, 6, 18.iii.1969, Coll. T.D. Soota; 1 ♂, 1 ♀, S. Andaman, Wright Myo, 19.iii. and 4.iv.1969, Coll. T.D. Soota; 1 ♂, S. Andaman, Bimligunj, 20.iii.1969, T.D. Soota; 1 ♂, M. Rangat, 23.iv.1970, Coll. B.K. Tikadar; 1 ♂, 1 ♀, N. Andaman, Nebudera, 5.ii.1972, Coll. A.K. Mukherjee and B. Dutta; 2 ♂, 1 ♀, M. Andaman, Pitchernalla, 6.ii.1972, Coll. A.K. Mukherjee and B. Dutta; 1 ♂, Car Nicobar, Agriculture garden, Malacca, 26.xii.1972, Coll. K.S. Pradhan; 1 ♂, S. Andaman, Bambooflat, 2.iii.1975, Coll. G.K. Srivastava; 2 ♂, M. Andaman, Bakultala, 6.iii.1975, Coll. G.K. Srivastava; 1 ♂, M. Andaman, Webi, 8.iii.1975, Coll. G.K. Srivastava; 5 ♂, 1 ♀, N. Andaman, Mayabundar, 9.iii.1975, Coll. G.K. Srivastava; 4 ♂, S. Andaman, Humfregunj, 13.iii.1975, Coll. G.K. Srivastava; 1 ♂, 1 ♀, S. Andaman, Ferrargunj, 14.iii.1975, Coll. G.K. Srivastava; 2 ♀ L. Andaman, Netajinagar, 17.i.1988, Coll. A.N.T. Joseph; 2 ♂, 1 ♀, L. Andaman, Vivekanandapuram, 18.i.1988, Coll. A.N.T. Joseph; 1 ♂, 1 ♀, L. Andaman, Hut Bay, 27.i.1988, Coll. A.N.T. Joseph; 1 ♀, L. Andaman, Harmendar Bay, 28.i.1988, Coll. A.N.T. Joseph;

2 ♂, S. Andaman, Rutland, 3.ii.1988, Coll. A.N.T. Joseph; 1 ♂, L. Andaman, Dugong Creek Jetty, 10.ix.1990, Coll. K. Venkatraman; 1 ♀, L. Andaman, near Onge Settlement, 10.ix.1990, Coll. K. Venkatraman; 1 ♂, Port Blair, 4.x.1997, Coll. M.S. Shishodia; 1 ♀, S. Andaman, Havelock, 11.xi.1997, Coll. S.K. Mandal and K.L. Bhatta; 3 ♂, (1 nymph), Bharatpur, 28.i.1998, Coll. Raja Ram; 1 ♀, S. Andaman, Monglutan, 4.ii.2000, Coll. G.K. Srivastava.

Diagnostic characters : Green to brown in colour; antennae short; lateral pronotal lobe with membraneous area, more distinct in females; hind femora not distinctly convex; hind wings rosy colour at base; and male abdominal apex more obtuse.

Distribution : India : (Andaman & Nicobar Islands, Andhra Pradesh, Bihar, Goa, Jammu & Kashmir, Kerala, Lakshadweep, Madhya Pradesh, Orissa, Rajasthan and West Bengal; Bangladesh; Myanmar; Pakistan; N.W. Sumatra; South Vietnam and Sri Lanka.

2. *Atractomorpha psittacina psittacina* (De Haan)

1842. *Acridium (Truxalis) psittacinum* De Haan, *Verh. nat. Gesch. Nederl. overz. Bezitt.* 18 (Zool.) 146.

1969. *Atractomorpha p. psittacina* : Kevan & Chen, *Zool. J. Linn. Soc.*, 48 : 191.

Material examined : 1 ♂, 2 ♀, S. Andaman, Port Blair, 5.iii.1959, Coll. K.K. Tewari; 1 ♂, Car Nicobar, Horticulture garden, 8.iii.1970, Coll. B.K. Tikadar; 1 ♂, Car Nicobar, Kamorta Island, 30.iii.1970, Coll. B.K. Tikadar; 1 ♀, Car Nicobar, Govt. Agriculture Farm, 21.ix.1972, Coll. P.T. Cherian; 1 ♀, Car Nicobar, Sawai, 24.xii.1972, Coll. K.S. Pradhan; 1 ♀, Car Nicobar, Agriculture Farm, Malacca, 29.xii.1972, Coll. K.S. Pradhan; 1 ♀, Great Nicobar, Campbell Bay, Chingen village, 26.x.1997, Coll. S.K. Mandal; 1 ♀, S. Andaman, Wright Myo, 30.i.2000, Coll. G.K. Srivastava.

Diagnostic characters : Body very slender; fastigium of vertex more longer and narrow; lateral pronotal lobe often with a membraneous area near

the posterior margin; hind wing comparatively longer in relation to tegmina, basal area dull magenta purple, sometimes colour less.

Distribution : India : (Andaman & Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Meghalaya, Rajasthan and West Bengal); Bangladesh; Indo-China; South China; Indonesia (east to Celebes and associated Islands, but not Moluccas nor New Guinea); Malaysia; Myanmar; Philippine Island and Thailand.

Genus *Tagasta* Bolivar, 1905

3. *Tagasta indica* Bolivar

1905. *Tagasta indica* Bolivar, *Bol. Soc. Espan. Hist. Nat.*, 5 : 112, 113.

Material examined : 1 ♂, N. Andaman, Varata, 24.iii.1986, Coll. H.S. Mehta and party.

Diagnostic characters : Colour olivaceous, body robust; antennae located in front of ocelli; pronotum rounded in front and obtusely angulate behind; tegmina short and broad, without spot at base; median carina almost and lateral carinae wholly obsolete; hind wings deep rose colour and hind tibiae red instead of green.

Distribution : India (Andaman & Nicobar Islands, Arunachal Pradesh, Assam, Meghalaya, Sikkim and West Bengal); Bhutan.

Genus *Aularches* Stål, 1873

4. **Aularches miliaris* (Linnaeus)

1758. *Gryllus (Locusta) miliaris* Linnaeus, *Syst. Nat.* (10th ed.) 1 : 432.

1963. *Aularches miliaris* : Kevan, *Ark. Zool.*, 16 : 75.

Material examined : 1 ♀, Port Blair, Phoenix Bay, 11.viii.1978, Coll. K.C. Banerjee; 1 ♀, S.S. Andaman, South Point, 23.viii.1981, Coll. V. Pichai; 1 ♀, Port Blair, Haddo, 18.viii.1985, Coll. Sadish; 1 ♀, Port Blair, Island Travel, 15.viii.1986, Coll. G. Sivaleela.

Diagnostic characters : Size large; body robust; head yellowish or brown above; pronotum yellow on the sides; frontal lobe with two large rounded continuous elevations in front, black or rarely pale; hind lobe of pronotum very rugose, deeply pitted and rounded behind; tegmina thickly

reticulated with yellow nervures and with variable number of large and small callous yellow spots; wings purplish brown, darker towards the base.

Distribution : India (Himachal Pradesh, Jammu & Kashmir, Orissa, Maharashtra, Sikkim, Tamil Nadu, Uttar Pradesh and West Bengal); Indonesia; Java; Nepal and Sri Lanka.

Family ACRIDIDAE

Key to the subfamilies

1. Prosternal tubercle usually absent 2
- Prosternal tubercle present 3
2. Stridulatory file on inner lower side of posterior femora present in the form of peg-like structure GOMPHOCERINAE
- Stridulatory file on inner side of posterior femora absent ACRIDINAE
3. Radial area of tegmen with a series of regular, parallel stridulatory veinlets HEMIACRIDINAE
- Stridulatory veinlets of radial area of tegmen absent 4
4. Lower external lobe of posterior knee with spine-like apex OXYINAE
- Lower external lobe of posterior knee with apex rounded, angular or subacute, but never spine-like 5
5. Last abdominal tergite in male (in most of the genera) with well developed furcula; supra-anal plate mostly with an attenuate or trilobate apex COPTACRIDINAE
- Last abdominal tergite without well developed furcula; supra-anal plate variable 6
6. Mesosternal lobes rectangular CYRTACANTHACRIDINAE
- Mesosternal lobes rounded or obtuse-angular but not rectangular CATANTOPINAE

Subfamily GOMPHOCERINAE

Genus *Dnopherula* Karsch, 1896

Subgenus *Aulacobothrus* Bolivar, 1902

5. *Dnopherula (Aulacobothrus) luteipes* (Walker)

1871. *Stenobothrus luteipes* Walker, *Cat. Derm. Salt. Brit. Mus.*, 5 Suppl. : 82.

1971. *Dnopherula (Aulacobothrus) luteipes* : Jago, *Proc. Acad. Nat. Sci. Philad.*, **123**(8) : 243.

Material examined : 1 ♀ S. Andaman, Bambooflat, 2.iii.1975, Coll. G.K. Srivastava.

Diagnostic characters : Small in size; antennae filiform; fastigium of vertex trapezoidal; pronotum with nearly parallel, lateral carinae which are weakly concave in middle; posterior margin obtusely angulate; median carina distinct; hind tibiae reddish in the apical part.

Distribution : India (Andaman Islands, Assam, Bihar, Delhi, Himachal Pradesh, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Sikkim, Tamil Nadu and West Bengal); N. America; China; Europe; Japan; Myanmar; Pakistan and Sri Lanka.

Subfamily ACRIDINAE

Key to the genera

1. Foveolae of vertex visible from above, triangular *Aiolopus* Fieber
- Foveolae of vertex obsolete or not visible from above 2
2. Thorax rather short (basal and apical part of tegmina subhyaline *Locusta* Linnaeus
- Thorax long (pronotum with strong crest or acutely tectiform) *Gastrimargus* Saussure

Genus *Aiolopus* Fieber, 1853

6. *Aiolopus thalassinus tamulus* (Fabricius)

1798. *Gryllus tamulus* Fabricius, *Ent. Sys. Suppl.* : 195.

1968. *Aiolopus thalassinus tamulus* : Hollis, *Bull. Br. Mus. nat. Hist. (Ent.)*, **22**(7) : 347.

Material examined : 1 ♀, S. Andaman, Port Blair, 6.iii.1909, Coll. W. Weskin; 1 ♂, S. Andaman, Port Blair, 15.ii.-15.iii.1915, Coll. S.W. Kemp; 1 ♀, M. Andaman, Interview Island, 8.ii.1959, Coll. K.K. Tewari; 1 ♂, Port Blair, 5.iii.1959, Coll. K.K. Tewari; 1 ♂, 1 ♀, Car Nicobar, near Head Quarter, 25.iii.1959, Coll. K.K. Tewari; 1 ♀, S. Andaman, Port Blair, South side of Govt. Guest House,

9.ii.1961, Coll. A. Daniel; 1 ♂, 2 ♀, S. Andaman, Port Blair, Haddo Road side on grass, 10.ii.1961, Coll. A. Daniel, 2 ♀, L. Andaman, Nachuge, 27.ii.1961, Coll. A. Daniel; 1 ♂, 1 ♀, Rani Khari, 9 m. from I.B., 7.iii.1961, Coll. A. Daniel; 1 ♀, S. Andaman, Burmanallah, 17.iv.1964, Coll. B.S. Lamba; 1 ♀, Great Nicobar, Casuarina Bay, 2.iv.1966, Coll. A. Daniel & H.K. Bhowmik; 7 ♂, 1 ♀, Great Nicobar, Nancowri, 14.v.1966, Coll. A. Daniel & H.K. Bhowmik; 1 ♂, 2 ♀, S. Andaman, Port Blair, 5.6.iii.1969, Coll. T.D. Soota; 1 ♀, Car Nicobar, Tutop, 12.iii.1969, Coll. T.D. Soota; 6 ♂, 4 ♀, S. Andaman, Port Blair, 18.iii.1969, Coll. T.D. Soota; 1 ♂, S. Andaman, Wright Myo, 19.iii.1969, Coll. T.D. Soota; 3 ♂, 3 ♀, S. Andaman, Bimligunj, 20.iii.1969, Coll. T.D. Soota; 1 ♂, N. Andaman, Mayabunder, 27.iii.1969, Coll. T.D. Soota; 1 ♀, S. Andaman, Wright Myo, 3.iv.1969, Coll. T.D. Soota; 1 ♀, Car Nicobar, Kamorta, 23.iii.1970, Coll. B.K. Tikadar; 1 ♂, S. Andaman, Port Blair, Horticulture Garden, Haddo, 19.iv.1971, Coll. B.K. Tikadar; 10 ♂, 4 ♀, N. Andaman, Diglipur, Multipurpose Agriculture Farm, Keralapuram, 24.iv.1971, Coll. B.K. Tikadar; 2 ♂, 1 ♀, N. Andaman, Diglipur, Luxmipur, 24.iv.1971, Coll. B.K. Tikadar; 1 ♀, Port Blair, Dock Yard, 25.iv.1971, Coll. B.K. Tikadar; 1 ♂, Port Blair, Horticulture Garden, Chatham, 29.iv.1971, Coll. B.K. Tikadar; 1 ♂, N. Andaman, Diglipur, 30.iv.1971, Coll. B.K. Tikadar; 2 ♂, 2 ♀, N. Andaman, Mayabunder, 4, 5, 6.v.1971 and 1 ♂, Tugapur, 13.v.1971, Coll. B.K. Tikadar; 1 ♂, Mark Bay Island, 17.v.1971, Coll. B.K. Tikadar; 3 ♂, S. Andaman, Chiriatapu, 27, 28.v.1971, Coll. B.K. Tikadar; 1 ♀, M. Andaman, Rangat, 26.i.1972, Coll. A.K. Mukherjee; 2 ♂, Car Nicobar, 17.ii.1972, Coll. A.K. Mukherjee; 3 ♂, 8 ♀, Nancowry Champin, 6.x.1972, Coll. P.T. Cherian; 1 ♂, Port Blair, Aberdeen Bay, 13.xii.1972, Coll. K.S. Pradhan; 3 ♂, 6 ♀, S. Andaman, Cadlegunj, 16.xii.1972, Coll. K.S. Pradhan; 6 ♂, 3 ♀, Car Nicobar, Sawai, 24.xii.1972, Coll. K.S. Pradhan; 1 ♂, 4 ♀, Car Nicobar, Malacca, Kakana road, 25.xii.1972, Coll.

K.S. Pradhan; 6♂, 2♀, Car Nicobar, Rapathy, Bigrapathy, 28.xii.1972, Coll. K.S. Pradhan; 1♀, M. Andaman, Bakultala, 7.i.1973, Coll. K.S. Pradhan; 1♀, Port Blair, Corbyn's Cove Beach, 1.iii.1975, Coll. A.K. Singh; 1♀, M. Andaman, Bakultala, 6.iii.1975, Coll. G.K. Srivastava; 4♂, M. Andaman, Webi, 8.iii.1975, Coll. G.K. Srivastava; 2♂, 3♀, S. Andaman, Humfregunj, 13.iii.1975, Coll. G.K. Srivastava; 2♂, 2♀, S. Andaman, Ferrargunj, 16.iii.1975, Coll. G.K. Srivastava; 1♀, S. Andaman, Thusmabad, 19.xi.1985, Coll. M. Sil & V.Arumugam; 1♀, S. Andaman, Port Blair, Chauldari, 12.i.1988, Coll. A.N.T. Joseph; 5♂, 4♀, S. Andaman, Chiriatapu, 15.i.1988, Coll. A.N.T. Joseph; 1♂, L. Andaman, Netajinagar, 17.i.1988, Coll. A.N.T. Joseph; 2♂, 2♀, L. Andaman, Vivekanandpuram, 18.i.1988, Coll. A.N.T. Joseph; 1♂, 1♀, L. Andaman, Ramkrishnapur, 19.i.1988, Coll. A.N.T. Joseph; 1♀, L., Andaman, 4 kms. from Hut Bay, 21.i.1972, Coll. A.N.T. Joseph; 3♂, L. Andaman, Harmendar Bay, 28.i.1988, Coll. A.N.T. Joseph; 3♂, 3♀, S. Andaman, Chiriatapu, 31.i.1988, Coll. A.N.T. Joseph; 2♂, 2♀ S. Andaman, Rutland, 3, 4.ii.1988, Coll. A.N.T. Joseph; 1♂, L. Andaman, Hut Bay Jetty, 9.ix.1990, Coll. K. Venkatraman; 1♀, L. Andaman, near Onge Settlement, 10.ix.1990, Coll. K. Venkatraman; 1♂, 1♀, L. Andaman, Water Fall Forest, 13.ix.1990, Coll. K. Venkatraman; 2♂, S. Andaman, Chhipighat, 23.x.1997, Coll. M.S. Shishodia; 10♂, 10♀, Great Nicobar Campbell Bay, 24, 26, 27.x.1997, Coll. S.K. Mandal; 3♀, Port Blair, Beech Dera, 25.x.1997, Coll. M.S. Shishodia; 2♂, 2♀, Port Blair, Corbyn's Cove Beach, 28.x.1997, Coll., M.S. Shishodia; 1♀, N. Andaman, Mayabunder, 3.ii.1998, Coll. Raja Ram.

Diagnostic characters : Medium in size; fastigium with forward angle more acute; foveolae narrowly trapezoid, about twice as long as wide; frontal gradually narrowing and almost angular towards fastigial end, sparsely punctured; pronotum somewhat saddle-shaped, posterior margin rounded; tegmina longer, extending beyond hind femur; posterior femora unicolorous, without

any marking; posterior tibiae usually with red colouration in apical fourth and broadly separated from black band by a wide bluish grey band.

Distribution : India (Andaman & Nicobar Island, Bihar, Delhi, Himachal Pradesh, Karnataka, Madhya Pradesh, Meghalaya, Orissa, Rajasthan, Tamil Nadu and West Bengal); Australia; Bangladesh; Borneo; Celebes; China; Hainan; Japan; Java; Malaysia; Myanmar; new Guinea; Philippines; Singapore; Sri Lanka; Sumatra; Taiwan and Thailand.

Genus *Locusta* Linnaeus, 1758

7. *Locusta migratoria migratorioides* (R. & F.)

1847. *Oedipoda migratorioides* Reiche & Fairmaire, *Ferret & Galinier, Voy. Abyssinie*, 3 : 430.

1951. *Locusta migratoria migratorioides* : Uvarov, *Bull. Off. nat. anti-Acrid.* Paris, no. 1 : 1-4.

Material examined : 1♂, Car Nicobar, Kamorta, 23.iii.1970, Coll. B.K. Tikadar.

Diagnostic characters : Large in size; general colouration brown; head slightly inflated; pronotum less tectiform than the genus *Gastrimargus*, anterior and posterior margin angulated; lateral lobes of pronotum higher than its length; tegmina mottled and reticulated with brown; hind wings hyaline; hind femora long, not much thickened at base. This species occurs in two forms. Both forms sharply different but intermediate forms also exist.

Distribution : It occurs in the whole Ethiopian Region and whole of eastern hemisphere except Arctic and Northern Region. In India, it is recorded from Andaman & Nicobar Islands, Delhi, Meghalaya and Orissa.

Genus *Gastrimargus* Saussure, 1884

8. *Gastrimargus africanus africanus* (Saussure)

1888. *Oeduleus (Gastrimargus) marmoratus* var. *africana* Saussure, *Mem. Soc. Phys. Hist. nat. Geneve.*, 30(1) : 39.

1982. *Gastrimargus africanus africanus* : Ritchie, *Bull. Br. Mus. nat. Hist. (Ent.)*, 44(4) : 248.

Material examined : 1♀, S. Andaman, Aberden Bay, 9.ii.1961, Coll. A. Daniel; 1♂, N. Andaman, Diglipur, 30.iv.1971, Coll. B.K. Tikadar.

Diagnostic characters : Fastigium of vertex concave; pronotum with middle carina moderately arcuate, faintly intersected by posterior sulcus, hind margin sharply angular; tegmina surpassing hind knees by one-third to half of hind femur length; hind wings basal area bright yellow with complete dark fascia, dark spots at apex; internal ventral surface of hind femur blue-grey to blue-black.

Distribution : India (Andaman & Nicobar Islands, Goa, Meghalaya, Orissa, Rajasthan, Sikkim and West Bengal); Africa; Arabia; Myanmar; Nepal; Sri Lanka; Thailand and Tibet.

Subfamily HEMIACRIDINAE

Genus *Spathosternum* Krauss, 1877

9. *Spathosternum prasiniferum prasiniferum* (Walker)

1871. *Heteracris* (?) *prasinifera* Walker, *Cat. Derm. Salt. Brit. Mus.*, 5 Suppl. : 65.

1936. *Spathosternum prasiniferum prasiniferum* : Tinkham, *Lingn. Sci. J.*, 15 : 51.

Material examined : 1 ♂, S. Andaman, Ferrargunj, 16.iii.1975, Coll. G.K. Srivastava.

Diagnostic characters : Fastigium of vertex parabolic; broad black or dark-green stripe runs behind the lower part of the eyes and lateral carinae of pronotum; prosternal tubercle spatulate; central area of tegmina with a longitudinal black streak, generally almost in male and well developed in female, but very variable, sometimes being entire; tegmina reaching distal end of hind femora or slightly beyond it; and hind wings well developed.

Distribution : India (Andaman Islands, Andhra Pradesh, Arunachal Pradesh, Bihar, Goa, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Orissa, Rajasthan, Tamil Nadu and West Bengal); S.E. China; Malaysia; Myanmar; Nepal; Pakistan; Sri Lanka; Thailand and Vietnam.

Subfamily OXYINAE

Key to the genera

1. Prosternal tubercle with apex broadened and transverse, trilobate apically
..... *Oxytauchira* Ramme

- Prosternal tubercle simple, conical with subacute or rounded apex, rarely with bulbous apex 2
- 2. Radial area of tegmina with transverse, parallel stridulatory veinlets *Gesonula* Uvarov
- Radial area of tegmina without trace of transverse, parallel stridulatory veinlets 3
- 3. Male epiphallus with ancorae
..... *Caryanda* Stål
- Male epiphallus without ancorae 4
- 4. Fully winged or brachypterous species; epiphallus with two pair of lophi
..... *Oxya* Serville
- Micropterous species; epiphallus with only outer pair of lophi *Cercina* Stål

Genus *Oxytauchira* Ramme, 1941

10. **Oxytauchira* sp.

1941. *Oxytauchira* Ramme, *Mitt. zool. Mus. Berl.*, 25 : 117.

Material examined : 1 ♂, S. Andaman, Chiriatapu, 17.iv.1982, Coll. M.S. Shishodia.

Diagnostic characters : Head conical; fastigium of vertex parabolic; frontal ridge sulcated; prosternal tubercle transverse, antero-posteriorly flattened, trilobate apically; dorsum of pronotum with median carina weak and lateral carinae absent, faintly crossed by three transverse sulci; tegmina and hind wings fully developed; lower genicular lobe of hind femur spined; external apical spine of hind tibiae present; 10th abdominal tergite of male with furcula on postero-dorsal margin.

Distribution : Celebes and Myanmar. This genus is recorded here for the first time from India.

Genus *Gesonula* Uvarov, 1940

11. *Gesonula punctifrons* (Stål)

1861. *Acridium* (*Oxya*) *punctifrons* Stål, *Kongl. Svens. Freg. Eug. Resa Omk. Jorden*, 11. Zoologi, Insecta : Orthoptera : 336.

1963. *Gesonula punctifrons* : Mishchenko, in Bey-Bienko & Mishchenko. *Locusts and Grasshoppers of U.S.S.R. and adjacent countries*, Catantopinae, Leningrad : 172. (Israel Program for Scientific Translations, Jerusalem).

Material examined : 1 ♂, N. Andaman, Pahelgaon, 12.v.1971, Coll. B.K. Tikadar; 1 ♂, 2 ♀,

S. Andaman, Port Blair, Aberdeen Bay, 13.xii.1972, Coll. K.S. Pradhan; 1 ♂, S. Andaman, Caddlegunj, 16.xii.1972, Coll. K.S. Pradhan; 1 ♀, S. Andaman, Ferrargunj, Ankara, 17.i.1973, Coll. K.S. Pradhan; 2 ♂, 1 ♀, S. Andaman, Bambooflat, 2.iii.1975, Coll. G.K. Srivastava; 1 ♀, S. Andaman, Port Blair, 12.i.1988, Coll. A.N.T. Joseph; 1 ♀, S. Andaman, Chiriatapu, 15.i.1988, Coll. A.N.T. Joseph; 1 ♀, Port Blair, Hope Town, 4.xi.1997, Coll. S.K. Mandal.

Diagnostic characters : Head conical; fastigium of vertex parabolic; frontal ridge sulcate; antennae slightly longer than the combined length of head and pronotum; prosternal tubercle conical with rounded apex; dorsum of pronotum flattened, without lateral carinae and median carina weak, faintly crossed by three transverse sulci; tegmina and hind wings well developed; tegmina with some transverse, parallel stridulatory veinlets in radial area; lower genicular lobe of hind femora spined; hind tibiae expanded in apical half and with external apical spine; ovipositor valves short and with curved apical spine.

Distribution : India (Andaman & Nicobar Islands, Arunachal Pradesh, Assam, Goa, Kerala, Meghalaya, Orissa and West Bengal); Bangladesh; Borneo; China; Hainan; Japan; Java; Malacca; Myanmar; Philippines; Sri Lanka; Taiwan and Thailand.

Genus *Caryanda* Stål, 1878

Key to the species

1. Lower inner area of hind femur and hind tibia bright red *diminuta* (Walker)
- Hind femur red towards extremity with the knee black; hind tibia green, with an ivory white spot at base bordered before and behind with black *cachara* (Kirby)

12. *Caryanda cachara* (Kirby)

1914. *Traulia cachara* Kirby, *Faun. Brit. India*, Orthopt. : 245.
1975. *Caryanda cachara* : Hollis, *Bull. Br. Mus. nat. Hist. (Ent.)*, 31(6) : 217.

Material examined : 1 ♂, Great Nicobar, Casuarina Bay, 2.iv.1966, Coll. A. Daniel & H.K. Bhowmik.

Diagnostic characters : Head and pronotum green dorsally; a wide black stripe runs behind each eye, covering the sides as far as the base of hind femora; abdomen brown with three longitudinal lines, one on the median carina and other two laterally; tegmina and hind wings rudimentary; tegmina lateral, oval, extending upto the 3rd abdominal tergite; fore and middle tibiae and also tarsi blackish; hind femora red towards apex, knee black; hind tibiae green, with white spot at base, bordered in front and behind with black.

Distribution : India (Andaman Islands and Assam).

13. *Caryanda diminuta* (Walker)

1871. *Oxya diminuta* Walker, *Cat. Derm. Salt. Brit. Mus.*, 5 Suppl. : 64.

1975. *Caryanda diminuta* : Hollis, *Bull. Br. Mus. nat. Hist. (Ent.)* 31(6) : 217.

Material examined : 1 ♂, Great Nicobar, Casuarina Bay, 2.ii.1966, Coll. A. Daniel & H.K. Bhowmik; 2 ♀ N. Andaman, Mayabunder, 26.iii.1969, Coll. T.D. Soota; 1 ♂, 2 ♀, S. Andaman, Caddlegunj, 16.xii.1972, Coll. K.S. Pradhan; 1 ♂, Port Blair, Nayagaon, 29.xii.1974, Coll. S.K. Bhattacharya; 3 ♂, 2 ♀, S. Andaman, Monglutan, 4 kms. S.W. of Humfreygunj, 13, 14.iii.1975, Coll. G.K. Srivastava; 1 ♂, 1 ♀, S. Andaman, within 2 kms. of Ferrargunj, 16.iii.1975, Coll. G.K. Srivastava; 2 ♀, S. Andaman, Port Blair, 11.i.1988, Coll. A.N.T. Joseph; 1 ♂, 1 ♀, Port Blair, Chaulderi, 12.i.1988, Coll. A.N.T. Joseph; 11 ♂, 1 ♀, S. Andaman, Port Blair, Chhipighat, 23.x.1997, Coll. M.S. Shishodia; 1 ♂, S. Andaman, Jolly Buoy, 26.x.1997, Coll. M.S. Shishodia; 5 ♂, 2 ♀, S. Andaman, Port Blair, Corbyn's Cove Beach, 28.x.1997, Coll. M.S. Shishodia; 1 ♂, S. Andaman, Wandoor, 2.xi.1997, Coll. S.K. Mandal; 1 ♂, N. Andaman, Aerial Bay, 6.xi.1997, Coll. S.K. Mandal; 1 ♀, S. Andaman, Wandoor, 26.i.2000, Coll. G.K. Srivastava; 1 ♀, S. Andaman, Wright Myo, Kalatong, 30.ii.2000, Coll. G.K. Srivastava.

Diagnostic characters : Fastigium of vertex pentagonal, wider than long; prosternal tubercle conical with subacute apex; median carina of pronotum weak, lateral carinae absent, crossed by three transverse sulci; tegmina and hind wings brachypterous; hind femora green or yellow with disperse black markings; hind tibiae completely bright red; loth. abdominal tergite of male with a pair of rectangular projections on posterior margin medially; ventral surface of female subgenital plate flat, posterior margin rounded triangular, without spines.

Distribution : India (Andaman Islands, North-east and South India); Cambodia; China; Indonesia; Laos; West Malaysia; Myanmar; Singapore; Sumatra; Thailand and Vietnam.

Genus *Oxya* Serville, 1831

Key to the species and subspecies

1. Male supra-anal plate with a tubercle on each side of a median apical process, making the plate weakly trilobate; anterior margin of female tegmina with a dense row of short bristles; ovipositor valves with long teeth, apical ones curved *hyla hyla* Serville
- Male supra-anal plate without lateral tubercles; anterior margin of female tegmina only weakly or not at all bristled; ovipositor valves with short teeth 2
2. Epiphallus with hook-like outer lophi and short, slender inner lophi; ventral surface of female subgenital plate with a deep median longitudinal concavity posteriorly which is bordered on each side by a well developed lateral longitudinal ridge, latter unspined except at posterior apex; median pair of spine on posterior margin well developed *japonica japonica* (Thunberg)
- Epiphallus with relatively straight outer lophi and small, slender inner lophi; ventral surface of female subgenital plate with a pair of well developed submargino-lateral spines, posterior margin with a single medial spine and a pair of lateral spines *nitidula* (Walker)

14. *Oxya hyla hyla* Serville

1831. *Oxya hyla* Serville, *Annls. Sci. nat. (Zool.)*, **22** : 287.

1971. *Oxya hyla hyla* : Hollis, *Bull. Br. Mus. nat. Hist. (Ent.)*, **26**(7) : 282.

Material examined : 1♂, 1♀, S. Andaman, Port Blair, 5.iii.1959, Coll. K.K. Tewari; 1♀, Car Nicobar, Malacca, 30.iii.1959, Coll. K.K. Tewari; 1♂, L. Andaman, Taibalowe, 10 mile east of Ingoie, 22.ii.1961, Coll. A. Daniel; 6♀, Nachuge, 27.ii.1961, Coll. A. Daniel; 1♂, S. Andaman, Cowriaghat, 9.iv.1964, Coll. B.S. Lamba; 1♂, 1♀, Port Blair, 18.iii.1969, Coll. T.D. Soota; 2♂, S. Andaman, Wright Myo, 19.iii.1969, Coll., T.D. Soota; 1♂, N. Andaman, Kaighat, 28.iii.1969, Coll. T.D. Soota; 1♂, N. Andaman, Mayabunder, Tugapur, 9.v.1971, Coll. B.K. Tikadar; 1♀, M. Andaman, Long Island, 16.v.1971, Coll. B.K. Tikadar; 1♂, M. Andaman, Rangat, 26.i.1972, Coll. A.K. Mukherjee & B. Dutta; 1♂, S. Andaman, Wandoor, 6.ii.1972, Coll. P.T. Cherian; 1♂, Port Blair, Aberdeen Bay, 13.xii.1972, Coll. K.S. Pradhan; 2♂, S. Andaman, Caddlegunj, 16.xii.1972, Coll. K.S. Pradhan; 1♂, S. Andaman, Chiriatapu, 20.xii.1972, Coll. K.S. Pradhan; 1♀, Car Nicobar, Sawai, 24.xii.1972, Coll. K.S. Pradhan; 1♂, Car Nicobar, Kakana, 27.xii.1972, Coll. K.S. Pradhan; 1♂, 1♀, Great Nicobar, Campbell Bay, Harmandergarh, 10.i.1975, Coll. S.K. Bhattacharya; 1♂, Great Nicobar, Ramnagar, Magarnalla, 14.i.1975, Coll. S.K. Bhattacharya; 2♂, S. Andaman, Bambooflat, 2.iii.1975, Coll. G.K. Srivastava; 2♂, 2♀, S. Andaman, Monglutan, 4 kms. S.W. of Humfregunj, 14.iii.1975, Coll., G.K. Srivastava; 1♀, S. Andaman Ferrargunj., 16.iii.1975, Coll. G.K. Srivastava; 1♀, N. Andaman, Aerial Bay, 11.xii.1983, Coll. R.M. Sharma and B. Mitra; 1♂, Great Nicobar, Campbell Bay, Forest around Lakshman Beach, 1.v.1985, Coll. M.K. Dev Roy and B. Mitra; 1♂, 1♀, S. Andaman, Chiriatapu, 15.i.1988, Coll. A.N.T. Joseph; 2♂, 2♀, L. Andaman, Ramkrishnapur, 17, 19, 20.i.1988, Coll. A.N.T. Joseph; 1♂, L. Andaman, South 1♂, L. Andaman, South Point, 24.i.1988, Coll. A.N.T. Joseph; 1♂,

S. Andaman, Neil Island, 24.i.1998, Coll. Raja Ram.

Diagnostic characters : Integument finely pitted and shiny; tegmina and hind wings fully developed; male supra-anal plate trapezoid with triangular apical projection, a small tubercle present at the base of projection on either side dorsally; cerci with subacute or truncate apex; valves of ovipositor with hook-like marginal spines; Female subgenital plate with a pair of median spines on posterior margin, ventral surface with a median longitudinal concavity, which is bordered on each side by a longitudinal ridge bearing short spines.

Distribution : India (Throughout); Africa; (except desert region); Madagascar; Oriental region West of Indo-Myanmar border.

15. *Oxya japonica japonica* (Thunberg)

1842. *Gryllus japonicus* Thunberg, *Mem. Acad. Sci. St.-Petersb.* 9 : 429.

1971. *Oxya japonica japonica* : Hollis, *Bull. Br. Mus. nat. Hist. (Ent.)*, 26(7) : 302.

Material examined : 1 ♀ Car Nicobar, 29.iii.1959, Coll. K.K. Tiwari; 1 ♀, S. Andaman, Bambooflat, 2.iii.1975, Coll. G.K. Srivastava.

Diagnostic characters : Dorsum of pronotum slightly flattened, parallel sided; tegmina well developed; supra-anal plate rounded triangular with well developed lateral folds; cerci with subacute or truncate apex; valves of ovipositor with tooth-like spines. Rest of the characters are mentioned in key.

Distribution : India (Andaman Islands, Karnataka, Meghalaya and Uttar Pradesh); Bali; Bangladesh; Borneo; Celebes; China; Hawaii Islands; Japan; Java; Lombok; Malaysia; Philippines; Singapore; Sri Lanka; Sumatra; Sumba; Taiwan; Thailand; Timor and Vietnam.

16. *Oxya nitidula* (Walker)

1870. *Acridium nitidulum* Walker, *Cat. Derm. Salt. Brit. Mus.*, 4 : 631.

1971. *Oxya nitidula* : Hollis, *Bull. Br. Mus. nat. Hist. (Ent.)*, 26(7) : 315.

Material examined : 2 ♀, S. Andaman, Port Blair, 6.iii.1959, Coll. K.K. Tewari; 1 ♀, Car

Nicobar, Malacca, 30.iii.1959, Coll. K.K. Tewari; 1 ♀, Car Nicobar, Horticulture garden 9.iii.1970, Coll. B.K. Tikadar; 1 ♂, Great Nicobar, Campbell Bay, 13.i.1972, Coll. S.K. Bhattacharya; 1 ♂, Car Nicobar, Sawai, 24.xii.1972, Coll. K.S. Pradhan; 1 ♀, Car Nicobar, Kakana, 27.xii.1972, Coll. K.S. Pradhan; 1 ♂, Burmanala, 20.i.2000, Coll. G.K. Srivastava.

Distribution : India (Andaman & Nicobar Islands, Andhra Pradesh, Karnataka, Kerala, Orissa, Rajasthan, Tamil Nadu and West Bengal) and Sri Lanka.

Genus *Cercina* Stål, 1878

17. **Cercina* sp.

1878. *Cercina* Stål, *Bih. K. Svenska Vetensk Akad. Handl.*, 5 : 49, 97.

1975. *Cercina* : Hollis, *Bull. Br. Mus. nat. Hist. (Ent.)*, 31(6) : 224.

Material examined : 1 ♀, Great Nicobar, Casuarina Bay, 2.iv.1966, Coll. A. Daniel and H.K. Bhowmik.

Diagnostic characters : Head conical; fastigium of vertex wider than long, median longitudinal carinula absent; posternal tubercle subconical with subacute apex; tegmina and hind wings reduced, scale-like, former not extending beyond 3rd abdominal tergite; ovipositor valves long, even tooth.

Distribution : India (Uttar Pradesh) and Sri Lanka.

Subfamily COPTACRIDINAE

Genus *Traulia* Stål, 1873

18. *Traulia incompleta* Willemse

1921. *Traulia incompleta* Willemse, *Zool. Meded. Leiden*, 6 : 28.

1957. *Traulia incompleta* : Willemse, *Publities. naturrh. Genoot. Limburg*, 10 : 390.

Material examined : Through literature.

Diagnostic characters : General colouration blackish-brown; tegmina and hind wings reaching upto the hind femoral apices; tegmina with apex rounded; hind wings cycloid, bluish, margins infumated at apex; hind femora blackish-

brown, area externo-media at base with faintly indicated greenish spot; hind tibiae greenish-blue.

Distribution : India (Nicobar Islands).

Subfamily CYRTACANTHACRIDINAE

Genus *Chondracris* Uvarov, 1923

19. **Chondracris rosea* (De Geer)

1773. *Acrydium roseum* De Geer, *Mem. Ins.*, 3 : 488.

1923. *Chondracris rosea* : Uvarov, *Bull. ent. Res.*, 14 : 39.

Material examined : 1 ♀, Car Nicobar, Malacca village, 3.iii.1970, Coll. B.K. Tikadar.

Diagnostic characters : Large in size; body robust, coarsely punctured; fastigium of vertex almost flat, sloping; median keel of pronotum moderately raised in prozona and straight in profile in metazona; metazona feebly tectiform; tegmina surpassing the top of hind femora by a distance distinctly less than the length of pronotum, with oblique venation in apical part; hind wings hyaline, light rosy at base.

Distribution : India (Arunachal Pradesh, Assam, Bihar, Goa, Himachal Pradesh, Madhya Pradesh, Manipur, Meghalaya, Mizoram, Orissa, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal); Bangladesh; China; Hainan Island; Indonesia; Japan, Java; Korea; Manchuria, Myanmar; Nepal; Philippines; Taiwan; Thailand and Vietnam.

Subfamily CATANTOPINAE

Key to the genera

1. Pronotum subcylindrical, slightly narrowing forwards; prosternal tubercle thick, cylindrical or slightly antero-posteriorly compressed with rounded apex *Catantops* Schaum
- Pronotum not subcylindrical; posternal tubercle not cylindrical and never with rounded apex ..
..... 2
2. Pronotum constricted in the middle; prosternal tubercle conical
..... *Xenocatantops* Dirsh & Uvarov
- Pronotum not constricted in middle; prosternal tubercle compressed laterally
..... *Stenocatantops* Dirsh & Uvarov

Genus *Catantops* Schaum, 1853

20. *Catantops pulchellus* (Walker)

1870. *Cyrtacanthacris pulchellus* Walker, *Cat. Derm. Salt. Brit. Mus.*, 3 : 574.

1956. *Catantops pulchellus* : Dirsh, *Publicoes cult. Co. Diam. Angola*, 28 : 97.

Material examined : Through literature.

Diagnostic characters : Large and moderately robust; general colouration buff; lateral lobe of pronotum with a narrow longitudinal stripe; lower margin of lobe yellowish; prosternal tubercle inclined backwards, with round and broad apex; ext. disc of hind femur with two longitudinal black stripes below the upper carinula; internal disc of hind femur orange with four black spots; hind tibiae orange; basal disc of hind wing bright orange; cercus broad at base, gradually narrowing towards apex, with rounded apex.

Distribution : India (Andaman Island).

Genus *Xenocatantops* Dirsh & Uvarov, 1953

21. *Xenocatantops humilis humilis* (Serville)

1839. *Acridium humile* Serville, *Ins. Orth.* : 662.

1953. *Xenocatantops humilis humilis* : Dirsh & Uvarov, *Tijdschr. Ent.*, 96(3) : 237.

Material examined : 1 ♀, Port Blair, 15.ii.15.iii.1915, Coll. S.W. Kemp; 1 ♀, N. Andaman, Interview Island, 6.ii.1959, Coll. K.K. Tewari; 1 ♀, N. Andaman, Diglipur, Keralapuram, 24.iv.1971, Coll. B.K. Tikadar; 1 ♀, M. Andaman, Bendanabad, 21.xii.1972, Coll. K.S. Pradhan; 3 ♂, 5 ♀, L. Andaman, Ramkrishnapur, 19, 20.i.1988, Coll. A.N.T. Joseph; 1 ♀, L. Andaman, Hut Bay, Govt. School Campus, 23.i.1988, Coll. A.N.T. Joseph.

Diagnostic characters : Body stout; middle joints of antennae about twice as long as broad; prosternal tubercle slightly inclined backwards, with obtuse apex; tegmina extending beyond the hind knee; hind femora yellowish with two brown fasciae which are broadening towards lower margin and fused with the brown lower margin, internal disc reddish, with three black spots along the upper margin; hind tibiae red; male cerci short, narrowing towards apical part, incurved and upcurved, apex rounded.

Distribution : India (Andaman Islands, Arunachal Pradesh, Assam, Kerala, Madhya Pradesh, Tamil Nadu, Uttar Pradesh and West Bengal); Bangladesh; Borneo; Indo-China; Java; Malaysia; Myanmar; Nepal; New Guinea; Philippines; Sri Lanka; Sumatra; Thailand; Tibet; Vietnam and Yunnan.

Genus *Stenocatantops* Dirsh & Uvarov, 1953

22. *Stenocatantops splendens* (Thunberg)

1815. *Gryllus splendens* Thunberg, *Mem. Acad. Sci. St.-Petersb.*, 5 : 236.

1953. *Stenocatantops splendens* : Dirsh & Uvarov, *Tijdschr. Ent.*, 96(3) : 237.

Material examined : 1 ♂, S. Andaman, Mt. Harriet, 3.xii.1923, Coll. Annandale; 1 ♂, S. Andaman, Hope Town, 27.vii.1927, Coll. R.B.S. Sewell; 1 ♂, 1 ♀, Viper Island, 28.viii.1928, Coll. R.B.S. Sewell; 2 ♂, North Bay, 29.viii.1928, Coll. R.B.S. Sewell; 1 ♀, Denni Point, 31.ix.1928, Coll. R.B.S. Sewell; 1 ♀, Car Nicobar, 31.iii.1959, Coll. K.K. Tewari; 1 ♂, N. Andaman, Interview Island, 10.ii.1961, Coll. K.K. Tewari; 1 ♀, L. Andaman, Laitora, 9 mile north of Tokoibuea, 14.ii.1961, Coll. A. Daniel; 2 ♂, L. Andaman, Kwate-To-Kwage, 18.ii.1961, Coll. A. Daniel; 2 ♂, 2 ♀, L. Andaman, Gaje, 25.ii.1961, Coll. A. Daniel; 1 ♂, 2 ♀, L. Andaman, Kaname, 25 miles north of Gaje, 26.ii.1961, Coll. A. Daniel; 1 ♂, 2 ♀, Great Nicobar, 25 kms. from Casuarina Bay, 4.iv.1966, Coll. A. Daniel & H.K. Bhowmik; 1 ♂, N. Andaman, Tugapur, 10.v.1971, Coll. B.K. Tikadar; 1 ♀, M. Andaman, Rangat, 2.ii.1972, Coll. B. Dutta; 2 ♀, S. Andaman, Chiriatapu, 22, 24.x.1972, Coll. P.T. Cherian; 1 ♂, S. Andaman, Hope Town, 18.xii.1972, Coll. K.S. Pradhan; 1 ♀, M. Andaman, Bedanabad, 21.xii.1972, Coll. K.S. Pradhan; 1 ♀, Car Nicobar, Sawai, 24.xii.1972, Coll. K.S. Pradhan; 1 ♂, Great Nicobar, S.E. of Campbell Bay Jetty, 11.i.1975, Coll. S.K. Bhattacharya; 1 ♂, 1 ♀, Port Blair, Corby's Cove Beach, 1.iii.1975, Coll. G.K. Srivastava; 1 ♂, M. Andaman, Mayabundar, 9.iii.1975, Coll. G.K. Srivastava; 1 ♀, L. Andaman, West of R.R.O. Colony, 22.vii.1982, Coll. B. Mitra; 2 ♂, 1 ♀, L. Andaman, Netajinagar, 17.i.1988, Coll.

A.N.T. Joseph; 1 ♂, 1 ♀ L. Andaman, Vivekanandapuram, 18.i.1988, Coll. A.N.T. Joseph; 1 ♀, L. Andaman, South point, 24.i.1988, Coll. A.N.T. Joseph; 3 ♂, L. Andaman, Hut Bay, 27.i.1988, Coll. A.N.T. Joseph; 1 ♂, L. Andaman, Harmendar Bay, 28.i.1988, Coll. A.N.T. Joseph; 1 ♀, L. Andaman, Harmendra Bay, 15.ix.1990, Coll. K. Venkatraman.

Diagnostic characters : Prosternal tubercle, in profile, strongly curved and inclined backwards, apex not reach mesosternum; tegmina and wings long, apex rounded; internal disc of hind femora with distinct pattern of black colour, external disc without any black pattern; male cerci simple, incurved at apical fourth, with rounded apex; male subgenital plate moderately long and less acute; ovipositor short and moderately curved.

Distribution : India (Andaman & Nicobar Islands, Arunachal Pradesh, Assam, Delhi, Madhya Pradesh, Maharashtra, Meghalaya, Orissa, Sikkim, Tamil Nadu, Uttar Pradesh and West Bengal); China; Hainan; Indonesia; Java; Korea; Malaysia; Myanmar; Nepal; New Guinea; Singapore; Sri Lanka and Sumatra.

SUMMARY

A total of 27 species of Acridoidea, under 18 genera, 7 subfamilies and 2 families are studied here. Out of these, three species are new records to Andaman & Nicobar Islands, keys to families, subfamilies, genera and species are provided. Diagnostic characters, distributional records of each species are also given. Distribution of all species in these islands is provided on a separate table.

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Table 1 : Showing distributional records of the species of the Acridoidea in Andaman & Nicobar Islands

Name of species	S. Andaman	N. Andaman	M. Andaman	L. Andaman	Car Nicobar	Litt. Nicobar	Gt. Nicobar	Nancow. Gp. of Island	No. specific localities
1. <i>Atractomorpha crenulata</i>	+	+	+	+	+	-	-	-	
2. <i>A. psittacina</i>	+	-	-	-	+	-	+	+	
3. <i>Tagasta indica</i>	-	-	+	-	-	-	-	-	
4. <i>Aularches miliaris</i>	+	-	-	-	-	-	-	-	
5. <i>Dnopherula (Aulacobothrus) luteipes</i>	+	-	-	-	-	-	-	-	
6. <i>Aiolopus thalassinus tamulus</i>	+	+	+	+	+	-	+	+	
7. <i>Locusta migratoria migratorioides</i>	-	-	-	-	-	-	-	+	
8. <i>Gastrimargus africanus africanus</i>	+	+	-	-	-	-	-	+	
9. <i>Spathosternum prasiniferum prasiniferum</i>	+	-	-	-	-	-	-	-	
10. <i>Oxytauchira</i> sp.	+	-	-	-	-	-	-	-	
11. <i>Gesonula punctifrons</i>	+	+	-	-	-	-	-	-	
12. <i>Caryanda cachara</i>		-	-	-	-	-	+	-	
13. <i>Caryanda diminuta</i>	+	+	-	-	-	-	+	-	
14. <i>Oxya hyla hyla</i>	+	+	+	+	+	-	+	-	
15. <i>Oxya japonica japonica</i>	+	-	-	-	+	-	-	-	
16. <i>Oxya nitidula</i>	+	-	-	-	+	-	+	-	
17. <i>Cercina</i> sp.	-	-	-	-	-	-	+	-	
18. <i>Traulia incompleta</i>	-	-	-	-	-	-	-	-	Nicobar Island
19. <i>Chondracris rosea</i>	-	-	-	-	+	-	-	-	
20. <i>Catantopes pulchellus</i>	-	-	-	-	-	-	-	-	Andaman Island
21. <i>Xenocatantops humilis humilis</i>	+	+	+	+	-	-	-	-	
22. <i>Stenocatantops splendens</i>	+	+	+	+	+	-	+	-	

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INSECTA : ODONATA

SUPRIYA NANDY AND R. BABU

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

INTRODUCTION

Order Odonata is an economically important primitive group of insects, commonly known as dragonflies and damselflies. Adults are very strong fliers and abundant in the vicinity of waterbodies. Larvae are aquatic. These insects both adult and larva, are completely carnivorous in feeding habit. Thus somehow they are beneficial to human being by controlling population of other harmful insects like mosquitoes.

The Odonata fauna of Andaman and Nicobar Islands represent insular ecosystem and it bears strong affinity with the fauna of different Southeast Asian countries like Myanmar, Indonesia and others along with Indian mainland. The fauna of these oceanic Island groups includes 10 endemic species among which 9 species are endemic to Andaman and Nicobar Islands itself. Moreover, another 10 Indian species are distributed only in Andaman and Nicobar Islands within Indian limit, having distribution in other countries, mainly of Southeast Asia.

The study of Odonata fauna of Andaman and Nicobar Islands dates back to nineteenth century, with the description of a new species of damselfly *Libellago lineata blanda* by Selys (1853), from Great Nicobar Island. Afterwards more species have been recorded by Selys (1863, 1871 and 1877). Fraser (1924) provided the first Odonata list of Andaman and Nicobar Islands and added 9 species to the fauna of this region, which were included in *Fauna of British India* (1933, 1934 and 1936).

Lahiri (1975) mentioned 31 species of Odonates from Andaman and Nicobar Islands and Chhotani

et al. (1983) provided the consolidated list of 34 species from Andaman and Nicobar Islands which included two new species, viz. *Gomphidia ganeshi* and *Oligoaeschna andamani*. Later Lahiri and Mitra (1993) added 8 species to this Island fauna. Mitra (1995) recorded 11 species new to Great Nicobar Island, of which 7 species were also new record to Andaman and Nicobar Islands. Lahiri (1998) reported 10 Odonate species as new record from Little Andaman Island. Hämäläinen *et al.* (1999) recorded 9 species newly from Andaman and Nicobar Islands. Among these, *Neurothemis ramburii ramburii* (Brauer) and *Zyxomma obtusum* Albarda were recorded as new to India. Ram *et al.* (2000) studied Odonate fauna based on the surveys conducted by the scientists of Andaman and Nicobar Regional Station, ZSI, Port Blair and reported 8 species as new to fauna of Andaman and Nicobar Islands. Yeh and Veenakumari (2000) described new species, *Gynacantha andamanae* from South Andaman Island. Mitra (2002a) discussed on the zoogeography of Odonates of Nicobar Islands. Nandy & Babu (2009) recorded total 44 species of suborder Anisoptera from Andaman & Nicobar Islands.

The present study is based on Odonata specimens from Andaman and Nicobar Islands collected by the scientists of Zoological Survey of India present in the National Zoological Collections, ZSI, Kolkata. The nomenclature and distribution followed here is after Fraser (1933, 1934 & 1936), Prasad & Varshney (1995), Mitra (2002b) and Tsuda (2000). Total 69 species/subspecies belonging to 39 genera under eleven families are reported here from Andaman & Nicobar Islands.

Among these, 29 species are recorded only from Andaman group of Islands and 15 species are only from Nicobars. The consolidated list of 69 species/subspecies of order Odonata along with their distribution within Andaman and Nicobar Islands is given in the Table-1.

SYSTEMATIC LIST

- Order ODONATA
 Suborder ZYGOPTERA
 Superfamily COENAGRIONOIDEA
 Family COENAGRIONIDAE
 Genus *Aciagrion* Selys
 1. *Aciagrion occidentale* Laidlaw
 2. *Aciagrion pallidum* Selys
 Genus *Agriocnemis* Selys
 3. *Agriocnemis femina femina* (Brauer)
 4. *Agriocnemis pygmaea* (Rambur)
 Genus *Argiocnemis* Selys
 5. *Argiocnemis rubescens rubeola* Selys
 Genus *Ceriagrion* Selys
 6. *Ceriagrion cerinorubellum* (Brauer)
 7. *Ceriagrion a. auranticum* Fraser
 8. *Ceriagrion olivaceum* Laidlaw
 Genus *Ischnura* Charpentier
 9. *Ischnura senegalensis* (Rambur)
 Genus *Pseudagrion* Selys
 10. *Pseudagrion andamanicum* Fraser
 11. *Pseudagrion microcephalum* (Rambur)
 12. *Pseudagrion pilidorsum* (Brauer)
 13. *Pseudagrion pruinsum* (Burmeister)
 14. *Pseudagrion williamsoni* Fraser
 Family PLATYCENIDIDAE
 Genus *Copera* Kirby
 15. *Copera marginipes* (Rambur)
 16. *Copera vittata serapica* (Selys)
 Family PLATYSTICTIDAE
 Genus *Drepanosticta* Laidlaw
 17. *Drepanosticta annandalei* Fraser

- Family PROTONEURIDAE
 Genus *Prodasineura* Cowley
 18. *Prodasineura verticalis andamanensis* (Fraser)
 Superfamily LESTOIDEA
 Family LESTIDAE
 Genus *Lestes* Leach
 19. *Lestes malabarica* Fraser
 20. *Lestes p. praemorsus* (Selys)
 Superfamily CALOPTERYGOIDEA
 Family CALOPTERYGIDAE
 Genus *Vestalis* Selys
 21. *Vestalis gracilis gracilis* (Rambur)
 Family CHLOROCYPHIDAE
 Genus *Libellago* Selys
 22. *Libellago aurantiaca* (Selys)
 23. *Libellago andamanensis* (Fraser)
 24. *Libellago blanda* (Selys)
 25. *Libellago balus* Hämäläinen
 Suborder ANISOPTERA
 Superfamily AESHNOIDEA
 Family GOMPHIDAE
 Genus *Gomphidia* Selys
 26. *Gomphidia ganeshi* Chhotani, Lahiri & Mitra
 27. *Gomphidia t-nigrum* Selys
 Family AESHNIDAE
 Genus *Anaciaeschna* Selys
 28. *Anaciaeschna jaspidea* (Burmeister)
 Genus *Anax* Leach
 29. *Anax guttatus* (Burmeister)
 Genus *Gynacantha* Rambur
 30. *Gynacantha andamanae* Yeh & Veenakumari
 31. *Gynacantha bayadera* Selys
 32. *Gynacantha dravida* Lieftinck
 33. *Gynacantha subinterrupta* Rambur
 Genus *Oligoaeschna* Selys
 34. *Oligoaeschna andamani* Chhotani, Lahiri & Mitra

Superfamily LIBELLULOIDEA

Family CORDULIIDAE

Genus *Epophthalmia* Burmeister

35. *Epophthalmia vittata vittata* Burmeister

Family LIBELLULIDAE

Genus *Agrionoptera* Brauer

36. *Agrionoptera insignis insignis* (Rambur)

Genus *Acisoma* Rambur

37. *Acisoma panorpoides panorpoides*
Rambur

Genus *Brachydiplax* Brauer

38. *Brachydiplax chalybea chalybea* Brauer

Genus *Brachythemis* Brauer

39. *Brachythemis contaminata* (Fabricius)

Genus *Camacinia* Kirby

40. *Camacinia gigantea* (Brauer)

Genus *Cratilla* Kirby

41. *Cratilla metallica* (Brauer)

42. *Cratilla lineata* (Brauer)

Genus *Crocothemis* Brauer

43. *Crocothemis servilia servilia* (Drury)

Genus *Diplacodes* Kirby

44. *Diplacodes trivialis* (Rambur)

Genus *Indothemis* Ris

45. *Indothemis carnatica* (Fabricius)

Genus *Lathrecista* Kirby

46. *Lathrecista asiatica asiatica* (Fabricius)

Genus *Lyriothemis*

47. *Lyriothemis cleis* Brauer

Genus *Nesoxenia* Kirby

48. *Nesoxenia lineata* (Selys)

Genus *Neurothemis* Brauer

49. *Neurothemis fluctuans* (Fabricius)

50. *Neurothemis fulvia* (Drury)

51. *Neurothemis intermedia atlanta* Ris

52. *Neurothemis intermedia intermedia*
(Rambur)

53. *Neurothemis ramburii ramburii* (Brauer)

Genus *Orthetrum* Newman

54. *Orthetrum chrysis* (Selys)

55. *Orthetrum pruinsum neglectum* (Rambur)

56. *Orthetrum sabina sabina* (Drury)

Genus *Pantala* Hagen

57. *Pantala flavescens* (Fabricius)

Genus *Potamarcha* Karsch

58. *Potamarcha congener* (Rambur)

Genus *Rhyothemis* Hagen

59. *Rhyothemis phyllis phyllis* (Sulzer)

60. *Rhyothemis variegata variegata* (Linnaeus)

Genus *Tholymis* Hagen

61. *Tholymis tillarga* (Fabricius)

Genus *Tramea* Hagen

62. *Tramea basilaris burmeisteri* Kirby

63. *Tramea limbata similata* (Rambur)

64. *Tramea virginia* (Rambur)

Genus *Trithemis* Brauer

65. *Trithemis aurora* (Burmeister)

66. *Trithemis festiva* (Rambur)

67. *Trithemis pallidinervis* (Kirby)

Genus *Zyxomma* Rambur

68. *Zyxomma obtusum* Albarda

69. *Zyxomma petiolatum* Rambur

SYSTEMATIC ACCOUNT

Suborder ZYGOPTERA

Superfamily COENAGRIONOIDEA

Family COENAGRIONIDAE

Genus *Aciagrion* Selys

1. *Aciagrion occidentale* Laidlaw

1919. *Aciagrion hisopa* (Selys) race *occidentalis* Laidlaw,
Rec. Indian Mus., **16** : 186.

1922. *Aciagrion paludensis* Fraser, *J. Bombay nat. Hist. Soc.*,
28 : 698-699.

1923. *Aciagrion occidentale*, Fraser, *J. Bombay nat. Hist. Soc.*,
29 : 749.

1933. *Aciagrion occidentale*, Fraser, *Fauna Brit. India Odonata*,
1 : 335-337.

1995. *Aciagrion occidentale*, Prasad and Varshney, *Oriental Insects*,
29 : 390.

2002. *Aciagrion occidentale*, Mitra, *Mem. zool. Surv. India*, 19(1) : 71.

Diagnostic characters : Male : Labrum pale blue; frons pale azure blue; prothorax black on dorsum, the sides and anterior lobe azure blue; thorax pale azure blue, dorsum black with a narrow greenish yellow antehumeral stripe on each side; wings very narrow, pterostigma of forewing nearly double the size of that of hindwing, coloured similarly in the two wings, blackish gray; abdomen very slender and long, pale azure blue at sides of segments 1 to 3, pale yellow from 4 to 7, blue from 8 to 10, broadly marked with black on segments 1 to 8; segment 8 with a black triangle mark on dorsum; segment 9 entirely blue; 10 with a small X-shaped black dorsal spot, blue on the sides.

Material examined : 2♂, Way to Galathea Bay, Great Nicobar, 08.iii.1966, Coll. A. Daniel & H.K. Bhowmik.

Distribution : India : Andaman & Nicobar Islands (Nicobar), Andhra Pradesh, Goa, Karnataka, Kerala, Lakshadweep & Minicoy Islands, Orissa, Madhya Pradesh, Maharashtra, Tamil Nadu, West Bengal.

Elsewhere : Cambodia, Sri Lanka, Thailand, Vietnam.

Remarks : This species is reported for the first time from Andaman & Nicobar Islands.

2. *Aciagrion pallidum* Selys

1891. *Aciagrion pallidum* Selys, *Ann. Civ. Genova*, (2) 10(30) : 512.

1933. *Aciagrion pallidum*, Fraser, *Fauna Brit. India, Odon.*, 1 : 344-345.

1993. *Aciagrion pallidum*, Lahiri & Mitra, *J. Andaman Sci. Assoc.*, 9(1 & 2) : 97.

1995. *Aciagrion pallidum*, Prasad and Varshney, *Oriental Insects*, 29 : 390.

2002. *Aciagrion pallidum*, Mitra, *Mem. zool. Surv. India*, 19(1) : 72.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (Middle Andaman), Andhra Pradesh,

Arunachal Pradesh, Assam, Bihar, Goa, Madhya Pradesh, Maharashtra, Meghalaya, Orissa, Sikkim, Tripura, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere : Cambodia, Myanmar, Nepal, Thailand, Vietnam.

Remarks : This species included here on the basis of literature review (Lahiri and Mitra, 1993).

Genus *Agriocnemis* Selys

3. *Agriocnemis femina femina* (Brauer)

1868. *Agriocnemis (Ischnura) femina*, Brauer, *Verh. zool-bot. Ges. Wein*, 18 : 554.

1933. *Agriocnemis femina*, Fraser, *Fauna Brit. India, Odon.*, 1 : 402-404.

1983. *Agriocnemis femina oryzae*, Chhotani *et al.*, *Rec. zool. Surv. India*, 80 : 479.

1995. *Agriocnemis femina femina*, Prasad and Varshney, *Oriental Insects*, 29 : 391.

1999. *Agriocnemis femina femina*, Hämäläinen *et al.*, *Notul. Odonatol.*, 5(3) : 28.

2000. *Agriocnemis femina oryzae*, Ram *et al.*, *Rec. zool. Surv. India*, 98(3) : 33.

2000. *Agriocnemis femina femina*. Tsuda, *A distributional list of World Odonata*, p. 21.

2002. *Agriocnemis femina femina*, Mitra, *Mem. zool. Surv. India*, 19(1) : 82.

Diagnostic characters : Male : Labium pale yellow; labrum brilliant metallic prussian blue; prothorax black on dorsum, blue on the lower part of sides and on the anterior lobe and border of posterior lobe; thorax black on dorsum as far lateral as the antero-lateral suture, marked with pale blue narrow antehumeral stripes. Wings hyaline; pterostigma yellow, slightly darker at its centre. and with darker surrounding nervures, 5 to 6 postnodal nervures in fore-wings, 4 in the hind. Abdomen with the ground-colour of segments 1 to 6 blue or pale green, of segments 7 to 10 bright chrome-yellow, marked with black. Female : More robust than the male and showing a series of colour varieties due to age stages. Prothorax pale pinkish-brown, with a small black dorsal spot. Thorax cherry red with a broad black on dorsum and the sides pinkish-brown or fawn, with a small black spot at the upper end of postero-lateral suture; wings similar to the male in all respects. Abdomen

with groundcolour blue from segments 1 to 6, changing to reddish on segment 7, or ochreous marked broadly with black on dorsum.

Material examined : 1 ♂, Hope Town, Poni Ghat, 27.viii.1928, Coll. R.B.S. Sewell; 1 ♂, Denni Point, 03.ix.1928, Coll. R.B.S. Sewell; 1 ♂, Mannar Ghat, Wright Myo, South Andaman, 25.iii.1964, Coll. B.S. Lamba; 21 ♂ 12 ♀, Bibliagunj, Port Blair and Wright Myo, South Andaman, March-April, 1969, Coll. T.D. Soota.

Distribution : India : Andaman & Nicobar Islands (South Andaman, Nicobar), Andhra Pradesh, Assam, Maharashtra, Manipur, Tamil Nadu, West Bengal.

Elsewhere : Australia, Bangladesh, China, Cuba, Java, Micronesia, Myanmar, New Guinea, Philippines, Singapore, Thailand, Vietnam.

4. *Agriocnemis pygmaea* (Rambur)

1842. *Agrion pygmaeum* Rambur, *Ins. Nevrop.*, p. 278.
 1933. *Agriocnemis pygmaea*, Fraser, *Fauna Brit. India, Odon.*, 1 : 398-401.
 1983. *Agriocnemis pygmaea*, Chhotani *et al.*, *Rec. zool. Surv. India*, 80 : 480.
 1983. *Agriocnemis pygmaea pygmaea*, Mitra, *Ent. Mon. Mag.*, 119 : 30.
 1991. *Agriocnemis pygmaea pygmaea*, Tsuda, *A distributional list of World Odonata*, p. 19.
 1995. *Agriocnemis pygmaea*, Prasad and Varshney, *Oriental Insects*, 29 : 391.
 1999. *Agriocnemis pygmaea*, Hämäläinen *et al.*, *Notul. Odonatol.*, 5(3) : 28.
 2002. *Agriocnemis pygmaea pygmaea*, Mitra, *Mem. zool. Surv. India*, 19(1) : 82.

Diagnostic characters : Male : Labrum metallic blue; anteclypeus, bases of mandibles, genae and frons pale apple green; prothorax black on dorsum with apple green markings, the posterior lobe trilobate, the middle lobe produced backwards; thorax black on dorsum, marked with narrow ante humeral apple-green stripes; wings hyaline, pterostigma pale yellow in the fore wings, black in the hind wings; abdominal segments 1 to 7 with the ground colour pale greenish yellow marked with bronzed black and confluent at apex with narrow apical ring; segment 2 with a broad thistle shaped

mark dorsally and confluent at apex with a narrow apical ring; the segments 8 to 10 with dorsum clouded or not with black; anal appendages brick red; superiors longer than inferiors and lower angle produced as a short, blunt spine; inferiors with a small black upper spine. Female : More robust than male and exhibiting a number of polychromatic forms due to the age of the specimens.

Material examined : 1 ♂, Campbell Bay, 13.iii.1996, Coll. A. Daniel & H.K. Bhowmik; 5 ♂, Phulobaha, Great Nicobar, 26.iii.1966, Coll. A. Daniel & H.K. Bhowmik; 1 ♀, Phulabari, Great Nicobar, 17.iv.1966, Coll. A. Daniel & H.K. Bhowmik; 1 ♂, Horticulture Garden, HQ, Car Nicobar, 1970, Coll. B.K. Tikader; 2 ♂ 3 ♀, Kamorta Island, Nicobar, 22.iii.1970, Coll. B.K. Tikader; 6 ♂, 2 ♀, 2 km north of Guest House, Kamorta Island, Nicobar, 24-25.iii.1970, Coll. B.K. Tikader; 3 ♂, Near Rangat Bazaar, Rangat, Middle Andaman, 23.iv.1970, Coll. B.K. Tikader; 1 ♀, Rangat, M. Andaman, 30.i.1972, Coll. Saha; 2 ♂ 1 ♀, Wandoor, South Andaman, 06.xi.1972, Coll. P.T. Cherian; 1 ♂, Near Guest House, Chiria Tapu, Port Blair, South Andaman, 22.xi.1972, Coll. P.T. Cherian; 11 ♂ 7 ♀, Aberdeen Bay, Port Blair, 13.xii.1972, Coll. K.S. Pradhan; 11 ♂ 8 ♀, Cadlegunj, South Andaman, 16.xii.1972, Coll. K.S. Pradhan; 2 ♂ 2 ♀, Humphreygunj, South Andaman, 17.xii.1972, Coll. K.S. Pradhan; 2 ♂ 3 ♀, Hope Town, South Andaman, 18.xii.1972, Coll. K.S. Pradhan; 7 ♂ 2 ♀, Chiria Tapu FRH, Port Blair, South Andaman, 20.xii.1972, Coll. K.S. Pradhan; 19 ♂ 12 ♀, Bedanabad, South Andaman, 21.xii.1972, Coll. K.S. Pradhan; 1 ♂ 5 ♀, South Point, Port Blair, South Andaman, 02.i.1973, Coll. K.S. Pradhan; 7 ♂ 2 ♀, Yereta, 08.i.1973, Coll. K.S. Pradhan; 5 ♂, Aniket, South Andaman, 16.i.1973, Coll. K.S. Pradhan; 1 ♂, Manpur, South Andaman, 18.i.1973, Coll. K.S. Pradhan; 1 ♀, Bamboo flat, South Andaman, 02.iii.1975, Coll. G.K. Srivastava; 1 ♂ 2 ♀, Netaji Nagar, Little Andaman, 25.i.1988, Coll. A.N.T. Joseph; 2 ♀, Harmendar Bay, Little Andaman, 28.i.1988, Coll. A.N.T. Joseph; 2 ♂, Chiria Tapu, Port Blair, South Andaman, 31.i.1988,

Coll. A.N.T. Joseph; 2♂ 1♀, Burmanala, South Andaman, 19.i.2000, Coll. G.K. Srivastava; 1♂, Rangchang (Burmanala), South Andaman, 20.i.2000, Coll. G.K. Srivastava; 1♀, Sippighat, South Andaman, 22.i.2000, Coll. G.K. Srivastava; 3♂ 1♀, Sippighat, South Andaman, 27.i.2000, Coll. G.K. Srivastava; 1♂ 1♀, Wright Myo, Kalatang, South Andaman, 30.i.2000, Coll. G.K. Srivastava; 2♂ 1♀, Manglutan, South Andaman, 04.ii.2000, Coll. G.K. Srivastava.

Distribution : India : Andaman & Nicobar Islands (North Andaman, Middle Andaman, South Andaman, Little Andaman, Nicobar), Arunachal Pradesh, Assam, Bihar, Goa, Himachal Pradesh, Kerala, Manipur, Maharashtra, Mizoram, Nagaland, Nicobar Island, Orissa, Rajasthan, Sikkim, Southern India, Uttar Pradesh, Uttarakhand, West Bengal.

Elsewhere : Afghanistan, Africa, Australia, Bangladesh, Bharno, Cambodia, China, Hong Kong, Indonesia, Japan, Malaysia, Myanmar, Nepal, Pakistan, Palon, Philippines, Singapore, Sri Lanka, Taiwan, Thailand.

Remarks : This species is reported for the first time from Middle Andaman and Little Andaman.

Genus *Argiocnemis* Selys

5. *Argiocnemis rubescens rubeola* Selys

1877. *Argiocnemis rubescens* Selys, *Bull. Acad. Belg.*, (2) **43** : 136.
 1877. *Argiocnemis rubeola*, Selys, *Bull. Acad. Belg.*, (2) **43** : 137.
 1933. *Argiocnemis rubescens*, Fraser, *Fauna Brit. India*, *Odon.* **1** : 406-408.
 1991. *Argiocnemis rubescens rubeola*, Tsuda, *A distributional list of World Odonata*, p. 25.
 1993. *Argiocnemis rubescens*, Lahiri & Mitra, *J. Andaman Sci. Assoc.*, **9**(1 & 2) : 97.
 1995. *Argiocnemis rubescens rubeola*, Prasad and Varshney, *Oriental Insects*, **29** : 391.
 2000. *Argiocnemis rubescens rubeola*, Tsuda, *A distributional list of World Odonata*, p. 26.
 2002. *Argiocnemis rubescens rubeola*, Mitra, *Mem. zool. Surv. India*, **19**(1) : 79.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (South Andaman), Arunachal Pradesh,

Assam, Manipur, Meghalaya, Tamil Nadu, West Bengal.

Elsewhere : Bangladesh, Indonesia, Malaysia, Myanmar.

Remarks : This species is included here on the basis of literature review (Lahiri and Mitra, 1993).

Genus *Ceriagrion* Selys

6. *Ceriagrion cerinorubellum* (Brauer)

1866. *Agrion (Pyrrhosoma) cerinorubellum* Brauer, *Novara Exped. Zool. 1. Neur.*, p. 59.
 1876. *Ceriagrion cerinorubellum*, Selys, *Bull. Acad. Belg.*, (2) **42** : 526.
 1933. *Ceriagrion cerinorubellum*, Fraser, *Fauna Brit. India*, *Odon.* **1** : 326-328.
 1983. *Ceriagrion cerinorubellum*, Chhotani *et al.*, *Rec. zool. Surv. India*, **80** : 478.
 1995. *Ceriagrion cerinorubellum*, Prasad and Varshney, *Oriental Insects*, **29** : 388.
 1998. *Ceriagrion cerinorubellum*, Lahiri, *Fraseria* (N.S.), **5** : 57.
 2002. *Ceriagrion cerinorubellum*, Mitra, *Mem. zool. Surv. India*, **19**(1) : 67.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (North Andaman, South Andaman, Little Andaman), Bihar, Goa, Himachal Pradesh, Kerala, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Tripura, West Bengal.

Elsewhere : Bangladesh, Cambodia, Indonesia, Malaysia, Myanmar, Pakistan, Singapore, Sri Lanka, Thailand, Vietnam.

Remarks : This species is included here on the basis of literature review (Chhotani *et al.*, 1983; Lahiri, 1998; Ram *et al.*, 2000).

7. *Ceriagrion a. auranticum* Fraser

1923. *Cariagrion auranticum* Fraser, *J. Bombay nat. Hist. Soc.*, **29** : 748.
 1924. *Ceriagrion auranticum* Fraser, *Rec. Indian Mus.*, **26** : 492.
 1999. *Ceriagrion auranticum auranticum*, Hämäläinen *et al.*, *Notul. Odonatol.*, **5**(3) : 28.
 2000. *Ceriagrion auranticum auranticum*, Tsuda, *A distributional list of World Odonata*, p. 28.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (Nicobar), Karnataka, Kerala, Tamil Nadu.

Elsewhere : Indonesia, Malaysia, Myanmar, Thailand, Vietnam.

Remarks : Fraser (1933) synonymized this species with *C. olivaceum* Laidlaw but Hämäläinen *et al.* (1999) restated it. This species is included on the basis of the literature review (Hämäläinen *et al.*, 1999).

8. *Ceriagrion olivaceum* Laidlaw

1914. *Ceriagrion olivaceum* Laidlaw, *Rec. Indian Mus.*, **8** : 345-346.
 1933. *Ceriagrion olivaceum*, Fraser, *Fauna Brit. India Odonata*, **1** : 324-325.
 1983. *Ceriagrion olivaceum olivaceum*, Mitra, *Ent. Mon. Mag.*, **119** : 29.
 1995. *Ceriagrion olivaceum*, Prasad and Varshney, *Oriental Insects*, **29** : 389.
 2000. *Ceriagrion olivaceum*, Tsuda, *A distributional list of World Odonata*, p. 29.
 2002. *Ceriagrion olivaceum*, Mitra, *Mem. zool. Surv. India*, **19**(1) : 66.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (Nicobar), Andhra Pradesh, Assam, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Mizoram, Orissa, Tamil Nadu, Tripura, West Bengal.

Elsewhere : Bangladesh, Cambodia, Laos, Malaysia, Myanmar, Nepal, Thailand, Vietnam.

Remarks : This species is included here on the basis of literature review (Chhotani *et al.*, 1983).

Genus *Ischnura* Charpentier

9. *Ischnura senegalensis* (Rambur)

1842. *Agrion senegalensis* Rambur, *Ins. Nevrop.* p. 276.
 1933. *Ischnura senegalensis*, Fraser, *Fauna Brit. India, Odon.*, **1** : 348-351.
 1983. *Ischnura senegalensis*, Chhotani *et al.*, *Rec. zool. Surv. India*, **80** : 479.
 1995. *Ischnura senegalensis*, Prasad and Varshney, *Oriental Insects*, **29** : 390.
 1999. *Ischnura senegalensis*, Hämäläinen *et al.*, *Notul. Odonatol.*, **5**(3) : 28.
 2000. *Ischnura senegalensis*, Ram *et al.*, *Rec. zool. Surv. India*, **98**(3) : 33.

2002. *Ischnura senegalensis*, Mitra, *Mem. zool. Surv. India*, **19**(1) : 73.

Diagnostic characters : Male : Labrum pale blue, black along the base; frons pale azure blue; prothorax black, the anterior collar blue and sides pale green; thorax bronzed black on dorsum, marked with narrow citron yellow or pale green antehumeral stripes, sides pale green, pale yellow beneath; legs black, outer surfaces yellow; wings hyaline, pterostigma in forewing diamond shaped, black, the outer angle and costal border white, tinted with blue on the upper surface; in hindwing smaller than forewing, uniform pale brown, framed in black nervures; abdomen black, marked with yellow and blue. Female : Head with black markings similar to the male; labrum olivaceous suffused with black; prothorax black on dorsum, pale greenish laterally; thorax black on dorsum. Abdomen with the dorsum broadly black from segments 1 to 10, apical borders of 1, 8, 9 and 10 pale blue, the sides of all gray coloured.

Material examined : 1♂, Port Blair, South Andaman, 05.iii.1969, Coll. T.D. Soota; 1♂ 1♀, Infront of marine fisheries cold storage, Aberdeen, Port Blair, 28.ii.1970, Coll. B.K. Tikader; 1♂, 1 km NE of Guest House, Kamorta Island, Nicobar, 30.iii.1970, Coll. B.K. Tikader; 2♂, Near Guest House, Chiria Tapu, Port Blair, 22.x.1972, Coll. Not known; 2♂ 1♀ Aberdeen Bay, Port Blair, 13.xii.1972, Coll. K.S. Pradhan; 3♂ 4♀, Cadlegunj, South Andaman, 16.xii.1972, Coll. K.S. Pradhan; 1♂, Humphreygunj, South Andaman, 17.xii.1972, Coll. K.S. Pradhan; 3♂, Panchwati, North Andaman, 06.i.1973, Coll. K.S. Pradhan; 2♂ 1♀, Chiria Tapu, Port Blair, South Andaman, 19.iii.1975, G.K. Srivastava; 1♀, Port Blair, 11.i.1988, Coll. A.N.T. Joseph; 1♂ 1♀, Wandoor, South Andaman, 26.i.2000, Coll. G.K. Srivastava.

Distribution : India : Andaman & Nicobar Islands (North Andaman, South Andaman, Nicobar), Bihar, Chandigarh, Himachal Pradesh, Kerala, Manipur, Madhya Pradesh, Maharashtra, Mizoram, Nagaland, Orissa, Rajasthan, South India, West Bengal.

Elsewhere : Afghanistan, Throughout African continent, Bangladesh, Cambodia, China, Egypt, Hong Kong, Indonesia, Japan, Malaysia, Myanmar, Oman, Pakistan, Philippines, Sri Lanka, Taiwan, Thailand, and Vietnam.

Genus *Pseudagrion* Selys

10. *Pseudagrion andamanicum* Fraser

1924. *Pseudagrion andamanicum* Fraser, *Rec. Indian Mus.*, **26** : 411-412.
 1933. *Pseudagrion andamanicum*, Fraser, *Fauna Brit. India, Odon.*, **1** : 281-282.
 1983. *Pseudagrion andamanicum*, Chhotani *et al.*, *Rec. zool. Surv. India*, **80** : 477.
 1995. *Pseudagrion andamanicum*, Prasad and Varshney, *Oriental Insects*, **29** : 389.
 1999. *Pseudagrion andamanicum*, Hämäläinen *et al.*, *Notul. Odonatol.*, **5**(3) : 28.
 2000. *Pseudagrion andamanicum*, Tsuda, *A distributional list of World Odonata*, p. 43.
 2000. *Pseudagrion andamanicum*, Ram *et al.*, *Rec. zool. Surv. India*, **98**(3) : 31.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (South Andaman, Little Andaman, Nicobar).

Remarks : This species is endemic to India, included here on the basis of literature review (Chhotani *et al.*, 1983; Hämäläinen *et al.*, 1999; Ram *et al.*, 2000).

11. *Pseudagrion microcephalum* (Rambur)

1842. *Agrion microcephalum* Rambur, *Ins. Nèvro.*, p. 259.
 1876. *Pseudagrion microcephalum*, Selys, *Bull. Acad. Belg.*, **2**(42) : 504.
 1933. *Pseudagrion microcephalum*, Fraser, *Fauna Brit. India, Odon.*, **1** : 278-280.
 1954. *Pseudagrion microcephalum*, Lieftinck, *Treubia* **22** (suppl.) : 57.
 1995. *Pseudagrion microcephalum*, Prasad and Varshney, *Oriental Insects*, **29** : 389.
 2000. *Pseudagrion microcephalum*, Ram *et al.*, *Rec. zool. Surv. India*, **98**(3) : 31.
 2002. *Pseudagrion microcephalum*, Mitra, *Mem. zool. Surv. India*, **19**(1) : 61.

Diagnostic characters : Male : Labrum, face, frons and vertex blue, marked with black. Prothorax azure blue, the anterior lobe and middle

lobe with five parallel lines, all confluent in front and behind, black; thorax azure blue on dorsum and sides, marked with a broad medial stripe, and narrow humeral black stripes; wings hyaline, pterostigma gray, framed in black nervures. Abdomen azure blue, marked with black, segment 1 with a quadrate black basal spot; segment 2 with a goblet shaped dorsal mark, the stem of which is confluent with narrow apical black ring; segments 3 to 7 with broad dorsal black markings, confluent with apical narrow rings; segment 8 with a thick apical dorsal ring; segment 10 with a saddle shaped dorsal mark. Anal appendages; superiors black, as long as segment 10 and bifid at apex, and with 2 or 3 small spines on inner border. Female : Face and vertex olivaceous spread over with orange; prothorax bluish green with large mid dorsal and lateral spots; thorax bluish green, richly suffused with golden orange on dorsum, azure blue laterally with black markings; abdomen coloured similarly to the male, with black markings.

Material examined : 1♂, Mayabundar, North Andaman, 05.v.1971, Coll. B.K. Tikader, 1♀, South Andaman, 12.xii.1972, Coll. K.S. Pradhan; 2♀, Ross Islands, South Andaman, 24.i.2000, Coll. G.K. Srivastava.

Distribution : India : Andaman & Nicobar Islands (North Andaman, South Andaman, Nicobar), Assam, Goa, Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Orissa, Kerala, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Australia, Bangladesh, China, Indonesia, Japan, Malaysia, Myanmar, Nepal, Papua New Guinea, Philippines, Singapore, Solomon Is., Sri Lanka, Taiwan, Thailand, Vietnam.

Remarks : This species is reported for the first time from Andaman Islands (North Andaman and South Andaman).

12. *Pseudagrion pilidorsum* (Brauer)

1868. *Agrion pilidorsum* Brauer, *Verh. zool.-bot. Ges. Wein.*, **18** : 553-554.
 1876. *Pseudagrion pilidorsum*, Selys, *Bull. Acad. Belg.*, (2) **4** : 514.

1890. *Pseudagrion pilidorsum*, Kirby, *Syn. Cat. Neur. Odon.* p. 129.
 1930. *Pseudagrion pilidorsum*, Needham, *A Manual of the Dragonflies of China*, **XI** : 261.
 1954. *Pseudagrion pilidorsum pilidorsum*, Lieftinck, *Treubia*, **22** (suppl.) : 58.
 1999. *Pseudagrion pilidorsum*, Hämäläinen *et al.*, *Notul. Odonatol.*, **5**(3) : 28.
 2000. *Pseudagrion pilidorsum pilidorsum*, Tsuda, *A distributional list of World Odonata*, p. 46.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (Middle Andaman).

Elsewhere : China, Japan, Philippines, Taiwan.

Remarks : This species included here on the basis of literature review (Hämäläinen *et al.*, 1999).

13. *Pseudagrion pruinosum* (Burmeister)

1839. *Agrion pruinosum*, Burmeister, *Handb. Ent.*, **2** : 821.
 1876. *Pseudagrion pruinosum*, Selys, *Bull. Acad. Belg.*, (2) **41** : 517.
 1933. *Pseudagrion pruinosum*, Fraser, *Fauna Brit. India, Odon.*, **1** : 305-306.
 1995. *Pseudagrion pruinosum*, (ssp), Mitra, *Opusc. zool. flumin.*, **129** : 2.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (Nicobar).

Elsewhere : China, Indonesia, Laos, Malaysia, Myanmar, Thailand, Vietnam.

Remarks : This species is included here on the basis of literature review (Mitra, 1995).

14. *Pseudagrion williamsoni* Fraser

1922. *Pseudagrion williamsoni* Fraser, *Mem. Dept. Agric. India, (Ent.)*, **7**(7) : 46-47.
 1933. *Pseudagrion williamsoni*, Fraser, *Fauna Brit. India, Odon.*, **1** : 300-302.
 1995. *Pseudagrion williamsoni*, Mitra, *Opusc. zool. flumin.*, **129** : 3.
 2000. *Pseudagrion williamsoni*, Tsuda, *A distributional list of World Odonata*, p. 48.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (Nicobar).

Elsewhere : Myanmar, Cambodia, Thailand.

Remarks : This species is included here on the basis of literature review (Mitra, 1995).

Family PLATYCENIDIDAE

Genus *Copera* Kirby

15. *Copera marginipes* (Rambur)

1842. *Platycnemis marginipes* Rambur, *Ins. Névro.*, p. 240.
 1890. *Copera marginipes*, Kirby, *Syn. Cat. Neur. Odon.*, p. 129.
 1933. *Copera marginipes*, Fraser, *Fauna Brit. India, Odon.*, **1** : 192-197.
 1954. *Copera marginipes*, Lieftinck, *Treubia* **22** (suppl.) : 51-52.
 1983. *Copera marginipes*, Chhotani *et al.*, *Rec. zool. Surv. India*, **80** : 476.
 1995. *Copera marginipes*, Prasad and Varshney, *Oriental Insects*, **29** : 392.
 2002. *Copera marginipes*, Mitra, *Mem. zool. Surv. India*, **19**(1) : 57.

Diagnostic characters : Male : Labrum pale greenish yellow with black spot; prothorax bronzed black on dorsum; thorax bronzed black on dorsum, with pale greenish yellow humeral stripes; legs bright orange to dull reddish, the posterior two pairs of tibiae moderately broadly dilated; wings hyaline, pterostigma brown enclosed in a fine frame of yellow and thick black nervures. Abdomen bronzed black as far as the middle third of segment 8, from which to the end it is pale bluish white or pale creamy white. Anal appendages pale yellow to white; the length of superior anal appendages only one-fourth the length of inferiors. Female : Labrum with a median basal black point; prothorax and thorax violaceous brown on dorsum; legs brownish white or carneous, tibiae not dilated; abdomen warm brown on dorsum, deepening to broad apical annules on segments 3 to 7.

Material examined : 7♂ 5♀, Cowriaghat, 5♂, Katan, Baratang, 2♂ 1♀, Mannarghat, Wrightmyo, 3♂ 1♀, Rajatgar, 2♂, Shoal Bay, 20♂ 4♀, Wrafter's Creek, March-April, 1964, Coll. B.S. Lamba; 1♀, Sawai, Car Nicobar, 24.xii.1972, Coll. K.S. Pradhan; 4♂ 4♀, Ferrargunj, South Andaman,

17.i.1973, Coll. K.S. Pradhan; 1 ♀, Kalpong, North Andaman, HEPA, 01.iii.1997, Coll. K. Chandra; 1 ♂, Burmanala, 4 kms, South Andaman, 21.i.2000, Coll. G.K. Srivastava; 1 ♀, Wrightmyo, South Andaman, 29.i.2000, Coll. G.K. Srivastava.

Distribution : India : Andaman & Nicobar Islands (North Andaman, South Andaman, Little Andaman, Nicobar), Assam, Bihar, Chandigarh, Goa, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Rajasthan, Tamil Nadu, Uttarakhand, West Bengal.

Elsewhere : Bangladesh, China, Hong Kong, Malaysia, Nepal, Pakistan, Sri Lanka, Taiwan, Thailand, Vietnam.

Remarks : This species is reported for the first time from North Andaman and Nicobar.

16. *Copera vittata serapica* (Selys)

1863. *Psilocnemis vittata* Selys, *Bull. Acad. Belg.*, (2) **13** : 170.
 1886. *Psilocnemis vittata*, Selys, *Mem. Cour. Acad. Belg.*, **38** : 121-122.
 1890. *Copera vittata*, Kirby, *Syn. Cat. Neur. Odon.*, p. 129.
 1933. *Copera vittata*, Fraser, *Fauna Brit. India, Odon.*, **1** : 198.
 1991. *Copera vittata serapica*, Tsuda, *A distributional list of World Odonata*, p. 53.
 1995. *Copera vittata serapica*, Prasad and Varshney, *Oriental Insects*, **29** : 393.
 2002. *Copera vittata serapica*, Mitra, *Mem. zool. Surv., India*, **19**(1) : 58.

Diagnostic characters : Male : Labium pale reddish-brown; labrum bright greenish yellow; prothorax black; thorax bronzed black on dorsum. Legs reddish, the two posterior pairs of tibiae very slightly dilated. Wings hyaline; pterostigma squared outwardly, dark reddish-brown, paler at circumference, framed in black nervures, covering one cell, abdomen black on dorsum and sides as far as segment 10, which latter is pale blue. Anal appendages—superiors pale blue or creamy white. Female : Labrum bright yellow, with a small median basal black spot; prothorax blackish-brown, thorax pale brown; legs yellow. Wings hyaline, more or less palely enfumed; pterostigma subquadrate,

shorter blackish-brown framed in pale yellow and black nervures, covering one cell. Abdomen dark purplish-brown, changing to black on segments 7 to 10. Anal appendages brownish-white; vulvar scales dark brown, robust, extending to the end of abdomen.

Material examined : 1 ♂, Campbell Bay, Great Nicobar, 5.iii.1966, Coll. A. Daniel & H.K. Bhowmik; 1 ♂, Casurina Bay, Great Nicobar, 2.iv.1966, Coll. A. Daniel & H.K. Bhowmik; 1 ♀, Tutop, Car Nicobar, 14.03.1969, Coll. B.S. Lamba.

Distribution : India : Andaman & Nicobar Islands (Nicobar), Arunachal Pradesh, Assam, Himachal Pradesh, Meghalaya, Uttarakhand, West Bengal.

Elsewhere : Bangladesh, Myanmar.

Family PLATYSTICTIDAE

Genus *Drepanosticta* Laidlaw

17. *Drepanosticta annandalei* Fraser

1924. *Drepanosticta annandalei* Fraser, *Rec. Indian Mus.*, **26** : 412-413.
 1933. *Drepanosticta annandalei*, Fraser, *Fauna Brit. India, Odon.*, **1** : 148-150.
 1983. *Drepanosticta annandalei*, Chhotani *et al.*, *Rec. zool. Surv. India*, **80** : 474.
 1995. *Drepanosticta annandalei*, Prasad and Varshney, *Oriental Insects*, **29** : 393.
 2000. *Drepanosticta annandalei*, Tsuda, *A distributional list of World Odonata*, p. 7.

Diagnostic characters : Female : Prothorax brownish white; thorax blackish-brown on dorsum; legs creamy white. Wings hyaline; pterostigma blackish-brown; abdomen creamy white laterally and beneath with a large black spot on each side, abdominal segment 8 black for its apical half; segment 9 with the basal two-thirds white, apical third black. Anal appendages shortly conical, pointed, pale; vulvar scale robust, not extending beyond end of abdomen.

Material examined : 1 ♀, Hope Town, Poni Ghat, 27.viii.1928, Coll. R.B.S. Sewell; 1 ♀, Mannarghat, Wright Myo, Coll. B.S. Lamba.

Distribution : India : Andaman & Nicobar Islands (South Andaman).

Remarks : This species is endemic to India.

Family PROTONEURIDAE

Genus *Prodasineura* Cowley18. *Prodasineura verticalis andamanensis*
(Fraser)

1924. *Caconeura verticalis andamanensis* Fraser, *Rec. Indian Mus.*, **26** : 412, 503-504.
1933. *Caconeura verticalis andamanensis*, Fraser, *Fauna Brit. India, Odon.*, **1** : 218.
1983. *Prodasineura verticalis andamanensis*, Chhotani *et al.*, *Rec. zool. Surv. India*, **80** : 474.
1995. *Prodasineura verticalis andamanensis*, Prasad and Varshney, *Oriental Insects*, **29** : 394.
1998. *Prodasineura verticalis andamanensis*, Lahiri, *Fraseria* (N.S.), **5** : 57.
2000. *Prodasineura verticalis andamanensis*, Ram *et al.*, *Rec. zool. Surv. India*, **98**(3) : 35.
2000. *Prodasineura verticalis andamanensis*. Tsuda, *A distributional list of World Odonata*, p. 16.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (North Andaman, South Andaman, Little Andaman).

Remarks : This species is endemic to India, included here based on literature review (Chhotani *et al.*, 1983; Lahiri, 1998; Ram *et al.*, 2000).

Superfamily LESTOIDEA

Family LESTIDAE

Genus *Lestes* Leach19. *Lestes malabaricus* Fraser

1929. *Lestes malabarica* Fraser, *J. Bombay nat. Hist. Soc.*, **33** : 847-848.
1933. *Lestes malabarica* Fraser, *Fauna Brit. India Odon.*, **1** : 40-43.
1983. *Lestes malabarica*, Chhotani *et al.*, *Rec. zool. Surv. India*, **80** : 473.
1995. *Lestes malabarica*, Prasad and Varshney, *Oriental Insects*, **29** : 395.
2000. *Lestes malabaricus*, Tsuda, *A distributional list of World Odonata*, p. 62.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (South Andaman), Chandigarh, Kerala.

Elsewhere : Sri Lanka.

Remarks : This species is included here on the basis of literature review (Chhotani *et al.*, 1983).

20. *Lestes praemorsus praemorsus* (Selys)

1962. *Lestes praemorsa* Selys, *Bull. Acad. Belg.*, (2) **13** : 320.
1890. *Lestes praemorsus*, Kirby, *Syn. Cat. Neur. Odon.*, p. 162.
1924. *Lestes praemorsa andamanensis* Fraser, *Rec. Indian Mus.*, **26** : 410.
1933. *Lestes praemorsa praemorsa*, Fraser, *Fauna Brit. India, Odon.*, **1** : 30-33.
1995. *Lestes praemorsus praemorsus*, Prasad and Varshney, *Oriental Insects*, **29** : 395.
2002. *Lestes praemorsus praemorsus*, Mitra, *Mem. zool. Surv. India*, **19**(1) : 148.

Diagnostic characters : Male : Labium yellowish; labrum turquoise-blue; bases of mandibles glossy brown; prothorax black, with obscure yellow markings largely hidden by pruinescence; thorax black on dorsum, marked by a pair of dark green metallic antehumeral stripes, wings hyaline, pterostigma dark reddish-brown or blackish-brown, covering two cells; 10 to 12 postnodal nervures in all wings; abdomen pale blue, marked broadly on the dorsum with bronzed green or coppery metallic, changing to mat black on the hinder segments. Anal appendages—superiors as long as segment 9, pale yellow or ochreous, with the base and the apex black.

Material examined : 2♂, Delanipur, Port Blair, 22.v.1971, Coll. B.K. Tikader.

Distribution : India : Andaman & Nicobar Islands (South Andaman), Kerala, Uttarakhand, West Bengal.

Elsewhere : China, Hong-Kong, Indonesia, Philippines, Taiwan.

Superfamily CALOPTERYGOIDEA

Family CALOPTERYGIDAE

Genus *Vestalis* Selys21. *Vestalis gracilis gracilis* (Rambur)

1842. *Calopteryx gracilis* Rambur, *Ins. Nevrop.*, p. 224.
1853. *Vestalis gracilis* Selys, *Syn. Cal.*, p. 26.
1934. *Vestalis gracilis gracilis* Fraser, *Fauna Brit. India Odonata*, **2** : 126-128.

1995. *Vestalis gracilis gracilis*, Prasad and Varshney, *Oriental Insects*, **29** : 397.
 1998. *Vestalis gracilis gracilis*, Lahiri, *Fraseria* (N.S.), **5** : 57.
 2000. *Vestalis gracilis gracilis*, Ram et al., *Rec. zool. Surv. India*, **98**(3) : 36.
 2002. *Vestalis gracilis gracilis*, Mitra, *Mem. zool. Surv. India*, **19**(1) : 33.

Diagnostic characters : Male : Labium yellow; labrum bright yellow; prothorax metallic emerald green on dorsum; thorax brilliant metallic emerald-green, mid-dorsal carina finely black. Wings hyaline, iridescent with colour of mother-of-pearl or blue in some lights, especially the central parts of fore-wings, tinted variably with greenish-yellow. Abdomen metallic green or blue, usually peacock-blue in teneral specimens, emerald-green in mature specimen, with a narrow interrupted basal yellow ring on segments 2 to 6, and sides of 1, 2 and base of 3 yellowish. Segment 10 with a robust keel at its apical end which ends in an apical spine, and with a more or less robust spine on the apical border on each side. Anal appendages black. Female : Exactly similar to male in colour and markings, but abdomen usually more dully metallic and segments 8-10 yellow laterally. Anal appendages and ovipositor dark brown.

Material examined : 9♂ 7♀, Mannarghat, Wright Myo, South Andaman, 1♂ 3♀, Cowriaghat, 1♂, Shoal Bay, 1♂, Jaarva gusk, 1♀, Wrafter's Creek, 1♀, Mamyo Chhelder, 2♀, Humphreygunj, 5.iii.1964, -29.iv.1964, Coll. B.S. Lamba; 1♂ 1♀, Ferrargunj, 17.i.1973, Coll. G.S. Aurora.

Distribution : India : Andaman & Nicobar Islands (North Andaman, Middle Andaman, South Andaman, Little Andaman), Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Gujarat, Karnataka, Kerala, Madhya Pradesh, Manipur, Tamil Nadu, Tripura.

Elsewhere : Bangladesh, China, Cambodia, Malaysia, Myanmar, Nepal, Thailand, Vietnam.

Family CHLOROCYPHIDAE

Genus *Libellago* Selys

22. *Libellago aurantiaca* (Selys)

1859. *Micromerus aurantiacus* Selys, *Bull. Acad. Belg.*, (2) **7** : 448-449.
 1932. *Libellago aurantiaca* Lieftinck, *Konowia*, **11** : 2.
 1934. *Libellago aurantiaca*, Fraser, *Fauna Brit. India, Odon.*, **2** : 70-71.

1954. *Libellago aurantiaca*, Lieftinck, *Treubia*, **22** (suppl.) : 2.

1995. *Libellago aurantiaca*, Mitra, *Opusc. zool. flumin.*, **129** : 3.

2000. *Libellago aurantiaca*, Tsuda, *A distributional list of World Odonata*, p. 75.

Diagnostic characters : Male : Head black, spotted with citron-yellow; two pairs of squarish spots on frons, a postocular rounded spot on each side of occiput and a linear spot on its hinder border; prothorax black, with a small geminate spot on mid-dorsum of posterior lobe and a large spot on each side of mid-lobe yellow; thorax black, marked with citron-yellow. Wings hyaline, tinted with pale amber at bases; fore-wings tipped with black and without pterostigma. Abdomen bright orange. Anal appendages black.

Material examined : 1♂, Near Galathea, 39 km from N.S. Road, Great Nicobar Islands, 3.viii.1984, Coll. S.S. Saha.

Distribution : India : Andaman & Nicobar Islands (Nicobar).

Elsewhere : Indonesia, Malaysia, Myanmar, Philippines, Thailand, Vietnam.

23. *Libellago andamanensis* (Fraser)

1924. *Micromerus andamanensis* Fraser, *Rec. Indian Mus.*, **26** : 410.

1934. *Libellago andamanensis* Fraser, *Fauna Brit. India, Odon.*, **2** : 66.

1983. *Libellago lineata andamanensis*, Chhotani et al., *Rec. zool. Surv. India*, **80** : 471.

1995. *Libellago lineata andamanensis*, Prasad and Varshney, *Oriental Insects*, **29** : 398.

2000. *Libellago lineata andamensis*, Ram et al., *Rec. zool. Surv. India*, **98**(3) : 37.

2000. *Libellago lineata andamanensis*, Tsuda, *A distributional list of World Odonata*, p. 75.

2002. *Libellago andamanensis*, Hämäläinen, *Odonatologica*, **31**(4) : 351.

Diagnostic characters : Male : Labium and labrum black; prothorax black, with a large yellow spot on each side; thorax black, marked with golden greenish yellow. Wings hyaline, faintly amber-tinted at bases, fore-wings broadly tipped with black, metallic blue by reflected light; hind-wings enfurmed at apices; pterostigma black, only present in hindwings. Abdomen golden-yellow, marked with black in segments 1 to 7 and 8 to 10 entirely black. Female : Labrum marked with oval

greenish yellow spot on either side prothorax with yellowish markings; wings enfumed with pale brown which is more pronounced in distal half, pterostigma medially yellowish in hind-wing. Abdomen with greenish yellow markings.

Material examined : 6♂ 2♀, Mannarghat, Wright Myo, South Andaman, 1♂, Shoal Bay, 1♂, Wrafter's Creek, 1♀, Cowriaghat, 1♀, Burmanulla, 26.iii.1964.–18.iv.1964, Coll. B.S. Lamba; 1♀, Panighat, South Andaman, 3.i.1973, Coll. K.S. Pradhan.

Distribution : India : Andaman & Nicobar Islands (North Andaman, South Andaman, Little Andaman).

Remarks : This species is endemic to India. Hämäläinen (2002) restated *L. andamanensis* from *L. l. andamanensis*.

24. *Libellago blanda* (Selys)

1853. *Micromerus blandus* Selys, *Syn. Cal.*, p. 64.

1853. *Libellago blandus* Walker, *List. Neur. Ins. Brit. Mus.*, 4 : 652.

1928. *Micromerus lineatus blandus* Fraser, *J. Bombay nat. Hist. Soc.*, 33 : 687.

1934. *Libellago lineata blanda*, Fraser, *Fauna Brit. India, Odon.*, 2 : 65.

1995. *Libellago lineata blanda*, Prasad and Varshney, *Oriental Insects*, 29 : 398.

2000. *Libellago lineata blanda*, Tsuda, *A distributional list of World Odonata*, p. 75.

2002. *Libellago blanda*, Hämäläinen, *Odonatologica*, 31(4) : 347.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (Nicobar).

Remarks : This species is endemic to India. This species is included here on the basis of literature review (Fraser, 1934 Hämäläinen, 2002). Hämäläinen (2002) restated *L. blanda* from *L. l. blanda*.

25. *Libellago balus* Hämäläinen

2002. *Libellago balus*, Hämäläinen, *Odonatologica*, 31(4) : 349-351.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (Nicobar).

Remarks : This species is included here on the basis of literature review (Hämäläinen, 2002).

Hämäläinen, (2002) mentioned *L. aurantiaca* previously reported from Nicobar by Mitra (1995) as belonging to *L. balus*. Both the species have been included here until further collection.

Suborder ANISOPTERA

Superfamily AESHNOIDEA

Family GOMPHIDAE

Genus *Gomphidia* Selys

26. *Gomphidia ganeshi* Chhotani, Lahiri & Mitra

1983. *Gomphidia ganeshi* Chhotani *et al.*, *Rec. zool. Surv. India*, 80 : 480.

Diagnostic characters : Male : Head blackish brown, a faint yellowish spot on either side of labrum, anteclypeus yellow; two large yellow oval spots on frons; thorax blackish brown marked with yellow legs blackish brown, femora yellow on inner surface; wings hyaline, discoidal cells 3 celled in forewing, 2 celled in hindwing; abdomen blackish brown with yellow markings. Anal appendages blackish brown.

Material examined : Holotype ♂, Rajatgarh, 22.iii.1964, Coll. B.S. Lamba.

Distribution : India : Andaman & Nicobar Islands (South Andaman).

Remarks : This species is endemic to India.

27. *Gomphidia t-nigrum* Selys

1854. *Gomphidia T-nigrum* Selys, *Bull. Acad. Belg.*, 21(2) : 86.

1934. *Gomphidia T-nigrum*, Fraser, *Fauna Brit. India, Odonata*, 2 : 383-384.

1995. *Gomphidia T-nigrum*, Prasad and Varshney, *Oriental Insects*, 29 : 402.

2000. *Gomphidia T-nigrum*, Ram *et al.*, *Rec. zool. Surv. India*, 98(3) : 36.

2002. *Gomphidia T-nigrum*, Mitra, *Mem. zool. Surv. India*, 19(1) : 153.

Diagnostic characters : Female : Labrum all yellow; upper surface of frons marked with a black line in floor of sulcus, which forms a T by meeting a short medial transverse black line on front of frons; prothorax brownish-black; thorax black; wings hyaline, costa yellow as far as the pterostigma, which is yellow bordered with black. Abdomen black, broadly marked with yellow; segment 9 without any dorsal stripe; 10 entirely black. Anal appendages short, conical, brownish.

Material examined : 1♀, Krishna nala, Little Andaman, 12.iii.1991, Coll. S. Kumar; 1♀, Kalpong, HEPA, 27.ii.1997, Coll. K. Chandra.

Distribution : India : Andaman & Nicobar Islands (North Andaman, Little Andaman), Maharashtra, Uttar Pradesh.

Remarks : This species is endemic to India.

Family AESHNIDAE

Genus *Anaciaeschna* Selys

28. *Anaciaeschna jaspidea* (Burmeister)

1839. *Aeschna jaspidea* Burmeister, *Handb. Ent.*, **2** : 840.
 1890. *Anaciaeschna jaspidea* Kirby, *Syn. Cat. Neur. Odon.* : 86.
 1936. *Anaciaeschna jaspidea*, Fraser, *Fauna Brit. India, Odon.*, **3** : 152-154.
 1995. *Anaciaeschna jaspidea*, Prasad and Varshney, *Oriental Insects*, **29** : 403.
 1995. *Anaciaeschna jaspidea*, Mitra, *Opusc. zool. flumin.*, **129** : 3.
 2002. *Anaciaeschna jaspidea*, Mitra, *Mem. zool. Surv. India*, **19**(1) : 96.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (Nicobar), Assam, Karnataka, Kerala, Tamil Nadu, West Bengal.

Elsewhere : Australia, Hong-Kong, Indonesia, Japan, Nepal, Philippines, Taiwan, Thailand.

Remarks : This species is included here on the basis of literature review (Mitra, 1995).

Genus *Anax* Leach

29. *Anax guttatus* (Burmeister)

1839. *Aeschna guttata* Burmeister, *Handb. Ent.*, **2** : 840.
 1867. *Anax guttatus*, Hagen, *Verh. zool.-bot. Ges. Wien.*, **16** : 39.
 1936. *Anax guttatus*, Fraser, *Fauna Brit. India, Odonata*, **3** : 140-142.
 1993. *Anax guttatus*, Lahiri & Mitra, *J. Andaman Sci. Assoc.*, **9**(1 & 2) : 97.
 1995. *Anax guttatus*, Prasad and Varshney, *Oriental Insects*, **29** : 403.
 2002. *Anax guttatus*, Mitra, *Mem. zool. Surv. India*, **19**(1) : 94.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (South Andaman), Arunachal Pradesh,

Assam, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Punjab, Tamil Nadu, Uttarakhand, West Bengal.

Elsewhere : Afghanistan, Australia, China, Hong-Kong, Indonesia, Japan, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Taiwan, Thailand, Vietnam.

Remarks : This species is included here on the basis of literature review (Lahiri & Mitra, 1993).

Genus *Gynacantha* Rambur

30. *Gynacantha andamanae* Yeh and Veenakumari

2000. *Gynacantha andamanae* Yeh and Veenakumari, *I. J. Odonatology*, **3**(2) : 163-167.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (South Andaman).

Remarks : This species is endemic to India, included here on the basis of the literature review (Yeh and Veenakumari, 2000).

31. *Gynacantha bayadera* Selys

1891. *Gynacantha bayadera* Selys, *Ann. Mus. Civ. Genova*, **30** : 47.
 1936. *Gynacantha bayadera*, Fraser, *Fauna Brit. India, Odonata*, **3** : 103-104.
 1954. *Gynacantha bayadera*, Lieftinck, *Treubia*, **22** (suppl.) : 100.
 1995. *Gynacantha bayadera*, Prasad and Varshney, *Oriental Insects*, **29** : 404.
 2002. *Gynacantha bayadera*, Mitra, *Mem. zool. Surv. India*, **19**(1) : 93.

Diagnostic characters : Male : Labium and labrum bright ochreous; rest of face and frons olivaceous-green; prothorax yellowish-brown; thorax olivaceous green, unmarked; legs ochreous. Wings hyaline, palely tinted in some at bases, pterostigma bright ochreous between black nervures, covering 3 cells; discoidal cells with 6 cells in fore-wing, 5 in the hind; Abdomen a little tumid at base, markedly constricted at segment 3, of even width cylindrical from segment 5 to end of abdomen. Anal appendages bright ochreous, changing to reddish brown at extreme base and towards apices. Female : Exactly similar to the

male except sexual characters; anal appendages very narrow at base, outer border straight, inner border strongly convex, gradually expanding from base to apex, which is acuminate.

Material examined : 1 ♂, Champin Is., Nancowry, 10.ii.1993, Coll. D.V. Rao; 1 ♀, Middle Point, Port Blair, South Andaman, 9.vii.1993, Coll. K. Chandra.

Distribution : India : Andaman & Nicobar Islands (South Andaman, Nicobar), Chhattisgarh, Meghalaya, Nagaland, Sikkim, West Bengal.

Elsewhere : Bangladesh, China, Indonesia, Malaysia, Myanmar, Nepal, Philippines, Taiwan, Thailand.

32. *Gynacantha dravida* Lieftinck

1882. *Gynacantha hyalina* Selys, *An. Soc. Espan. Hist. Nat.*, **11** : 19.
 1891. *Gynacantha hyalina*, Karsch, *Ent. Nachr.*, **17** : 228.
 1898. *Gynacantha hyalina*, Kruger, *Stett. Ent. Zeit.*, **59** : 275.
 1936. *Gynacantha hyalina*, Fraser, *Fauna Brit. India Odon.*, **3** : 97-100.
 1960. *Gynacantha dravida* Lieftinck, *Mem. Soc. ent. ital.*, **38** : 252-253.
 1993. *Gynacantha hyalina*, Lahiri & Mitra, *J. Andaman Sci. Assoc.*, **9** (1 & 2) : 97.
 1995. *Gynacantha dravida*, Prasad and Varshney, *Oriental Insects*, **29** : 404.
 1995. *Gynacantha dravida*, Mitra, *Opusc. zool. flumin.*, **129** : 3.
 2002. *Gynacantha dravida*, Mitra, *Mem. zool. Surv. India*, **19**(1) : 92.

Diagnostic characters : Female : Labium pale fawn; labrum ochreous-brown; rest of face and frons olivaceous-brown with a broad black T-shaped mark on the upper surface; prothorax and thorax violaceous brown, with upper dorsum and an obscure humeral stripe dark reddish-brown; legs reddish-brown; wings palely tinted throughout with reddish-brown, especially towards the apices; pterostigma palest ochreous with reddish-brown nervures, covering 4 cells. Abdomen with segment 3 markedly constricted, palest brown, marked with blackish-brown. Anal appendages reddish or blackish brown.

Material examined : 1 ♀, South Bay, 5.xii.1984, Coll. B. Mitra.

Distribution : Andaman & Nicobar Islands (South Andaman, Little Andaman, Nicobar), Assam, Bihar, Karnataka, Kerala, Meghalaya, Tamil Nadu, West Bengal.

Elsewhere : Indonesia.

33. *Gynacantha subinterrupta* Rambur

1842. *Gynacantha subinterrupta* Rambur, *Ins. Neurop.*, : 212.
 1936. *Gynacantha subinterrupta*, Fraser, *Fauna Brit. India Odon.*, **3** : 100-101.
 1995. *Gynacantha subinterrupta*, Mitra, *Opusc. zool. flumin.*, **129** : 3.
 2000. *Gynacantha subinterrupta*, Tsuda, *A distributional list of World Odonata*, p. 125.
 2002. *Gynacantha subinterrupta*, Mitra, *Mem. zool. Surv. India*, **19**(1) : 93.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (Nicobar), Mizoram.

Elsewhere : China, Hong-Kong, Indonesia, Cambodia, Malaysia, Myanmar, Philippines, Thailand, Vietnam.

Remarks : This species is included here on the basis of literature review (Mitra, 1995).

Genus *Oligoaeschna* Selys

34. *Oligoaeschna andamani* Chhotani, Lahiri & Mitra

1983. *Oligoaeschna andamani* Chhotani et al., *Rec. zool. Surv. India*, **80** : 482.

Diagnostic characters : Female : Labium, face and head ventrally blackish brown, frons, vertex and occiput black, marked with greenish yellow; thorax reddish brown changing to black on dorsum marked with a pair of greenish yellow lateral stripes on either side; wings palely tinted with brown from base to a line running obliquely inwards from inner end of pterostigma and meeting in inner wing border at a point where Cu_2 terminates; pterostigma short narrow, dark brown and braced. Abdomen reddish brown, darker on dorsum, and gradually changing to black apically being mostly black on segments 7-10 and marked with yellow. Anal appendages dark brown broken shortly after base.

Material examined : Holotype ♀, Cowriaghat, 11.iv.1964, Coll. B.S. Lamba.

Distribution : India : Andaman & Nicobar Islands (South Andaman).

Remarks : This species is endemic to India.

Superfamily LIBELLULOIDEA

Family CORDULIIDAE

35. *Epophthalmia vittata vittata* Burmeister

1839. *Epophthalmia vittata* Burmeister, *Handb. Ent.*, 2 : 845.

1936. *Epophthalmia vittata vittata*, Fraser, *Fauna Brit. India, Odonata*, 3 : 194-196.

1954. *Epophthalmia vittata vittata*, Lieftinck, *Treubia*, 22 (suppl.) : 114.

1995. *Epophthalmia vittata vittata*, Prasad and Varshney, *Oriental Insects*, 29 : 407.

2002. *Epophthalmia vittata vittata*, Mitra, *Mem. zool. Surv. India*, 19(1) : 99.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (South Andaman), Andhra Pradesh, Bihar, Kerala, Maharashtra, Tamil Nadu, Uttarakhand, West Bengal.

Elsewhere : Tibet.

Remarks : This species is included here on the basis of literature review (Selys, 1871; Chhotani *et al.*, 1983; Ram *et al.*, 2000). After reported by Selys (1853), the species is not collected or examined by any worker till date.

Family LIBELLULIDAE

Genus *Agrionoptera* Brauer

36. *Agrionoptera insignis insignis* (Rambur)

1842. *Libellula insignis* Rambur, *Hist. nat. Ins. Nevropteres* : 123.

1865. *Agrionoptera nicobarica* Brauer, *Verh. zool. bit. ges. wien.*, 15 : 978.

1936. *Agrionoptera insignis insignis*, Fraser, *Fauna Brit. India, Odonata*, 3 : 274-276.

1995. *Agrionoptera insignis*, Prasad & Varshney, *Oriental insects*, 29 : 408.

2000. *Agrionoptera insignis insignis*, Tsuda, *A distributional list of World Odonata*, p. 147.

Diagnostic characters : Male : Frons creamy yellow at sides, brilliant metallic blue above and

over greater part of anterior surface; prothorax black, anterior lobe and borders of posterior lobe yellow; thorax bronzed or metallic black, marked with greenish yellow; legs black; wings hyaline, with amber yellow streaks in the subcostal and cubital spaces not extending as far as the first antenodal nervure. Abdomen black marked with blood red. Anal appendages black. Female : Larger and more robust than the male, with similar markings, but the red of abdomen replaced by reddish-ochre and the black borders of segments broader; segment 3 with an ochreous spot included in the black border near the base and an apical black ring as on the other segments; wings enfumed, venation similar to the male but the anal loop often longer and made up of 9 cells; pterostigma longer and almost black. Vulvur scales very small, two minute triangular scales separated by a broad cleft.

Material examined : 1♂, Campbell Bay, Great Nicobar, 3.iii.1966, Coll. A. Daniel & H.K. Bhowmik; 1♀, Casurina Bay, Great Nicobar, 2.iv.1966, Coll. A. Daniel & H.K. Bhowmik; 1♂, Champa Bay, Great Nicobar, 31.xii.1975, Coll. P.K. Maiti.

Distribution : India : Andaman & Nicobar Islands (Nicobar), Assam, West Bengal.

Elsewhere : Indonesia, Japan, Malaysia, Myanmar, Thailand.

Genus *Acisoma* Rambur

37. *Acisoma panorpoides panorpoides* Rambur

1842. *Acisoma panorpoides* Rambur, *Ins. Neurop.*, : 28.

1911. *Acisoma panorpoides panorpoides* Ris, *Cat. Coll. Selys Lib.*, 12 : 456.

1936. *Acisoma panorpoides panorpoides*, Fraser, *Fauna Brit. India, Odonata*, 3 : 330-331.

1995. *Acisoma panorpoides panorpoides*, Prasad and Varshney, *Oriental Insects*, 29 : 410.

1995. *Acisoma panorpoides panorpoides*, Mitra, *Opusc. zool. flumin.*, 129 : 3.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (Nicobar), Andhra Pradesh, Arunachal

Pradesh, Assam, Bihar, Chandigarh, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, China, Indonesia, Japan, Malayan Archipelago, Myanmar, Nepal, Philippines, Singapore, Sri Lanka, Taiwan, Thailand.

Remarks : This species is included here on the basis of literature review (Mitra, 1995).

Genus *Brachydiplax* Brauer

38. *Brachydiplax chalybea chalybea* Brauer

1868. *Brachydiplax chalybea* Brauer, *Verh. zool.-bot. Ges. Wien*, **18** : 173, 725.
 1936. *Brachydiplax chalybea*, Fraser, *Fauna Brit. India Odon.*, **3** : 328-329.
 1954. *Brachydiplax chalybea chalybea* Lieftinck, *Treubia*, **22** (suppl.) : 143.
 1995. *Brachydiplax chalybea chalybea*, Prasad and Varshney, *Oriental Insects*, **29** : 408.
 1999. *Brachydiplax chalybea chalybea*, Hämäläinen *et al.*, *Notul. Odonatol.*, **5**(3) : 28.
 2002. *Brachydiplax chalybea chalybea*, Mitra, *Mem. zool. Surv. India*, **19**(1) : 119.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (North Andaman, South Andaman, Nicobar), Assam, Kerala, Orissa, West Bengal.

Elsewhere : Indonesia, Malaysia, Myanmar, Philippines, Thailand, Vietnam.

Remarks : This species is included here on the basis of literature review (Hämäläinen *et al.*, 1999).

Genus *Brachythemis* Brauer

39. *Brachythemis contaminata* (Fabricius)

1793. *Libellula contaminata* Fabricius, *Ent. Syst.*, **2** : 382.
 1868. *Brachythemis contaminata*, Brauer, *Verh. zool.-bot. Ges. Wien*, **18** : 736.
 1936. *Brachythemis contaminata*, Fraser, *Fauna Brit. India, Odonata*, **3** : 365-366.

1954. *Brachythemis contaminata*, Lieftinck, *Treubia*, **22** (suppl.) : 153.

1993. *Brachythemis contaminata*, Lahiri & Mitra, *J. Andaman Sci. Assoc.*, **9**(1 & 2) : 98.

1995. *Brachythemis contaminata*, Prasad and Varshney, *Oriental Insects*, **29** : 410.

2002. *Brachythemis contaminata*, Mitra, *Mem. zool. Surv. India*, **19**(1) : 126.

2007. *Brachythemis contaminata*, Emiliyamma *et al.*, *Rec. zool. Surv. India, Occ. Paper No.* **269** : 157.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (North Andaman, Nicobar), Andhra Pradesh, Assam, Bihar, Goa, Gujarat, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Manipur, Meghalaya, Madhya Pradesh, Nicobar Island, Orissa, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, China, Hongkong, Indonesia, Japan, Laos, Malaysia, Myanmar, Nepal, Philippines, Singapore, Sri Lanka, Taiwan, Thailand, Vietnam.

Remarks : This species is included here on the basis of literature review (Lahiri & Mitra, 1993; Hämäläinen *et al.*, 1999).

Genus *Camacinia* Kirby

40. *Camacinia gigantea* (Brauer)

1867. *Neurothemis gigantea* Brauer, *Verh. zool.-bot. Ges. Wien*, **17** : 8.
 1889. *Camacinia gigantea* Kirby, *Trans. Zool. Soc. Lond.*, **12** : 267.
 1936. *Camacinia gigantea*, Fraser, *Fauna Brit. India, Odonata*, **3** : 417-419.
 1995. *Camacinia gigantea*, Prasad and Varshney, *Oriental Insects*, **29** : 412.
 1995. *Camacinia gigantea*, Mitra, *Opusc. zool. flumin.*, **129** : 4.
 2000. *Camacinia gigantea*, Tsuda, *A distributional list of World Odonata*, p. 150.

Diagnostic characters : Male : Labium bright chrome-yellow; labrum and rest of head dark reddish-brown; prothorax and thorax dark ochreous or ferruginous; legs reddish-brown. Wings dark burnt-brown from base to beyond node, this colour extending narrowly along costal border thereafter

in the two first spaces to as far as apex and outer end of posterior border of wing; Wing distal to opaque area quite colourless; pterostigma dark reddish-brown between black nervures; base of wing very broad and filled with numerous rows of very small cells; the opaque area with a steely bronzed reflex.

Material examined : 1 ♂, Near Galathea, 39 km from N.S. Road, Great Nicobar Islands, 3.viii.1984, Coll. S.S. Saha.

Distribution : India : Andaman & Nicobar Islands (Nicobar), Assam, Nagaland, West Bengal.

Elsewhere : Bangladesh, Indonesia, Cambodia, Malaysia, Myanmar, Philippines, Thailand, Vietnam.

Genus *Cratilla* Kirby

41. *Cratilla lineata calverti* (Förster)

1878. *Orthemis lineata* Brauer, *Sitzungsber. Akad. Wien.*, **77** : 9.
 1903. *Cratilla calverti*, Förster, *Ann. Mus. Hungar.*, p. 537.
 1936. *Cratilla lineata*, Fraser, *Fauna Brit. India, Odonata*, **3** : 286-288.
 1995. *Cratilla lineata calverti*, Prasad and Varshney, *Oriental Insects*, **29** : 408.
 2000. *Cratilla lineata calverti*, Ram *et al.*, *Rec. zool. Surv. India*, **98**(3) : 45.
 2000. *Cratilla lineata calverti*, Tsuda, *A distributional list of World Odonata*, p. 151.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (Middle Andaman, South Andaman).

Elsewhere : Myanmar, Sri Lanka, Thailand.

Remarks : This species is included here on the basis of literature review (Hämäläinen *et al.*, 1999; Ram *et al.*, 2000).

42. *Cratilla metallica* (Brauer)

1878. *Orthemis metallica* Brauer, *Sitzungsber. Akad. Wien.*, **77** : 7.
 1900. *Cratilla metallica* Kirby, *Ann. Mag. Nat. Hist.*, (7) **5** : 542.
 1936. *Cratilla metallica*, Fraser, *Fauna Brit. India, Odonata*, **3** : 285-286.
 2000. *Cratilla metallica*, Ram *et al.*, *Rec. zool. Surv. India*, **98**(3) : 45.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (North Andaman).

Elsewhere : Bangladesh, Cambodia, Indonesia, Malaysia, Myanmar, Nepal, Philippines, Thailand.

Remarks : This species is included here on the basis of literature review (Ram *et al.*, 2000). They reported *Cratilla metallica* (Brauer) as first record from India, but it was previously recorded by Fraser (1936) from Hasimara, Duars, Bengal, which is distinctly within Indian Territory.

Genus *Crocothemis* Brauer

43. *Crocothemis servilia servilia* (Drury)

1770. *Libellula servilia* Drury, III. *Exotic Ins.*, **1** : 112-113.
 1868. *Crocothemis servilia*, Brauer, *Verh. zool.-bot. Ges. Wien.*, **18** : 737.
 1936. *Crocothemis servilia servilia*, Fraser, *Fauna Brit. India, Odonata*, **3** : 345-347.
 1983. *Crocothemis servilia servilia*, Chhotani *et al.*, *Rec. zool. Surv. India*, **80** : 488.
 1995. *Crocothemis servilia servilia*, Prasad and Varshney, *Oriental Insects*, **29** : 410.
 2000. *Crocothemis servilia servilia*, Ram *et al.*, *Rec. zool. Surv. India*, **98**(3) : 49.
 2002. *Crocothemis servilia servilia*, Mitra, *Mem. zool. Surv. India*, **19**(1) : 124.

Diagnostic characters : Male : Most parts of head, often dorsum of thorax, abdomen and anal appendages blood-red. Middle lobe of prothorax ridged transversely, beset with stiff red hairs. Wings hyaline, bases of all marked with rich amber-yellow, apices of wings lined narrowly with pale brown, pterostigma dark ochreous between blackish nervures. Female : Labium pale yellow; Labrum, frons, face and vesicle olivaceous yellow; prothorax and thorax olivaceous brown, legs ochreous. Wings similar to male but basal markings paler in tint and the neuration in this part bright yellow instead of bright orange.

Material examined : 1 ♂, Southside of the road from Guest House to MES Camp, Hadoo, Port Blair, March-May, 1971, Coll. B.K. Tikader; 1 ♀, Horticulture-cum-Zoological Garden, Hadoo, Port

Blair, South Andaman, 19.iv.1971, Coll. B.K. Tikader; 1 ♀, Delanipur, Port Blair, 22.v.1971, Coll. B.K. Tikader; 1 ♀, Chatham, Port Blair, 31.x.1972, Coll. P.T. Cherian; 1 ♀, Lapthoy, N. Nicobar, 11.xii.1972, Coll. G.S. Aurora; 1 ♂, Janglighthat, Port Blair, 14.xii.1972, Coll. K.S. Pradhan; 1 ♂, Panchwati, Middle Andaman, 6.i.1973, Coll. K.S. Pradhan; 1 ♂, Monglutan, 4 kms, S.W. of Port Blair, 18.xii.1975, Coll. P.K. Maiti; 1 ♀, Wright Myo, Kalatang, South Andaman, 30.i.2000, Coll. G.K. Srivastava.

Distribution : India : Andaman & Nicobar Islands (Middle Andaman, South Andaman and Little Andaman), Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Meghalaya, Nagaland, Orissa, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere : Africa, America, Australia, Bangladesh, China, Iraq, Indonesia, Japan, Korea, Malaysia, Myanmar, Nepal, Philippines, Singapore, Sri Lanka, Taiwan, Thailand, Turkey.

Genus *Diplacodes* Kirby

44. *Diplacodes trivialis* (Rambur)

1842. *Libellula trivialis* Rambur, *Ins. Neurop.*, : 115.
 1891. *Diplacodes trivialis*, Karsch, *Ent. Nachr.*, **17** : 246.
 1936. *Diplacodes trivialis*, Fraser, *Fauna Brit. India, Odonata*, **3** : 336-338.
 1983. *Diplacodes trivialis*, Chhotani et al., *Rec. zool. Surv. India*, **80** : 488-489.
 1995. *Diplacodes trivialis*, Prasad and Varshney, *Oriental Insects*, **29** : 410.
 1995. *Diplacodes trivialis*, Mitra, *Opusc. zool. Flumin.*, **129** : 4.
 2000. *Diplacodes trivialis*, Ram et. al., *Rec. zool. Surv. India*, **98**(3) : 49.
 2002. *Diplacodes trivialis*, Mitra, *Mem. zool. Surv. India*, **19**(1) : 121.

Diagnostic characters : Male : Labium, labrum and bases of mandible creamy yellow; face, frons and vesicle palest azure blue; prothorax pale brown to black, a mid dorsal stripe on dorsum; thorax greenish yellow/olivaceous, sutures finely black;

whole thorax pruinose in old adults. Wings hyaline, apices clear; abdomen segments 1 to 3 greenish yellow, sutures finely black, prominent middorsal and subdorsal stripes, segments 4 to 7 with subdorsal yellow stripes; 8 to 10 black, marking obscured due to pruinescence in adults. Anal appendages bright yellow. Female : Resembles subadult male in colour; abdominal markings broader and continued on to segments 8 to 10, the latter entirely yellow as well as anal appendages. Vulvar scale broad but short 'scoop' shaped.

Material examined : 1 ♂ 1 ♀, 1 km south of Circuit House, Malacca village, Car Nicobar, 4.iii.1970, Coll. B.K. Tikader; 2 ♀, Horticulture Garden, HQ, Car Nicobar, 8.iii.1970, Coll. B.K. Tikader; 2 ♂ 1 ♀, Horticulture Garden HQ, Car Nicobar, 11.iii.1970, Coll. B.K. Tikader; 1 ♂ 1 ♀, Kamorta Island, Nicobar, 17.iii.1970, Coll. B.K. Tikader; 4 ♂ 1 ♀ Kamorta Island, Nicobar, 19.iii.1970, Coll. B.K. Tikader; 1 ♂ 1 ♀, Kamorta Island, Nicobar, 21.iii.1970, Coll. B.K. Tikader; 1 ♂ 1 ♀, Kamorta Island, Nicobar, 22.iii.1970, Coll. B.K. Tikader; 1 ♂, Guest House, Kamorta Island, Nicobar, 23.iii.1970, Coll. B.K. Tikader; 1 ♂, 2 km northeast of Guest House, Kamorta Island, Nicobar, 24.iii.1970, Coll. B.K. Tikader; 1 ♀, Horticulture Garden, Kamorta Island, Car Nicobar, 25.iii.1970, Coll. B.K. Tikader; 2 ♂, In front of Marine Fisheries cold storage, Aberdeen, Port Blair, 28.iii.1970, Coll. B.K. Tikader; 1 ♀, 1 km northeast of Guest House, Kamorta Island, Nicobar, 30.iii.1970, Coll. B.K. Tikader; 1 ♀, Camp No. 1, Havelock Island, 17.iv.1970, Coll. B.K. Tikader; 1 ♂, Southside of the road from Guest House of MES Camp, Hadoo, Port Blair, 18.iv.1970, Coll. B.K. Tikader; 1 ♂, Camp No. 1, Tugapur, Mayabunder, North Andamans, 11.v.1971, Coll. B.K. Tikader; 1 ♂, Pahelgaon, Tugapur, Mayabunder, North Andamans, 12.v.1971, Coll. B.K. Tikader; 1 ♂, 1 ♂, 1 ♂, Forest adjoining to Rest House, Tugapur, Mayabunder, North Andamans, 13.v.1971, Coll. B.K. Tikader; 1 ♂, Near Chiria Tapu village, South Andaman, 29.v.1971, Coll. B.K.

Tikader; 1 ♀, Wimberlygunj, South Andaman, 1.xi.1972, Coll. P.T. Cherian; 2 ♂, Kamorta : Chola, 4.xii.1972, Coll. P.T. Cherian; 3 ♂ 2 ♀, Kassor, near Govt. Hospital, 11.xii.1972, Coll. P.T. Cherian; 2 ♂ 1 ♀, Aberdeen Bay, Port Blair, 13.xii.1972, Coll. K.S. Pradhan; 1 ♀, Marine Hill, Port Blair, South Andaman, 15.xii.1972, Coll. K.S. Pradhan; 1 ♀, South Andaman, near Cadlegunj paddy field, 16.xii.1972, Coll. K.S. Pradhan; 2 ♂, Humphreygunj, South Andaman, 17.xii.1972, Coll. K.S. Pradhan; 1 ♂ 1 ♀, Chiria Tapu, South Andaman, 20.xii.1972, Coll. K.S. Pradhan; 1 ♂, Bedanabad, South Andaman, 21.xii.1972, Coll. K.S. Pradhan; 1 ♂, Sawai, Car Nicobar, 24.xii.1972, Coll. K.S. Pradhan; 1 ♀, Kemus, Car Nicobar, 27.xii.1972, Coll. K.S. Pradhan; 4 ♂ 4 ♀, Arong, Car Nicobar, 27.xii.1972, Coll. K.S. Pradhan; 1 ♂ 2 ♀, Arong, 27.xii.1972, Coll. K.S. Pradhan; 2 ♂ 1 ♀, Biglapathi, Car Nicobar, 28.xii.1972, Coll. K.S. Pradhan; 1 ♀, Panighat, South Andaman, 3.i.1973, Coll. K.S. Pradhan; 2 ♂, Yereta, 8.i.1973, Coll. K.S. Pradhan; 2 ♀, Aniket, 16.i.1973, Coll. K.S. Pradhan; 1 ♀, Ferrargunj, South Andaman, 17.i.1973, Coll. K.S. Pradhan; 1 ♀, Manpur, South Andaman, 18.i.1973, Coll. K.S. Pradhan; 1 ♂, Ramnagar, Magarnalla, 14.i.1975, Coll. S.K. Battacharya; 1 ♂, Corbyns Cove, South Andaman, Port Blair, 1.iii.1975, G.K. Srivastava; 1 ♂, Chiria Tapu, South Andaman, 19.iii.1975, G.K. Srivastava; 1 ♂, Monglutan, 20 kms, S.W. of Port Blair, 18.xii.1975, P.K. Maiti; 1 ♂, Chotta Inaka, Kamorta, 14.xi.1978, B. Nandi; 1 ♂, Jungle Ghat, Port Blair, 18.xii.1978, B. Nandi; 1 ♀, Chouldari, 12.i.1988, Coll. A.N.T. Joseph; 1 ♀, Corbyns Cove Beach, South Andaman, Port Blair, 13.i.1988, Coll. A.N.T. Joseph; 2 ♂ 1 ♀, Chiria Tapu, Port Blair, South Andaman, 15.i.1988, Coll. A.N.T. Joseph; 3 ♀ 1 ♂, Netaji Nagar, Little Andaman, 17.i.1988, Coll. A.N.T. Joseph; 3 ♂, Ramkrishnapur, Little Andaman, 19.i.1988, Coll. A.N.T. Joseph; 1 ♀, 4 km from Hut Bay, Little Andaman, 21.i.1988, Coll. A.N.T. Joseph; 1 ♀, 3 km from Hut Bay, Little Andaman, 22.i.1988, Coll. A.N.T. Joseph; 2 ♂, Hut Bay Govt. School, Little Andaman, 23.i.1988, Coll.

A.N.T. Joseph; 1 ♂, South Point, Little Andaman, 24.i.1988, Coll. A.N.T. Joseph; 1 ♂, Netaji Nagar, Little Andaman, 25.i.1988, Coll. A.N.T. Joseph; 1 ♀, Vivekananda Puram, Little Andaman, 29.i.1988, Coll. A.N.T. Joseph; 3 ♀, 1 ♂, New Wandoor, 31.i.1988, Coll. A.N.T. Joseph; 2 ♀, Rut Land Bay, 3.ii.1988, Coll. A.N.T. Joseph; 1 ♀, Jolly Buoy Is., South Andaman, 22.i.2000, Coll. G.K. Srivastava; 1 ♀, Wright Myo, Kalatang, South Andaman, 30.i.2000, Coll. G.K. Srivastava; 1 ♂, Chiria Tapu, South Andaman, 19.ii.2000, Coll. R.N. Tiwari.

Distribution : India : Andaman & Nicobar Islands (North Andaman, Middle Andaman South Andaman, Little Andaman and Nicobar), Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Meghalaya, Nagaland, Orissa, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere : Australia, Bangladesh, China, Indonesia, Iraq, Japan, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Taiwan, Thailand.

Genus *Indothemis* Ris

45. *Indothemis carnatica* (Fabricius)

1998. *Libellula carnatica* Fabricius, *Ent. Syst. Halfnaie* (suppl.), 8 : 284.
 1842. *Libellula caesia* Rambur, *Ins. Neurop.*, : 95.
 1936. *Indothemis caesia*, Fraser, *Fauna Brit. India, Odonata*, 3 : 340-341.
 1985. *Indothemis carnatica*. Davies and Tobin, *The Dragonflies of the World*, 2 : 116.
 2000. *Indothemis carnatica*. Ram et al., *Rec. zool. Surv. India*, 98 (3) : 50.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands, (North Andaman), Kerala, Tamil Nadu, West Bengal.

Elsewhere : Sri Lanka, Thailand.

Remarks : This species is included here on the basis of literature review (Ram et al., 2000).

Genus *Lathrecista* Kirby46. *Lathrecista asiatica asiatica* (Fabricius)

1998. *Libellula asiatica* Fabricius, *Ent. Syst. Suppl.*, : 283.
 1890. *Lathrecista asiatica*, Karsch, *Berlin Ent. Zeit.*, **33** : 369.
 1909. *Lathrecista asiatica asiatica*, Ris, *Cat. Coll. Selys*, Fasc. **9** : 129-132.
 1936. *Lathrecista asiatica asiatica*, Fraser, *Fauna Brit. India, Odonata*, **3** : 281-284.
 1983. *Lathrecista asiatica asiatica*, Chhotani *et al.*, *Rec. zool. Surv. India*, **80** : 486.
 1995. *Lathrecista asiatica asiatica*, Prasad and Varshney, *Oriental Insects*, **29** : 410.
 2000. *Lathrecista asiatica asiatica*, Ram *et al.*, *Rec. zool. Surv. India*, **98** (3) : 45.

Diagnostic characters : Male : Prothorax blackish-brown, thorax dark coppery brown on dorsum, bright yellow laterally; legs dark reddish brown to black; wings hyaline with apices usually enfumed, sometimes dark reddish brown to proximal end of pterostigma. Abdomen segment 1, and 2 with a broad lateral stripe and a fine middorsal, all sutures on these two segments finely black; segment 3-8 bright crimson red with sutures black; segments 9 and 10 black. Female : Resembles the male closely but colour of abdomen is rich olivaceous-brown; apices of wings tipped with brown to distal end of pterostigma only. Vulvar scale and ninth ventral plate projecting beyond end of abdomen and coated with golden hairs.

Material examined : 2♂, South side of Macpherson's strait, 20.08.1928; 1d, 1 km. east of Rangat Jetty, Middle Andaman, 1970, Coll. B.K. Tikader; 1♂, Kamorta Island, Nicobar, 21.iii.1970, Coll. B.K. Tikader; 1♂ 1♀, Durgapur, 2 km south of Aerial Bay Jetty, Diglipur, North Andamans, 23-26.iv.1971, Coll. B.K. Tikader; 2♂ 1♀, Pahelgaon, 2 km south of Rest House, Tugapur, Mayabunder, North Andaman, 12.v.1971, Coll. B.K. Tikader; 1♂, Forest adjoining to Rest House, Tugapur, Mayabunder, North Andaman, 13.v.1971, Coll. B.K. Tikader; 1♂, Near Chiria Tapu village, South Andaman, 29.v.1971, Coll. B.K. Tikader; 1♂, Government Agricultural Farm, Sipighat, Port Blair, 04.vi.1971, Coll. B.K. Tikader; 1♂, Chiria Tapu, Munda Pahar, South Andaman, 27.x.1972, Coll.

P.T. Cherian; 1♂, Panighat, South Andaman, 03.i.1973. Coll. K.S. Pradhan; 1♀, Ferrarganj, South Andaman, 17.i.1973, Coll. K.S. Pradhan; 1♂ 1♀, Little Andaman, 3 km. away from Hut Bay, 22.i.1988, Coll. A.N.T. Joseph; 1♂, Little Andaman, Hut Bay, 27.i.1988, Coll. A.N.T. Joseph.

Distribution : India : Andaman & Nicobar Islands, (North Andaman, Middle Andaman, South Andaman, Little Andaman and Nicobar), Arunachal Pradesh, Assam, Bihar, Madhya Pradesh, Maharashtra, Manipur, Nagaland, Orissa, South India, West Bengal.

Elsewhere : China, Fiji, Indonesia, Japan, Malaysia, Myanmar, Philippines, Papua New Guinea, Samoa, Singapore, Sri Lanka, Taiwan, Thailand.

Genus *Lyriothemis* Brauer47. *Lyriothemis cleis* Brauer

1868. *Lyriothemis cleis* Brauer, *Verh. zool.-bot. Ges. Wien.*, **18** : 181.
 1936. *Lyriothemis cleis*, Fraser, *Fauna Brit. India, Odonata*, **3** : 267-269.
 1954. *Lyriothemis cleis*, Lieftinck, *Treubia* **22** (suppl.) : 129.
 2000. *Lyriothemis cleis*, Ram *et al.*, *Rec. zool. Surv. India*, **98** (3) : 46.
 2002. *Lyriothemis cleis*, Mitra, *Mem. zool. Surv. India*, **19** (1) : 103.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands, (North Andaman), Assam.

Elsewhere : Indonesia, Malaysia, Myanmar, Philippines, Thailand, Vietnam.

Remarks : This species is included here on the basis of literature review (Ram *et al.*, 2000).

Genus *Nesoxenia* Kirby48. *Nesoxenia lineata* (Selys)

1879. *Agrioptera lineata* Selys, *Ann. Mus. Civ. Genova*, **26** : 302.
 1890. *Nesoxenia lineata* Kirby, *Syn. Cat. Odon.*, : 3.
 1936. *Nesoxenia lineata*, Fraser, *Fauna Brit. India, Odonata*, **3** : 279-280.
 1995. *Nesoxenia lineata*, Prasad and Varshney, *Oriental Insects*, **29** : 409.

2000. *Nesoxenia lineata*, Tsuda, *A distributional list of World Odonata*, p. 167.

Diagnostic characters : Male : Labium, labrum creamy-yellow, bordered with black; face, lower border of frons and its sides more broadly creamy-yellow, upper surface of frons dark metallic bluish-green; prothorax and thorax black, the latter with steely reflex, and marked with bright creamy-yellow. Wings hyaline; pterostigma dark reddish-brown, covering 2 cells; abdomen black marked with bright red. Anal appendages black. Female : Colour and markings entirely similar to the male, wings enfumed greyish-brown, pale amber-tinted streaks in the subcostal and cubital spaces; abdomen more cylindrical than fusiform.

Material examined : 1 ♀, Wrafter's Creek, South Andaman, 16.iii.1964, Coll. B.S. Lamba; 1 ♀, Campbell Bay, Nicobar, 03.iii.1966, Coll. A. Daniel & H.K. Bhowmik; 1 ♂, Casurina Bay, Great Nicobar, 02.iv.1966, Coll. A. Daniel & H.K. Bhowmik.

Distribution : India : Andaman & Nicobar Islands (North Andaman, South Andaman, Nicobar), West Bengal.

Elsewhere : Bangladesh, Indonesia, Malaysia, Philippines.

Genus *Neurothemis* Brauer

49. *Neurothemis fluctuans* (Fabricius)

1793. *Libellula fluctuans* Fabricius, *Ent. Syst.*, 2 : 379.

1869. *Neurothemis fluctuans* Hagen, *Steett. Ent. Zeit.*, 30 : 105.

1936. *Neurothemis fluctuans*, Fraser, *Fauna Brit, India, Odonata*, 3 : 355-356.

1954. *Neurothemis fluctuans*, Lieftinck, *Treubia* 22 (suppl.) : 149.

1995. *Neurothemis fluctuans*, Prasad and Varshney, *Oriental Insects*, 29 : 411.

2002. *Neurothemis fluctuans*, Mitra, *Mem. zool. Surv. India*, 19 (1) : 128.

Diagnostic characters : Male : Labium creamy-yellow or pale brownish; labrum ochreous; face, frons, and vesicle olivaceous, often tinged with ferruginous above; prothorax and thorax uniform reddish-brown; wings dark reddish-brown

from base to proximal end of pterostigma, slightly variable in extent, overlapping proximal end of pterostigma by a few cells or falling short of this level by the same distance; outer border of dark area in fore-wing running straight back to posterior border of wing but, in the hind-wing, strongly curved inwards so that a clear area is left along posterior border of wing which may extend proximal wards to as far as the apex of anal loop; pterostigma dark reddish-brown. Abdomen reddish-brown, with a diffuse blackish-brown elongate stripe on the sides of segments 2 to 9 near the ventral border. Female : Head and body similar to male but much paler; abdomen olivaceous or ochreous, wings hyaline, with a diffusely limited pale amber-yellow marking at base of wings extending distal wards as far as discoidal cell or beyond; costal space as far as pterostigma and subcostal space as far as node tinted with yellow; apices of all wings diffusely pale brown to as far proximal as outer or inner end of pterostigma, which latter is reddish-brown. Isochromatic forms : Body coloured and marked as in heterochromes or darker reddish-brown; wings similar to the male or with the dark area of less extent.

Material examined : 2 ♂, Wrafter's Creek, South Andaman, 12.iii.1964, Coll. B.S. Lamba; 1 ♀, Humphreygunj, 07.iii.1964, Coll. B.S. Lamba; 1 ♂, 25 km. from Casurina Bay, Great Nicobar, 02.iv.1966, Coll. A. Daniel & H.K. Bhowmik; 2 ♀, Casurina Bay, Great Nicobar, 04.iv.1966, Coll. A. Daniel & H.K. Bhowmik; 1 ♂, Log Point, Dogmar river, 09.iv.1966, Coll. A. Daniel & H.K. Bhowmik; 1 ♀, Phulobaha, Great Nicobar, 26.iv.1966, Coll. A. Daniel & H.K. Bhowmik.

Distribution : India : Andaman & Nicobar Islands (North Andaman, South Andaman, Little Andaman and Nicobar), Assam, Mizoram.

Elsewhere : Bangladesh, Cambodia, Malaysia, Myanmar, Nepal, Philippines, Russia, Sri Lanka, Thailand.

50. *Neurothemis fulvia* (Drury)

1773. *Libellula fulvia* Drury, *III. Exot. Ins.*, 2 : 84-85.

1867. *Neurothemis fulvia*, Kirby, *Trans. Zool. Soc. Lond.*, **12** : 271.
1936. *Neurothemis fulvia*, Fraser, *Fauna Brit. India, Odonata*, **3** : 353-354.
1954. *Neurothemis fulvia*, Lieftinck, *Treubia* **22** (suppl.) : 150.
1995. *Neurothemis fulvia*, Prasad and Varshney, *Oriental Insects*, **29** : 411.
2000. *Neurothemis fulvia*, Ram et al., *Rec. zool. Surv. India*, **98** (3) : 51.
2002. *Neurothemis fulvia*, Mitra, *Mem. zool. Surv. India*, **19** (1) : 127.

Diagnostic characters : Male : Prothorax, thorax and abdomen reddish-brown, sutures and borders of latter finely black. Legs and anal appendages dark ferruginous. Wings opaque, dark reddish brown from base to about middle of pterostigma, apex of wings also opaque brown enclosing a clear window in each wing at apex. Female : Many forms of females are found, varying from complete isochrome (having tips of fore wings completely clear and that of hind wings bordered with amber yellow but not opaque brown) to several types of heterochromes : having the ground colour of head, thorax and body generally much paler or ochreous. Wings clear amber-yellow, with a dark ray in subcostal and costal areas near the node and form a nodal spot.

Material examined : 1♂, Kamorta Island, Nicobar, 18.iii.1970, Coll. B.K. Tikader; 3♂, Trinkate Island, Nicobar, 20.iii.1970, Coll. B.K. Tikader; 3♂, Kamorta Island, Nicobar, 22.iii.1970, Coll. B.K. Tikader; 1♂, 2 km. northeast of Guest House, Kamorta Island, Nicobar, 24.iii.1970, Coll. B.K. Tikader; 1♀, Magarnalla Agriculture Farm, 15.i.1975, Coll. S.K. Bhattacharya; 1♂, Bada Inaka, Kamorta, 15.xi.1978. Coll. B. Nandi; 1♂, Little Andaman, Hut Bay Govt. School, 23.i.1986, Coll. A.N.T. Joseph.

Distribution : India : Andaman and Nicobar Islands (South Andaman, Little Andaman, Nicobar), Arunachal Pradesh, Assam, Bihar, Jharkhand, Chhattisgarh, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur,

Mizoram, Meghalaya, Nagaland, Orissa, Tamil Nadu, Tripura, Uttarakhand, West Bengal.

Elsewhere : Australia, Bangladesh, China, Hong Kong, Iraq, Indonesia, Japan, Malaysia, Nepal, Philippines, Seychelles, Sri Lanka, Nepal, Myanmar, Taiwan, Thailand.

51. *Neurothemis intermedia atlanta* Ris

1916. *Neurothemis intermedia atlanta*, Ris, *Cat. Coll. Selys*, fasc. **16** : 1168.
1924. *Neurothemis intermedia atlanta*, Fraser, *Rec. Indian Mus.* **26** : 438.
1936. *Neurothemis intermedia atlanta*, Fraser, *Fauna Brit. India, Odonata*, **3** : 358-359.
1995. *Neurothemis intermedia atlanta*, Prasad and Varshney, *Oriental Insects*, **29** : 411.
2000. *Neurothemis intermedia atlanta*, Tsuda, *A distributional list of World Odonata*, P. 167.
2002. *Neurothemis intermedia atlanta*, Mitra, *Mem. zool. Surv. India*, **19** (1) : 130.

Diagnostic characters : Male : Labrum, frons and whole of face brightly tinted with crimson; dorsum of thorax uniform olivaceous to dark reddish-brown without humeral stripe. Wings hyaline with intense golden amber basal marking to as far distal as outer border of discoidal cell, costal border of wing not tinted with yellow. Abdomen with broad ventro lateral stripe, continuous along whole length of abdomen, segment 8 and 9 with middorsal carina blackish and 9 entirely black except ventral border. Anal appendages reddish.

Material examined : 1♂, Manas Ghat, South Andaman, 26.iii.1964, Coll. B.S. Lamba.

Distribution : India : Andaman & Nicobar Islands (South Andaman), Assam, Kerala, Meghalaya, Orissa, Sikkim, Tamil Nadu and Tripura.

Elsewhere : Bangladesh, Cambodia, Myanmar, Nepal, Thailand.

52. *Neurothemis intermedia intermedia* (Rambur)

1842. *Libellula intermedia* Rambur, *Ins. Neurop.*, p. 91.
1889. *Neurothemis intermedia*, Selys, *Ann. Mus. Civ. Genova*, **27** : 454.

1911. *Neurothemis intermedia intermedia*, Ris, *Cat. Coll. Selys*, Fasc. 13 : 551, 563-564.
1936. *Neurothemis intermedia intermedia*, Fraser, *Fauna Brit. India, Odonata*, 3 : 357-358.
1983. *Neurothemis intermedia intermedia*, Chhotani *et al.*, *Rec. zool. Surv. India*, 80 : 493.
1995. *Neurothemis intermedia intermedia*, Prasad and Varshney, *Oriental Insects*, 29 : 411.
2000. *Neurothemis intermedia intermedia*, Ram *et al.*, *Rec. zool. Surv. India*, 98 (3) : 51.

Diagnostic characters : Female : Prothorax reddish brown, thorax pale greenish yellow, dorsum tinged with ferruginous and with a distinct humeral reddish-brown stripe. Wings uniformly tinted with pale yellow, this diffusely deepened along costal area. Abdomen bright reddish-brown/ochreous with sharply defined ventro-lateral brownish stripe interrupted at apical end of segments 3 to 8, some small dark points at base of segment 10. Anal appendages reddish.

Material examined : 3 ♀, Kamorta Island, Nicobar, 22.iii.1970, Coll. B.K. Tikader; 1 ♀, 2 km northeast of Guest House, Kamorta Island, Nicobar, 24.iii.1970, Coll. B.K. Tikader; 2 ♀, Rut Island, South Andaman, 04.ii.1970, Coll. A.N.T. Joseph.

Distribution : India : Andaman and Nicobar Islands (North Andaman, South Andaman and Nicobar), Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Meghalaya, Nagaland, Orissa, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, China, Myanmar, Malaysia, Nepal, Sri Lanka, Thailand.

53. *Neurothemis ramburii ramburii* (Brauer)

1866. *Polyneura ramburii* Brauer, *Verh. Zool.-bot. Ges. Wein*, 16 : 568-569.
1934. *Neurothemis palliata palliata* Lieftinck, *Treubia*, 14 : 415.
1942. *Neurothemis ramburii ramburii* Lieftinck, *Treubia*, 18 : 483-484.
1954. *Neurothemis ramburii ramburii*, Lieftinck, *Treubia*, 22 (suppl.) : 151.

1984. *Neurothemis ramburii*, Davies and Tobin, *The Dragonflies of the World*, p. 118.

1999. *Neurothemis ramburii ramburii*, Hämäläinen *et al.*, *Notul. Odonatol.*, 5 (3) : 28.

2000. *Neurothemis ramburii ramburii*, Tsuda, *A distributional list of World Odonata*, p. 167.

Material examined : No specimen could be examined.

Distribution : India : Andaman & Nicobar Islands (South andaman).

Elsewhere : China, Indonesia, Malaysia, Philippines, Russia, Taiwan.

Remarks : This species is here included on the basis of the literature review (Hämäläinen *et al.*, 1999).

Genus *Orthetrum* Newman

54. *Orthetrum chrysis* (Selys)

1891. *Libella testacea* race *chrysis* Selys, *Ann. Mus. Civ. Genova*, 30 : 462.
1900. *Orthetrum chrysis*, Ris, *Archiv. für Natur. Bd.*, : 186.
1936. *Orthetrum chrysis*, Fraser, *Fauna Brit. India, Odonata*, 3 : 310-311.
1983. *Orthetrum chrysis*, Chhotani *et al.* *Rec. zool. Surv. India*, 80 : 487.
1995. *Orthetrum chrysis*, Prasad and Varshney, *Oriental Insects*, 29 : 409.
2000. *Orthetrum chrysis*, Ram *et al.*, *Rec. zool. Surv. India*, 98 (3) : 47.

Diagnostic characters : Male : Labium, labrum and face yellowish or pale brown; frons bright scarlet; thorax dark ferruginous and abdomen bright blood-red; wings with the basal marking only extending to the first antenodal nervure and not beyond the border of the membrane; pterostigma dark reddish brown. Lamina of male genitalia with a prominent tuft of stiff black bristles.

Material examined : 1 ♂, Katar Baratang, 21.iii.1964, Coll. B.S. Lamba; 1 ♂, Mannarghat, South Andaman, 24.iii.1964, Coll. B.S. Lamba; 1 ♂, Cowri Ghat, South Andaman, 16.iv.1964, Coll. B.S. Lamba; 1 ♂, Pahelgaon, 2 km south of Rest House, Tugapur, Mayabunder, North Andaman, 12.v.1971, Coll. B.K. Tikader.

Distribution : India : Andaman & Nicobar Islands (North Andaman and South Andaman) Assam, Himachal Pradesh, Maharashtra, Orissa, Western Ghats, West Bengal.

Elsewhere : Australia, China, Hong Kong, Indonesia, Japan, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Taiwan, Thailand.

55. *Orthetrum pruinsum neglectum* (Rambur)

1842. *Libellula neglecta* Rambur, *Ins. Neurop.*, : 86.
1886. *Orthetrum pruinsum*, Kirby, *Proc. Zool. Soc. Lond.*, : 327.
1909. *Orthetrum pruinsum neglectum*, Ris, *Cat. Coll. Selys*, fasc. 9 : 181, 239-240.
1936. *Orthetrum pruinsum neglectum*, Fraser, *Fauna Brit. India, Odonata*, 3 : 311-313.
1995. *Orthetrum pruinsum neglectum*, Prasad and Varshney, *Oriental Insects*, 29 : 409.
2000. *Orthetrum pruinsum neglectum*, Ram et al., *Rec. zool. Surv. India*, 98(3) : 47.

Diagnostic characters : Male : Labium, labrum and face ochreous to pale reddish brown; frons dark brown to blue-black anteriorly; prothorax and thorax reddish brown to dull purple according to the amount of pruinescence present. Wings hyaline, enfumed pale brown towards apices with a reddish brown basal marking extending distalwards in hind wing; pterostigma reddish brown to black, covering 2 cells; 2 rows of cells between IR_{iii} and R_{spt} . Abdomen vermilion red to purplish-red due to pruinescence. Anal appendages red.

Material examined : 1♂, Pahelgaon, Tugapur, Mayabunder, North Andaman, 12.v.1971, Coll. B.K. Tikader; 2d, Chiria Tapu, near Guest House, 22.x.1972, Coll. P.T. Cherian; 2d, Chiria Tapu village, 23.x.1972, Coll. P.T. Cherian; 1♂, Humphreygunj, South Andaman, 17.xii.1972, Coll. K.S. Pradhan; 1♂, Manpur, South Andaman, 18.i.1973, Coll. K.S. Pradhan; 1♂, Herbertabad, South Andaman, 18.i.1973, Coll. K.S. Pradhan.

Distribution : India : Andaman & Nicobar Islands (North Andaman, South Andaman and Nicobar) Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Jammu-Kashmir,

Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Rajasthan, Sikkim, South India, Tripura, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere : Afghanistan, Bangladesh, China, Hong Kong, Indonesia, Japan, Laos, Malaysia, Myanmar, Nepal, Philippines, Singapore, Sri Lanka, Taiwan, Thailand, Vietnam.

56. *Orthetrum sabina sabina* (Drury)

1770. *Libellula sabina* Drury, *III, Exot. Ins.*, 1 : 114-115.
1889. *Orthetrum sabina*, Kirby, *Trans. Zool. Soc. Lond.*, 12 : 302.
1936. *Orthetrum sabina*, Fraser, *Fauna Brit. India, Odonata*, 3 : 300-302.
1983. *Orthetrum sabina sabina*, Chhotani et al., *Rec. zool. Surv. India*, 80 : 488.
1991. *Orthetrum sabina sabina*, Tsuda, *A distributional list of world Odonata*, p. 172.
1995. *Orthetrum sabina sabina*, Mitra, *Opusc. zool. Flumin.*, 129 : 4.
2000. *Orthetrum sabina sabina*, Ram et al., *Rec. zool. Surv. India*, 98 (3) : 47.

Diagnostic characters : Male : Labium yellow, middle lobe brownish to black; labrum, face and frons yellowish; prothorax bright yellow marked with black, its anterior and middle lobe blackish brown posteriorly. Thorax greenish yellow, sutures of thorax finely black. Abdomen greenish yellow marked with black; segment 1 to 3 enormously swollen dorso ventrally and laterally, segments 4 to 6 very narrow, cylindrical; segments 7 to 9 all dilated but compressed laterally; segment 10 very small. Anal appendages creamy white with a row of very small black spines below superiors. Female : Exactly similar to the male both in colour and shape of abdomen. Anal appendages pale yellow, shortly conical.

Material examined : 1, North Bay, 29.viii.1928, Coll. R.B.S. Sewell; 1♂, In front of marine fisheries cold storage, Aberdeen, P.B., 28.ii.1970, Coll. B.K. Tikader; 3♀, Kamorta Island, Nicobar, 18.iii.1970, Coll. B.K. Tikader; 1♂, Kamorta Island, Nicobar, 22.iii.1970, Coll. B.K. Tikader; 1♂, 1 km. NE of Guest House, Kamorta Island, Nicobar, 30.iii.1970, Coll. B.K. Tikader; 1♀, locality not

known, 1970, Coll. B.K. Tikader; 1♂, South side of the road from Guest House to MES camp, Haddoo, Port Blair, 18.iv.1971, Coll. B.K. Tikader; 1♂, Tugapur, Mayabunder, N. Andaman, 11.v.1971, Coll. B.K. Tikader; 1♂, Pahengaon, Tugapur, Mayabunder, N. Andaman, 12.v.1971, Coll. B.K. Tikader; 1♂1♀, Near Chiria Tapu village, South Andaman, 29.v.1971, Coll. B.K. Tikader; 1♀, Government Agricultural Farm, Sipighat, Port Blair, 04.vi.1971, Coll. B.K. Tikader; 1♂, Rangat, M. Andaman, 30.i.1972, Coll. Saha; 2♂1♀, 12.xii.1972, Coll. K.S. Pradhan; 1♂2♀ Aberdeen Bay, 13.xii.1972, Coll. K.S. Pradhan; 1♂, Janglighat, Port Blair, 14.xii.1972, Coll. K.S. Pradhan; 2♂3♀, Marine Hill, Port Blair, 15.xii.1972, Coll. K.S. Pradhan; 2♂, Cadlegunj, 16.xii.1972, Coll. K.S. Pradhan; 2♂, Humphreygunj, South Andaman, 17.xii.1972, Coll. K.S. Pradhan; 1♂1♀, Manglutan, W. of Humphreygunj, 17.xii.1972, Coll. K.S. Pradhan; 2♂, Chiria Tapu, South Andaman, 20.xii.1972, Coll. K.S. Pradhan; 1♀, Bedanabad, South Andaman, 21.xii.1972, Coll. K.S. Pradhan; 1♂1♀, Sawai, Car Nicobar, 24.xii.1972, Coll. K.S. Pradhan; 1♀, R.G. Temple, Port Blair, 01.i.1973, Coll. K.S. Pradhan; 3♂, S. Point, Port Blair, South Andaman, 02.i.1973, Coll. K.S. Pradhan; 1♂, Shantipur, Middle Andaman, 05.i.1973, Coll. K.S. Pradhan; 5♂, Panchwati, M. Andaman, 06.i.1973, Coll. K.S. Pradhan; 2♂, Yereta, 08.i.1973, Coll. K.S. Pradhan; 5♂, Mayabunder, N. Andaman, 10.i.1973, Coll. K.S. Pradhan; 3♂, Aniket, South Andaman, 16.i.1973, Coll. K.S. Pradhan; 1♂, Ferrarganj, South Andaman, 17.i.1973, Coll. K.S. Pradhan; 2♂, Manpur, S. Andaman, 18.i.1973, Coll. K.S. Pradhan; 1♀, Gopalpur, Chouldari, South Andaman, 01.i.1975, Coll. S.K. Bhattacharya; 1♂, Podarek Plantation, Forest Check post, Magarnalla, 12.i.1975, Coll. S.K. Bhattacharya; 1♂2♀, South Point, Port Blair, 17.xii.1975, P.K. Maiti; 1♀, Rajendra Nagar, Gt. Nicobar, 30.xii.1975, Coll. P.K. Maiti; 1♂, Wrightmyo, Kalatang Forest, base of Mt. Harriet, South Andaman, 28.ii.1975, G.K. Srivastava; 1♀, Corbyns Cove, Port Blair, South Andaman, 01.iii.1975, G.K. Srivastava; 1♂1♀,

Bamboo Flat, South Andaman, 02.iii.1975, Coll. G.K. Srivastava; 1♂, Humphreygunj within 2 km. radius, 13.iii.1975, Coll. G.K. Srivastava; 1♂, Monglutan, 4 kms, S.W. of Humphreygunj, South Andaman, 14.iii.1975, Coll. G.K. Srivastava; 1♂, Forest Rest House compound, Chiria Tapu, South Andaman, 07.i.1976, Coll. P.K. Maiti; 2♂, Jungli Ghat, Port Blair, 18.xii.1978, Coll. B. Nandi; 1♂, Near Airport, Port Blair, 20.xii.1978, Coll. B. Nandi; 1♂1♀, Port Blair, 12.i.1988, Coll. A.N.T. Joseph; 1♂1♀, Corbyns Cove Beach, Port Blair, 13.i.1988, Coll. A.N.T. Joseph; 1♂1♀, Chiria Tapu, Port Blair, South Andaman, 15.i.1988, Coll. A.N.T. Joseph; 1♂, Vivekananda Puram, Little Andaman, 18.i.1988, Coll. A.N.T. Joseph; 1d, 4 km. from Hut Bay, Little Andaman, 21.i.1988, Coll. A.N.T. Joseph; 2♂, Ross Is., South Andaman, 24.i.2000, Coll. G.K. Srivastava; 1♀, Sipighat, South Andaman, 27.i.2000, Coll. G.K. Srivastava; 1♂, Chiria Tapu, South Andaman, 02.ii.2000, Coll. G.K. Srivastava.

Distribution : India : Andaman & Nicobar Islands (North Andaman, Middle Andaman, South Andaman, Little Andaman and Nicobar), Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Gujarat, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere : Asia Minor, Australia, Bangladesh, China, Cyprus, Indonesia, Iran, Myanmar, Nepal, Philippines, Sri Lanka, Syria, Singapore, Somaliland, Thailand.

Genus *Pantala* Hagen

57. *Pantala flavescens* (Fabricius)

1798. *Libellula flavescens* Fabricius, *Ent. Syst. Suppl.*, : 285.
 1861. *Pantala flavescens*, Hagen, *Syn. Neur. N. Amer.*, : 142.
 1936. *Pantala flavescens*, Fraser, *Fauna Brit. India, Odonata*, 3 : 414-416.
 1995. *Pantala flavescens*, Prasad and Varshney, *Oriental Insects*, 29 : 413.
 2000. *Pantala flavescens*, Ram et al., *Rec. zool. Surv. India*, 98(3) : 54.

Diagnostic characters : Male : Large species; prothorax rich ochreous with transverse belt of dark reddish brown between anterior and middle lobes; thorax olivaceous or ferruginous coated thickly with yellowish downy hair. Wings hyaline, with base of hind-wing pale golden yellow up to anal loop and with a narrow apical brown spot limited to posterior border of wing; pterostigma bright ochreous; membrane white. Abdomen bright ochreous. dorsum tinted with bright brick red. sides of segments 1 to 4 pale yellow. Anal appendages ochreous. Female : Very similar to male except eyes olivaceous brown, wings evenly and deeply enfumed and always without apical brown spot, abdomen not constricted at segment 3, stouter and more robust.

Material examined : 1♂, Chiria Tapu, South Andaman, 17.i.1972, Coll. M.S.D; 2♀, Chiria Tapu near Guest House, 22.x.1972, Coll. P.T. Cherian; 1♀, Chiria Tapu near Guest House, 23.x.1972, Coll. P.T. Cherian; 3♀ 1♂, 11.xii.1972, Coll. K.S. Pradhan; 1♂, Car Nicobar, Agricultural garden, Malaca, 26.xii.1972, Coll. K.S. Pradhan; 1♂, South Point, Port Blair, 02.i.1973, Coll. K.S. Pradhan; 1♂, Bakul Tala, Middle Andaman, 07.i.1973, Coll. K.S. Pradhan; 1♂, Aniket, South Andaman, 16.i.1973, Coll. K.S. Pradhan; 1♀, Horticulture-cum-Zoological Garden, South Andaman, 27.xii.1974, Coll. S.K. Bhattacharya; 1♂, Magarnalla, Campbell Bay, 07.i.1975, Coll. S.K. Bhattacharya; 1♀ 1♂, Rajendra Nagar, Gt. Nicobar, 30.xii.1975, Coll. P.K. Maiti; 1♀, Marine Hill, Port Blair, 6.xi.1978, Coll. B. Nandi; 1♀, Chotto Inaka, Kamorta, 14.xi.1978, Coll. B. Nandi; 1♂, Dilthawan Tank, Port Blair, 20.xi.1978, Coll. B. Nandi.

Distribution : India : Andaman & Nicobar Islands (North Andaman, Middle Andaman, South Andaman, Little Andamans and Nicobar), Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Goa, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Meghalaya, Nagaland, Orissa, Rajasthan,

Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere : America, Africa, Argentina, Bangladesh, China, Cuba, Ethiopia, Florida, Malaysia, Myanmar, Nepal, Singapore, Somaliland, Sri Lanka, Uruguay, Venezuela, Yunnan.

Genus *Potamarcha* Karsch

58. *Potamarcha congener* (Rambur)

1842. *Libellula obscura* Rambur, *Ins. Neurop.*, : 64.
 1842. *Libellula congener*, Rambur, *Ins. Neurop.*, : 70.
 1890. *Potamarcha obscura*, Karsch, *Berlin Ent. Zeit.*, **33** : 371.
 1891. *Potamarcha congener*, Selys, *An. Soc. Espan.*, **20** : 221.
 1936. *Potamarcha obscura*, Fraser, *Fauna Brit. India, Odonata*, **3** : 289-291.
 1983. *Potamarcha congener*, Chhotani *et al.*, *Rec. zool. Surv. India*, **80** : 487.
 1995. *Potamarcha congener*, Prasad and Varshney, *Oriental Insects*, **29** : 410.
 2000. *Potamarcha congener*, Ram *et al.*, *Rec. zool. Surv. India*, **98** (3) : 48.

Diagnostic characters : Male : Face and frons olivaceous yellow. Prothorax dark brown, thorax black and pruinose in adult. Wings hyaline, tipped with brown at extreme apices; two rows of cells between IR_{iii} and R_{spt} ; arc lying between second and third antenodal nervures; only 1 cubital nervure; pterostigma dark reddish brown, covering 2 to 4 cells. Anal appendages black.

Material examined : 3♂, 2 km of Wrightmyo, South Andaman, 27.ii.1970, Coll. B.K. Tikader; 1♂, Camp no. 1, Tugapur, Mayabunder, North Andamans, 11.v.1971, B.K. Tikader.

Distribution : India : Andaman & Nicobar Islands (North Andaman, Middle Andaman, South Andaman and Little Andaman), Andhra Pradesh, Arunachal Pradesh, Assam, Goa, Himachal Pradesh, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Nagaland, Orissa, Sikkim, South India, Tripura, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere : Australia, Bangladesh, Cambodia, China, Hong Kong, Indonesia, Laos, Malaysia,

Myanmar, Nepal, Philippines, Sri Lanka, Taiwan, Thailand, Vietnam.

Genus *Rhyothemis* Hagen

59. *Rhyothemis phyllis phyllis* (Sulzer)

1776. *Libellula phyllis* Sulzer, *Abgekürzte Gesch. Der Ins.* : 169.
 1867. *Rhyothemis phyllis*, Hagen, *Stett. Ent. Zeit.*, **28** : 232.
 1936. *Rhyothemis phyllis*, Fraser, *Fauna Brit. India, Odonata.*, **3** : 421-423.
 1993. *Rhyothemis phyllis phyllis*, Lahiri & Mitra, *J. Andaman Sci. Assoc.*, **9** (1&2) : 98.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (Nicobar),

Elsewhere : Bangladesh, Cambodia, Indonesia, Japan, Laos, Malaysia, Myanmar, Sri Lanka, Thailand, Vietnam.

Remarks : This species is included here on the basis of literature review (Lahiri & Mitra, 1993; Ram *et al.*, 2000)

60. *Rhyothemis variegata variegata* (Linnaeus)

1763. *Libellula variegata* Linnaeus, *Amoenitates Acad.*, **6** : 412.
 1867. *Rhyothemis variegata* Hagen, *Stett. Ent. Zeit.*, **28** : 232.
 1936. *Rhyothemis variegata*, Fraser, *Fauna Brit. India, Odonata.*, **3** : 423-424.
 1993. *Rhyothemis variegata variegata*, Lahiri & Mitra, *J. Andaman Sci. Assoc.*, **9** (1&2) : 98.
 1995. *Rhyothemis variegata variegata*, Prasad and Varshney, *Oriental Insects*, **29** : 412.
 2002. *Rhyothemis variegata variegata*, Mitra, *Mem. zool. Surv. India*, **19** (1) : 135.
 2007. *Rhyothemis variegata variegata*, Emiliyamma *et al.*, *Rec. zool. Surv. India, Occ. Paper No.* **269** : 179.

Diagnostic characters : Female : Labium pale whitish-yellow, middle lobe black; Prothorax black; thorax dark metallic green; legs and abdomen entirely black. Fore-wing with apical half from level of node hyaline and uncoloured, basal half tinted with golden-yellow, and marked with blackish-brown; hind-wing very broad and short, its apex from about inner end of pterostigma hyaline

and uncoloured; rest of wing tinted with golden-amber and broadly marked with blackish-brown.

Material examined : 1 ♀, Magarnalla, Campbell Bay, Gt. Nicobar, 21.xii.1975, Coll. P.K. Maiti.

Distribution : India : Andaman & Nicobar Islands (Nicobar), Andhra Pradesh, Arunachal Pradesh, Assam, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Orissa, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, China, Malaysia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand, Vietnam.

Genus *Tholymis* Hagen

61. *Tholymis tillarga* (Fabricius)

1798. *Libellula tillarga* Fabricius, *Ent. Syst. Suppl.*, : 285.
 1867. *Tholymis tillarga*, Hagen, *Stett. Ent. Zeit.*, **28** : 220.
 1936. *Tholymis tillarga*, Fraser, *Fauna Brit. India, Odonata.*, **3** : 411-413.
 1983. *Tholymis tillarga*, Chhotani *et al.*, *Rec. zool. Surv. India*, **80** : 489.
 1995. *Tholymis tillarga*, Prasad and Varshney, *Oriental Insects*, **29** : 413.
 2000. *Tholymis tillarga*, Ram *et al.*, *Rec. zool. Surv. India*, **98** (3) : 55.

Diagnostic characters : Male : Prothorax and thorax golden-yellow or olivaceous with a bright reddish suffusion on dorsum. Legs ochreous. Wings hyaline, with a broad fan-shaped, smoky, golden-brown fascia extending from node to base of hindwing, very deep in colour at node and somewhat longitudinally striated, paling towards base and posterior border of wing; this fascia bordered distally by a broad oval opalescent white spot about 4 cells deep; pterostigma reddish-brown between dark nervures. Abdomen bright rust-red, especially on dorsum, paler at sides, of basal segments. Anal appendages ochreous or reddish. Female : Abdomen olivaceous brown, broad at base than tapering gradually to the end. Wings hyaline, hind wing with very pale golden brown fascia; borders of anal loop running on the posterior border of hind wing apex of loop open.

Material examined : 1 ♀, Alexandra river. Great Nicobar, 02.iv. 1966, Coll. A. Daniel & H.K. Bhowmik; 1 ♀, Mayabunder, Burmadera, South Andaman, 27.iii.1969. Coll. T.D. Soota; 1 ♀, Ramkrishnapur, Hut Bay, Little Andaman, 21.xi.1978. Coll. B. Nandi; 1 ♂, Little Andaman, 3 km away from Hut Bay, 22.i.1988, Coll. A.N.T. Joseph.

Distribution : India : Andaman and Nicobar Islands (North Andaman, Middle Andaman, South Andaman, Little Andaman and Nicobar), Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Goa, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere : America, Australia, Bangladesh, Cambodia, Cameroon, China, Ethiopia, Indonesia, Japan, Laos, Madagascar, Malaysia, Malawi, Micronesia, Mozambique, Myanmar, Nepal, Philippines, Somali, Sri Lanka, Taiwan, Tanzania, Thailand, Vietnam.

Genus *Tramea* Hagen

62. *Tramea basilaris burmeisteri* Kirby

1839. *Libellula chinensis* Burmeister, *Handb. Ent.*, **2** : 852.
 1889. *Tramea burmeisteri*, Kirby, *Trans. Zool. Soc. Lond.*, **12** : 316.
 1936. *Tramea basilaris burmeisteri*, Fraser, *Fauna Brit. India, Odonata*, **3** : 432-434.
 1995. *Tramea basilaris burmeisteri*, Prasad and Varshney, *Oriental Insects*, **29** : 413.
 2000. *Tramea basilaris burmeisteri*, Tsuda, *A distributional list of World Odonata*, p. 183.
 2002. *Tramea basilaris burmeisteri*, Mitra, *Mem. zool. Surv. India*, **19** (1) : 140.

Diagnostic characters : Female : Face and frons bright chrome yellow : labrum reddish brown, less broadly black; prothorax yellowish; thorax olivaceous, bluish-green laterally with black markings, humeral suture finely black, lateral stripes expanded in their upper parts to form elongate spots. Wings tinted with yellow, deepening in tint to nearly as far as level of pterostigma; two large

black spots within golden yellow areola at baso-anal area of hind wing, two portions of the black area are separated. Abdomen olivaceous green with black markings — apical annules or rings on segments 4-7; segment 8 black with triangular yellow basal spot on each side; 9 and 10 black with medial lateral spot. Anal appendages as long as last three segments of abdomen.

Material examined : 1 ♀, Marine Hills, Port Blair, South Andaman 15.xii.1972, Coll. K.S. Pradhan.

Distribution : India : Andaman & Nicobar Islands (South Andaman), Andhra Pradesh, Bihar, Himachal Pradesh, Madhya Pradesh, Maharashtra, Meghalaya, Orissa, Rajasthan, South India, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere : Japan, Malaysia, Myanmar, Nepal, Thailand, Tibet, Vietnam.

63. *Tramea limbata similata* (Rambur)

1832. *Libellula limbata* Desjardins, *Rapport Soc. Maurice*, : 1.
 1842. *Libellula similata*, Rambur, *Ins. Neurop.*, : 36.
 1867. *Tramea transmarina* Brauer, *Verh. zool.-bot. Ges. Wien*, **27**, pp. 21. 505.
 1878. *Tramea euryale* Selys, *Mitt. Mus. Dresden*, pp. 293. 298.
 1889. *Tramea limbata*, Kirby, *Trans. Zool. Soc. Lond.*, **12** : 318.
 1936. *Tramea limbata*, Fraser, *Fauna Brit. India, Odonata*, **3** : 436-438.
 1991. *Tramea limbata similata*, Tsuda, *A distributional list of World Odonata*, : 184.
 1995. *Tramea limbata similata*, Prasad and Varshney, *Oriental Insects*, **29** : 413.
 2002. *Tramea limbata similata*, Mitra, *Mem. zool. Surv. India*, **19** (1) : 144.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (South Andaman, Nicobar), Assam, Karnataka, Kerala, Laccadives, Maharashtra, Tamil Nadu.

Elsewhere : Nepal, Maldives, Sri Lanka.

Remarks : This species is included here on the basis of literature review (Hämäläinen *et al.*, 1999).

Fraser (1936) synonymized *Tramea transmarina* Brauer and *Tramea euryale* Selys with *Tramea limbata* (Desjardins) but Hämäläinen *et al.* (1999) stated as *Tramea transmarina euryale* Selys.

64. *Tramea virginia* (Rambur)

1773. *Libellula chinensis* De Geer, *Mem. Ins.*, 3 : 556.
 1842. *Libellula virginia*, Rambur, *Ins. Neurop.*, : 33.
 1890. *Tramea virginia*, Kirby, *Syn. Cat. Odon.*, : 3.
 1936. *Tramea virginia*, Fraser, *Fauna Brit. India, Odonata*, 3 : 435-436.
 1993. *Tramea virginia*, Lahiri & Mitra, *J. Andaman Sci. Assoc.*, 9 (1&2) : 98.
 1995. *Tramea virginia*, Prasad and Varshney, *Oriental Insects*, 29 : 413.
 1995. *Tramea virginia*, Mitra, *Opusc. zool. flumin.*, 129 : 3.
 2000. *Tramea virginia*, Ram *et al.*, *Rec. zool. Surv. India*, 98 (3) : 55.
 2002. *Tramea virginia*, Mitra, *Mem. zool. Surv. India*, 19 (1) : 140.

Material examined : No material could be examined.

Distribution : India : Andaman & Nicobar Islands (North Andaman, South Andaman and Nicobar), Bihar, Great Nicobar Island, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Mizoram, Orissa, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Cambodia, China, Hong Kong, Indonesia, Japan, Malaysia, Myanmar, Taiwan, Thailand, Vietnam.

Remarks : This species is included here on the basis of literature review (Mitra, 1995; Ram *et al.*, 2000).

Genus *Trithemis* Brauer

65. *Trithemis aurora* (Burmeister)

1839. *Libellula aurora* Burmeister, *Handb. Ent.*, 2 : 859.
 1868. *Trithemis aurora*, Brauer, *Verh. zool.-bot. Ges. Wein.*, 18 : 177, 735.
 1936. *Trithemis aurora*, Fraser, *Fauna Brit. India, Odonata*, 3 : 383-385.
 1983. *Trithemis aurora*, Chhotani *et al.*, *Rec. zool. Surv. India*, 80 : 491.
 1995. *Trithemis aurora*, Prasad and Varshney, *Oriental Insects*, 29 : 411.
 2000. *Trithemis aurora*, Ram *et al.*, *Rec. zool. Surv. India*, 98 (3) : 52.

Diagnostic characters : Male : Face and front of frons ochreous, changing to reddish above, vesicle and dorsum of frons metallic violaceous; prothorax reddish-brown, thorax dull purple due to pruinescence. Wings hyaline with crimson reticulation, broad amber yellow fascia at base of wing, dark brown rays in sub-costal and cubital space. Abdomen swollen dorsoventrally at base, then slightly constricted at segment 3 and again dilated fusiformly, depressed and broad. Anal appendages red. Female : Thorax pale olivaceous on sides, darker on dorsum. Wings hyaline with bright yellow to brown reticulation, basal marking pale and without ray in subcostal and cubital space. Abdomen subcylindrical, sides parallel, ochreous with black markings. Anal appendages black.

Material examined : 1 ♂, Shoal Bay, 29.iii.1964, Coll. B.S. Lamba; 2 ♀, Kamorta Island, Nicobar, 22.iii.1970, Coll. B.K. Tikader; 1 ♀, 2 km. northeast of Guest House, Kamorta Island, Nicobar, 24.iii.1970, Coll. B.K. Tikader; 1 ♂, Near Chiria Tapu village, South Andaman, 29.v.1971, Coll. B.K. Tikader; 1 ♀, Tugapur, North Andamans, 10.i.1973; 1 ♂, Little Andaman, 4 km. from Hut Bay, 21.i.1988, Coll. A.N.T. Joseph; 1 ♂, Wright Myo, Kalatang, South Andaman, 30.i.2000, Coll. G.K. Srivastava.

Distribution : India : Andaman and Nicobar Islands (North Andaman, Middle Andaman, South Andaman, Little Andaman and Nicobar), Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Meghalaya, Nagaland, Orissa, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere : China, Indonesia, Japan, Cambodia, Laos, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Taiwan, Thailand, Vietnam.

66. *Trithemis festiva* (Rambur)

1842. *Libellula festiva* Rambur, *Ins. Neurop.*, p. 92.
 1868. *Trithemis festiva*, Brauer, *Verh. zool.-bot. Ges. Wein.*, 18 : 736.

1936. *Trithemis festiva*, Fraser, *Fauna Brit. India, Odonata.*, **3** : 387-389.
1995. *Trithemis festiva*, Prasad and Varshney, *Oriental Insects*, **29** : 412.
2002. *Trithemis festiva*, Mitra, *Mem. zool. Surv. India*, **19** (1) : 132.
2007. *Trithemis festiva*, Emiliyamma *et al.*, *Rec. zool. Surv. India. Occ. Paper No. 269* : 172.

Diagnostic characters : Male : labium blackish-brown; labrum dark olivaceous brown or black with base brown; Prothorax dark blue; thorax black, coated with a thin purplish pruinescence. Legs black. Wings hyaline, with a dark opaque brown mark at base of hind-wing. Abdomen black, segments 1 to 3 with a thin bluish pruinescence. Anal appendages black.

Material examined : 1♂, Mannarghat, South Andaman, 01.iv.1964, Coll. B.S. Lamba;

Distribution : India : Andaman and Nicobar Islands (North Andaman, South Andaman and Little Andaman), Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Orissa, Rajasthan, Sikkim, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere : Afghanistan, China, Cyprus, Hong Kong, Indonesia, Iran, Cambodia, Laos, Malaysia, Myanmar, Nepal, New Guinea, Philippines, Singapore, Taiwan, Thailand, Turkey, Vietnam.

67. *Trithemis pallidinervis* (Kirby)

1889. *Sympetrum pallidinervis* Kirby, *Trans. Zool. Soc. Lond.*, **12** : 327.
1891. *Trithemis dryas*, Selys, *Ann. Mus. Civ. Genova*, **30** : 465.
1907. *Trithemis pallidinervis*, Morton, *Trans. Ent. Soc. Lond.*, : 304.
1936. *Trithemis pallidinervis*, Fraser, *Fauna Brit. India, Odonata*, **3** : 389-391.
1954. *Trithemis pallidinervis*, Lieftinck, *Treubia* **22** (suppl.) : 156.
1995. *Trithemis pallidinervis*, Prasad and Varshney, *Oriental Insects*, **29** : 412.
2002. *Trithemis pallidinervis*, Mitra, *Mem. zool. Surv. India*, **19** (1) : 134.

Diagnostic characters : Female : Prothorax dull brown or black with the anterior border of

anterior lobe narrowly yellow and a large medial and a lateral spot on middle lobe. Thorax olivaceous-brown on dorsum and upper part of sides, brighter olivaceous on lower part of sides, wings tinted with yellow towards apical half. Abdomen long and slender, black, marked with bright yellow segment 10 of abdomen yellow, with base broadly black. Anal appendages rather long, conical and yellow.

Material examined : 1♀, Dairy Farm, Port Blair, South Andaman, 29.ii.1964, Coll. B.S. Lamba.

Distribution : India : Andaman and Nicobar Islands (South Andaman), Andhra Pradesh, Assam, Bihar, Gujarat, Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Mizoram, Nagaland, Orissa, Rajasthan, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere : China, Indonesia, Malaysia, Nepal, Philippines, Singapore, Sri Lanka, Taiwan, Thailand.

Genus *Zyxomma*

68. *Zyxomma obtusum* Albarda

1881. *Zyxomma obtusum*, Albarda, *Veth, Midden Sum. Exped., Neur.*, **1** : 1.
1913. *Zyxomma obtusum*, Ris, *Cat. Coll. Selys, Lib.*, **15** : 902, 908-909.
1954. *Zyxomma obtusum*, Lieftinck, *Treubia*, **22** (suppl.) : 160.
1999. *Zyxomma obtusum*, Hämäläinen *et al.*, *Notul. Odonatol.*, **5** (3) : 28.
2000. *Zyxomma obtusum*, Tsuda, *A distributional list of World Odonata*, p. 189.

Material examined : No specimen could be obtained for study.

Distribution : India : Andaman & Nicobar Islands (Nicobar).

Elsewhere : Indonesia, Japan, Malaysia, Philippines.

Remarks : This species is included here on the basis of the literature review (Hämäläinen *et al.*, 1999).

69. *Zygomma petiolatum* Rambur

1842. *Zygomma petiolatum*, Rambur, *Ins. Neurop.*, : 30.
 1936. *Zygomma petiolatum*, Fraser, *Fauna Brit. India, Odonata*, **3** : 409-410.
 1995. *Zygomma petiolatum*, Prasad and Varshney, *Oriental Insects*, **29** : 413.
 2000. *Zygomma petiolatum*, Tsuda, *A distributional list of World Odonata*, p. 188.
 2002. *Zygomma petiolatum*, Mitra, *Mem. zool. Surv. India*, **19** (1) : 136.
 2007. *Zygomma petiolatum*, Emiliyamma *et al.*, *Rec. zool. Surv. India, Occ. Paper No. 269* : 186.

Material examined : No material could be examined.

Distribution : India : Andaman and Nicobar Islands (Middle Andaman and South Andaman). Andhra Pradesh, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Tamil Nadu, West Bengal.

Elsewhere : Australia, Bangladesh, China, Hong-Kong, Indonesia, Japan, Sri Lanka, Malaysia, Myanmar, Philippines, Thailand, Taiwan, Vietnam.

Remarks : This species is included here on the basis of literature review (Ram *et al.*, 2000).

SUMMARY

Total 69 species/subspecies belonging to 39 genera under eleven families of two suborders are reported here from Andaman and Nicobar Islands. Of these *Aciagrion occidentale* Laidlaw is reported for the first time from Andaman and Nicobar Islands. Collection data, distributional range within India and outside have been provided. *Pseudagrion microcephalum* (Rambur) and *Copera marginipes* (Rambur) is newly recorded respectively from Andaman group of Islands and Nicobars.

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Table 1 : Consolidated list of species of Odonata with distribution within Andaman and Nicobar Islands.

Species	Distribution (Within A & N Islands)				
	NA	MA	SA	LA	N
Suborder ZYGOPTERA					
Superfamily COENAGRIONOIDEA					
Family COENAGRIONIDAE					
<i>Aciagrion occidentale</i> Laidlaw	-	-	-	-	+
<i>Aciagrion pallidum</i> Selys	-	+	-	-	-
<i>Agriocnemis femina femina</i> (Brauer)	+	+	+	-	+
<i>Agriocnemis pygmaea</i> (Rambur)	+	+	+	+	+
<i>Agriocnemis rubescens</i> Selys	-	-	+	-	-
<i>Ceriagrion cerinorubellum</i> (Brauer)	+	-	+	+	-
<i>Ceriagrion auranticum</i> Fraser	-	-	-	-	+
<i>Ceriagrion olivaceum</i> Laidlaw	-	-	-	-	+
<i>Ischnura senegalensis</i> (Rambur)	+	-	+	-	+
<i>Pseudagrion andamanicum</i> Fraser	-	-	+	+	+
<i>Pseudagrion microcephalum</i> (Rambur)	+	-	+	-	+
<i>Pseudagrion pilidorsum</i> (Brauer)	-	+	-	-	-
<i>Pseudagrion pruinsum</i> (Burmeister)	-	-	-	-	+
<i>Pseudagrion williamsoni</i> Fraser	-	-	-	-	+
Family PLATYCNEMIDIDAE					
<i>Copera marginipes</i> (Rambur)	+	-	+	-	+
<i>Copera vittata serapica</i> (Selys)	-	-	-	-	+
Family PLATYSTICTIDAE					
<i>Drepanosticta annandalei</i> Fraser	-	-	+	-	-
Family PROTONEURIDAE					
<i>Prodasineura verticalis andamanensis</i> (Fraser)	+	-	+	+	-
Superfamily LESTOIDEA					
Family LESTIDAE					
<i>Lestes malabarica</i> Fraser	-	-	+	-	-
<i>Lestes p. praemorsus</i> (Selys)	-	-	+	-	-
Superfamily CALOPTERYGOIDEA					
Family CALOPTERYGIDAE					
<i>Vestalis gracilis gracilis</i> (Rambur)	+	+	+	+	-
Family CHLOROCYPHIDAE					
<i>Libellago aurantiaca</i> (Selys)	-	-	-	-	+
<i>Libellago andamanensis</i> (Fraser)	+	-	+	+	-
<i>Libellago blanda</i> (Selys)	-	-	-	-	+
<i>Libellago balus</i> Hämäläinen	-	-	-	-	+

Table 1 : Cont'd.

Species	Distribution (Within A & N Islands)				
	NA	MA	SA	LA	N
Suborder ANISOPTERA					
Superfamily AESHNOIDEA					
Family GOMPHIDAE					
<i>Gomphidia ganeshi</i> Chhotani, Lahiri & Mitra	–	–	+	–	–
<i>Gomphidia t-nigrum</i> Selys	+	–	–	+	–
Family AESHNIDAE					
<i>Anaciaeschna jaspidea</i> (Burmeister)	–	–	–	–	+
<i>Anax guttatus</i> (Burmeister)	–	–	+	–	–
<i>Gynacantha andamanae</i> Yeh & Veenakumari	–	–	+	–	–
<i>Gynacantha bayadera</i> Selys	–	–	+	–	+
<i>Gynacantha dravida</i> Lieftinck	–	–	+	+	+
<i>Gynacantha subinterrupta</i> Rambur	–	–	–	–	+
<i>Oligoaeschna andamani</i> Chhotani, Lahiri & Mitra	–	–	+	–	–
Superfamily LIBELLULOIDEA					
Family CORDULIDAE					
<i>Epoptthalmia vittata vittata</i> Burmeister	–	–	+	–	–
Family LIBELLULIDAE					
<i>Agrionoptera insignis insignis</i> (Rambur)	–	–	–	–	+
<i>Acisoma panorpoides panorpoides</i> Rambur	–	–	–	–	+
<i>Brachydiplax chalybea chalybea</i> Brauer	+	–	+	–	+
<i>Brachythemis contaminata</i> (Fabricius)	+	–	–	–	+
<i>Camacinia gigantea</i> (Brauer)	–	–	–	–	+
<i>Cratilla lineata</i> (Brauer)	–	+	+	–	–
<i>Cratilla metallica</i> (Brauer)	+	–	–	–	–
<i>Crocothemis servillia servillia</i> (Drury)	–	+	+	+	–
<i>Diplacodes trivialis</i> (Rambur)	+	+	+	+	+
<i>Indothemis carnatica</i> (Fabricius)	+	–	–	–	–
<i>Lathrecista asiatica asiatica</i> (Fabricius)	+	+	+	+	+
<i>Lyriothemis cleis</i> Brauer	+	–	–	–	–
<i>Nesoxenia lineata</i> (Selys)	+	–	+	–	+
<i>Neurothemis fluctuans</i> (Fabricius)	+	–	+	+	+
<i>Neurothemis fulvia</i> (Drury)	–	–	+	+	+
<i>Neurothemis intermedia atlanta</i> Ris	–	–	+	–	–
<i>Neurothemis intermedia intermedia</i> (Rambur)	+	–	+	–	+
<i>Neurothemis ramburii ramburii</i> (Brauer)	–	–	+	–	–

Table 1 : Cont'd.

Species	Distribution (Within A & N Islands)				
	NA	MA	SA	LA	N
<i>Orthetrum chrysis</i> (Selys)	+	—	+	—	—
<i>Orthetrum pruinsum neglectum</i> (Rambur)	+	—	+	—	+
<i>Orthetrum sabina sabina</i> (Drury)	+	+	+	+	+
<i>Pantala flavescens</i> (Fabricius)	+	+	+	+	+
<i>Potamarcha congener</i> (Rambur)	+	+	+	+	—
<i>Rhyothemis phyllis phyllis</i> (Sulzer)	—	—	—	—	+
<i>Rhyothemis variegata variegata</i> (Linnaeus)	—	—	—	+	+
<i>Tholymis tillarga</i> (Fabricius)	+	+	+	+	+
<i>Tramea basilaris burmeisteri</i> Kirby	—	—	+	—	—
<i>Tramea limbata similata</i> (Rambur)	—	—	+	—	+
<i>Tramea virginia</i> (Rambur)	+	—	+	—	+
<i>Trithemis aurora</i> (Burmeister)	+	+	+	+	+
<i>Trithemis festiva</i> (Rambur)	+	—	+	+	—
<i>Trithemis pallidinervis</i> (Kirby)	—	—	+	—	—
<i>Zyxomma obtusum</i> Albarda	—	—	—	—	+
<i>Zyxomma petiolatum</i> Rambur	—	+	+	—	—

NA—North Andaman. MA—Middle Andaman. SA—South Andaman. LA—Little Andaman. N—Nicobar.

INSECTA : COLEOPTERA : SILVANIDAE

T.K. PAL AND B. BARAIK

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

E-mail: tkpal51@rediffmail.com

INTRODUCTION

The Silvanidae are a moderately large family of the section Clavicornia of the superfamily Cucujoidea. The silvanids are usually small (1.3-4.5mm.), reddish-brown and occasionally with dorsal spots. They are largely associated with litter or vegetable debris and a good number of species are subcorticolous by habit. A few species cause considerable damage to stored food products of vegetable origin. The Silvanidae seem to be more diversely represented in the tropical and subtropical climates than in the temperate zones. The representatives of the family occur in all the main continental areas of the world, but so far, only a few species have been recorded from New Zealand and the oceanic islands. After Grouvelle (1908, 1912) the works of Pal and Sengupta (1977, 1979, 1984); Pal (1981, 1985); Pal, Sengupta and Crowson (1984); and Sengupta and Pal (1996) have contributed to the knowledge of the Silvanidae of India. Later, Pal and Halstead (1998) recorded *Acatartus* Grouvelle from Mizoram: India with a new species. Earlier, Sengupta and Pal (1996) recorded four species of Silvanidae from Andaman Is. The present work is based mainly on the recent collection by the authors, that represent 16 species under 9 genera

CHARACTER OF THE FAMILY SILVANIDAE

Body small to moderately large (1.3–11.5 mm.), usually parallel-sided and somewhat flattened or sometimes ovoid and subconvex, elytral punctation in rows.

Head usually little elongate, sometimes transverse, usually with a transverse impressed line

on vertex behind eyes, fronto-clypeal suture present or absent, antennal insertions hidden or exposed but never distinctly dorsal; gular sutures well separated, anterior part of gular region without longitudinal grooves, genal process normal; antenna 11-segmented, often with 3-segmented club and sometimes without club; mandible with two or three apical teeth, well developed mola, sometimes with a large cavity on dorsal side, otherwise cavity reduced to a vestige and without dorsal tubercle; maxilla with distinct lacinia and galea, lacinia narrow and with or without apical spine, galea broad and its apex densely hairy, palpi with apical segment rarely securiform; labium with mentum transverse; palpi with apical segment rarely securiform or transverse or distinctly smaller than segment 2.

Prothorax usually elongated and sometimes transverse, side margins often serrated and sometimes with distinct teeth, pronotum without distinct prebasal impression, prosternum moderately broad with apical margin almost straight, front coxae usually closely and rarely widely situated, trochantins hidden; coxal cavities somewhat rounded, usually externally closed behind and rarely open.

Elytra punctured in regular rows and usually with 9 rows of punctures, rarely with scutellary striae, epipleura usually complete. Wing usually with single anal vein, sometimes with three or five anal veins; devoid of radial cell, R-m cross vein and subcubital fleck.

Mesocoxae often closely situated, sternal fitting between mesocoxae usually in a straight line and sometimes with a narrow projection from

metasternum, mesocoxal cavities broadly opened outwardly; hind coxae transverse and moderately widely separated; metendosternite often reduced and without lateral plates, sometimes well developed with anterior tendons.

Legs moderately long, trochanters short and simple, femora swollen towards middle, tibiae slightly broadened at apex and usually with two spurs, tarsal formula 5-5-5 in both sexes, tarsal segments 1-3 usually simple or slightly lobed below.

Abdomen covered by elytra, all ventrites freely articulated, ventrite 1 longest and ventrites 2-5 more or less equal in length, ventrite 1 sometimes with open femoral lines, intercoxal process variable. Aedeagus inverted cucujoid-type, median lobe usually broadly elongated and with a median strut, articulated parameres well developed. Ovipositor well developed with separate paraprocts, valvifers, coxites and styli.

LIST OF TAXA

Family SILVANIDAE

Subfamily SILVANINAE

1. *Silvanus lewisi* Reitter
2. *Silvanus difficilis* Halstead
3. *Silvanus robustus* Halstead
4. *Silvanus andamanicus* Pal & Sengupta
5. *Protosilvanus lateritius* (Reitter)
6. *Protosilvanus granosus* (Grouvelle)
7. *Silvanoides cribricollis* (Grouvelle)
8. *Silvanoprus scuticollis* (Walker)
9. *Silvanoprus longicollis* (Reitter)
10. *Monanus concinnulus* (Walker)
11. *Ahasverus advena* Waltl
12. *Silvanolomus denticollis* (Reitter)
13. *Oryzaephilus mercator* (Fauvel)

Subfamily PSAMMOECINAE

14. *Psammoecus graciosus* Grouvelle
15. *Psammoecus trimaculatus* (Motschulsky)
16. *Psammoecus* sp.

Family SILVANIDAE

Subfamily SILVANINAE

Genus *Silvanus* Latreille

1804. *Silvanus* Latreille, *Histoire Naturelle, générale et particulière, des crustacés et des insectes*, **11** : 158
[Type-species : *Ips unidentata* Olivier].

Diagnosis : Head devoid of fronto-clypeal suture, eyes moderately large and coarsely faceted, temple often flattened beneath eye, transverse impressed line on vertex behind eyes, 11-segmented antenna with 3-segmented club, antennal insertions hidden under projection of frons, mandible with 3 apical teeth, apical segments of maxillary and labial palpi fusiform; prothorax usually elongate, side margins finely serrated, front coxal cavities closed and prosternal process broad at apex, mesocoxae narrowly separated; wing with single anal vein; each elytron with 9 rows of striae punctures, tarsi of legs simple; intercoxal process of first abdominal ventrite broad and its apical margin broadly pointed, femoral lines closed.

1. *Silvanus lewisi* Reitter

1876. *Silvanus lewisi* Reitter, *Col. Heft*, **15** : 76.
1908. *Silvanus lewisi* : Grouvelle, *Annls. Soc. ent. Fr.*, **77** : 491.
1912. *Silvanus lewisi* : Grouvelle, *Annls. Soc. ent. Fr.*, **81** : 338.
1973. *Silvanus lewisi* : Halstead, *Bull. Br. Mus. Nat. Hist. (Ent.)*, **29**(2) : 52.
1977. *Silvanus lewisi* : Pal & Sengupta, *Oriental Ins.*, **11**(2) : 272.

Diagnosis : Yellowish to reddish-brown and covered with short pubescence; eyes about half as long as head, temple shorter than one eye facet and its outer apical angle pointed, puncturation on vertex coarse and dense; elongated prothorax with anterior spine about half as long as eye and its tip pointed, lateral depressions on pronotal disc slightly marked, puncturation on pronotum coarse and dense and almost similar to that of vertex of head, elytra about twice as long as wide, parallel-sided with margins little wavy, punctures deep and large. Length-2.08-2.47 mm.

Material : 14 ex. India : Andaman Is., South Andaman, Azadnagar, Stewartgunj, 4 ex., 6.x.2001,

T.K. Pal & party, *ex.* under bark; Chatham, Port Blair, 1 *ex.*, 5.x.2001, T.K. Pal & party, *ex.* under bark; Lorazig, 10 km. O-Nilambur, 4 *ex.*, 22.ii.2000, T.K. Pal & party, *ex.* under bark; Middle Andaman, Nimbutala, 18 km. O-Bakultala, 1 *ex.*, 20.x.2001, T.K. Pal & party, *ex.* haystack; Yerata, 12 km. O-Bakultala, 4 *ex.*, 18.ii.2000, T.K. Pal & party, *ex.* under bark.

Distribution : India : Assam, Nagaland, Meghalaya, Sikkim, West Bengal, Himachal Pradesh, Uttarakhand, Tamil Nadu, Karnataka, Kerala, Andaman Is.; Sri Lanka; Vietnam; Taiwan; Japan; Malaysia; Singapore; Indonesia; Philippines; Guinea; Solomon Is.; Australia; Congo; Ghana.

2. *Silvanus difficilis* Halstead

1973. *Silvanus difficilis* Halstead, *Bull. Br. Mus. Nat. Hist. (Ent.)*, **29**(2) : 73.

1977. *Silvanus difficilis* : Pal and Sengupta, *Oriental Ins.*, **11**(2) : 279.

Diagnosis : Reddish-brown and covered with short pubescence; eyes slightly shorter than half of length of head, temple about as long as 1.5 to 2 eye facets with broad outer apical angle, puncturation on vertex coarse and dense; elongated prothorax, anterior spine about half as long as eye with slightly blunt tip, well developed lateral depressions on pronotal disc, puncturation on pronotum coarse and dense and almost similar to that of vertex of head; elytra little more than twice as long as broad, side margins little wavy, punctures deep and large. Length-2.20-2.50 mm.

Material : 44 *ex.* India : Andaman Is., South Andaman, Lorazig, 10 km. O-Nilambur, 15 *ex.*, 22.ii.2000, T.K. Pal & party, *ex.* under bark; Chatham, Port Blair, 14 *ex.*, 5.x.2001, T.K. Pal & party, *ex.* under bark; Middle Andaman, Yerata, 12 km. O-Bakultala, 15 *ex.*, 18.ii.2000, T.K. Pal & party, *ex.* under bark.

Distribution : India : Arunachal Pradesh, Nagaland, Manipur, Assam, Meghalaya, Mizoram, Sikkim, West Bengal, Himachal Pradesh, Uttarakhand, Madhya Pradesh, Maharashtra, Karnataka, Kerala, Tamil Nadu, Andaman Is.; Sri

Lanka; Myanmar; Vietnam; Taiwan; Malaysia; Singapore; Indonesia; Philippines; Moluccas; I. Delcas; Solomon Is.; Australia; New Ireland; West Africa..

3. *Silvanus robustus* Halstead

1973. *Silvanus robustus* Halstead *Bull. Br. Mus. Nat. Hist. (Ent.)*, **29**(2) : 71.

1977. *Silvanus curvispinus* Pal & Sengupta, *Oriental ins.*, **11**(2) : 278.

Diagnosis : Yellowish- to reddish brown and covered with short pubescence; eye slightly shorter than half as long as head; temple about as long as two eye facets, extended laterally beneath eye with broad apical angle; puncturation on vertex coarse and dense, moderately long antenna with basal and apical segments of club (segments 9 and 11) elongate; elongated prothorax, anterior spine at least half as long as eye and its outer margin curved inward, excluding anterior spines shape somewhat elliptical, lateral depressions on pronotum slightly marked near base, puncturation slightly coarser than that of vertex of head; elytra slightly more than twice as long as broad, sides little wavy, punctures deep and large; in male hind trochanter with a short spine. Length- 2.8-3.0 mm.

Material : 3 *ex.* India : Andaman Is., Middle Andaman, Yerata, 12 km, Bakultala, *ex.* : 11.02.2000, T.K. Pal & Party, *ex.* under bark; North Andaman, Danapur near Mayabunder, 2 *ex.*, 22.10.2001, T.K. Pal & party, *ex.* haystack.

Distribution : India : Assam, Arunachal Pradesh, West Bengal, Andaman Is. (New record); Malaysia; Singapore; Indonesia; Philippines.

4. *Silvanus andamanicus* Sengupta and Pal

1996. *Silvanus andamanicus* Sengupta & Pal, *Fauna of India, Coleoptera : Silvanidae* : 64.

Diagnosis : Reddish-brown and covered with short pubescence; eye about half as long as head, temple about as long as two eye facets, extended beneath eye with broad outer apical angle, moderately long antenna with segments 9 and 10 transverse and apical segment about as broad as long, puncturation on vertex coarse and dense;

elongate prothorax slightly narrowed behind middle, anterior spines shorter than half as long as eye, lateral margin slightly sinuate above and below middle, puncturation on pronotum coarse and dense and almost similar to that of vertex of head, lateral depressions on pronotum well marked; elytra about twice as long as broad, side margins little wavy, punctures deep and large. Length-2.38 mm.

Material : 1 ex. *Holotype*, India : Andaman Islands, Middle Andaman, 08.xii.1928, B.M. Bhatia, ex. *Dipterocarpus tubinatus* (under bark).

Distribution : India : Andaman Is.

5. *Protosilvanus lateritius* (Reitter)

1878. *Silvanus lateritius* Reitter, *Versh. Zool. Bot. Ges. Wien*, **28** : 194.
 1908. *Silvanus lateritius* : Grouvelle, *Annl. Soc. ent. Fr.* **77** : 490.
 1912. *Silvanus (Protosilvanus) lateritius* : Grouvelle, *Annl. Soc. ent. Fr.*, **81** : 336.
 1973. *Protosilvanus lateritius* : Halstead, *Bull. Br. Mus. nat. Hist. (Ent.)*, **29**(2) : 96.
 1984. *Protosilvanus lateritius* : Pal & Sengupta. *Oriental Ins.*, **18** : 237.

Diagnosis : Dorsally flattened, reddish-brown and covered with short pubescence; eyes about half as long as head, temple shorter than width of an eye facet and sloped downward, antennal segments 9 and 10 with apical spines, puncturation on vertex coarse and dense; elongated prothorax slightly narrowed behind middle, widest across anterior spines, lateral depressions on pronotum rather well developed, puncturation on pronotum almost similar to that of vertex of head; elytra more than twice as long as broad, almost parallel-sided with side margins slightly wavy, punctures deep and large, interstice 7 strongly carinate and extending slightly more than anterior three-fourths. Length-2.9-3.5 mm.

Material : 69 ex. India : Andaman Is., South Andaman, Chatham, Port Blair, 5 ex., 5.x.2001, T.K. Pal & party, ex. under bark; 2 ex., 13.ii.2000; Lorazig, 10 km. O-Nilambur, 2 ex., 22.ii.2000, T.K. Pal & party, ex. under bark; Middle Andaman, Yerata, 12 km. O-Bakultala, 5 ex., 18.ii.2000, T.K.

Pal & party, ex. under bark; Betapur, 35 km. O-Bakultala, 1 ex., 19.x. 2001, T.K. Pal & party, ex. fungusy log; North Andaman, Kalara, 11 km. N-O Kalighat, 45 ex., 24.x.2001, T.K. Pal & party, ex. under bark; Little Andaman, Hut Bay, 9 ex., 9.x.2001, T.K. Pal & party, ex. under bark.

Distribution : India : Arunachal Pradesh, Nagaland, Assam, Meghalaya, Mizoram, Sikkim, West Bengal, Bihar, Uttar Pradesh, Uttarakhand, Himachal Pradesh, Kerala, Tamil Nadu, Andaman Is.; Nepal; Bangladesh; Myanmar; Sri Lanka; Thailand; Vietnam; Malaysia; Singapore; Indonesia; Philippines; Taiwan; China; Japan.

6. *Protosilvanus granosus* (Grouvelle)

1897. *Silvanus granosus* Grouvelle. *Ann. Mus. civ. Stor. nat. G. Doria*, **32** (Series 2 **12**) : 396.
 1912. *Silvanus (Protosilvanus) granosus* : Grouvelle, *Annl. Soc. Ent. Fr.*, **81** : 336.
 1973. *Protosilvanus granosus* : Halstead, *Bull. Br. Mus. Nat. Hist. (Ent.)*, **29**(2) : 93.

Diagnosis : Elongate, rather parallel-sided, dorsally flattened, reddish-brown, covered with short pubescence; eyes about half as long as head; temple short, thin, extended beneath eye with pointed tip; antenna moderately long, segments 9 and 10 transverse and devoid apical spines on sides, puncturation on vertex coarse and dense; elongate prothorax slightly narrowed behind middle, anterior spine small with slightly pointed tip, lateral depressions on pronotum moderately marked, puncturation on pronotum almost similar to that of vertex of head; elytra more than twice as long as broad, punctures deep and large, interstice 7 slightly more raised than other interstices and prominent up to anterior three-fourths. Length-2.3-2.9 mm.

Material : 7 ex. India : Andaman Is., South Andaman, Lorazig, 10 km. O- Nilambur, 2. ex., 22.ii.2000, T.K. Pal & party, ex. under bark; Middle Andaman, Yerata, 5 ex., 18.xii.2000, T.K. Pal & party, ex. under bark.

Distribution : India : West Bengal, Andaman Is. (New records); Sri Lanka; Malaysia, Singapore; Indonesia; Philippines; Solomon Island.

Genus *Silvanoides* Halstead

1973. *Silvanoides* Halstead, *Bull Br. Mus Hist. (Ent.)*, **29**(2) : 87 [Type-species : *Silvanoides cheesmanae* Halstead].

Diagnosis : Head devoid of fronto-clypeal suture, eyes large and coarsely faceted, temple flattened beneath eye and shelf-like, transverse impressed line on vertex behind eyes indistinctly visible, 11-segmented antenna moderately long, segments 4 to 8 transverse or about as broad as long, club 3-segmented; mandible with well developed mola and 3 apical teeth, apical segments of both maxillary and labial palpi fusiform, maxillary lacinia with apical spine; prothorax elongate, front angles with prominent spines beneath level of anterior margin, side margins finely denticulate, front coxal cavities closed behind and prosternal process broad at apex, mesocoxae moderately widely separated, wing with single anal vein, each elytron with 9 rows of stria punctures; tarsi of legs simple; intercoxal process of first abdominal ventrite broad and broadly pointed at apex, femoral lines opened.

7. *Silvanoides cribricollis* (Grouvelle)

1897. *Silvanus cribricollis* : Grouvelle, *Anali. Mus. Civ. Stor. Nat. Giacomo Doria*, **38**(series 2, 18) : 397.

1912. *Neosilvanus cribricollis* : Grouvelle, *Annl. Soc. Ent. Fr.*, **81** : 324.

1985. *Silvanoides cribricollis* : Pal. *Rec. zool. Surv. India*, **82**(1-4) : 196.

Diagnosis : Reddish-brown, rather shiny and covered with short pubescence; eyes large and about half as long as head, temple slightly shorter than width of an eye facet and sloped downward, puncturation on vertex fine and sparse; elongated prothorax slightly narrowed posteriorly, anterior spine short broad and its tips somewhat pointed, side margins curved and slightly sinuate near posterior angles, lateral depressions on pronotal disc moderately developed, puncturation on sides of pronotum coarser than near middle; elytra more than twice as long as broad, side margins feebly wavy, punctures deep and large. Length-2.5-3.0 mm.

Material : 3 ex. India : Andaman Is., North Andaman, Kalara, 11km N.O-Kalighat, 1 ex.,

24.x.2001, T.K. Pal & party, *ex.* under bark; Little Andaman, Hut Bay, 1 ex., 09.x.2001, T.K. Pal & party, *ex.* under bark; Great Nicobar Is., Sital Pahar, 15 km. N.O-Campbell Bay, 1 ex., 10.x.2001, T.K. Pal & party, *ex.* Badam log.

Distribution : India : Arunachal Pradesh, Meghalaya, Sikkim, Andaman & Nicobar Is. (New Record); Indonesia.

8. *Silvanoprus scuticollis* (Walker)

1859. *Silvanus scuticollis* Walker, *Ann. Mag. Nat. Hist.*, (3) **3** : 53.

1886. *Silvanus triangulus* Reitter, *Col. Hefle*, **15** : 60.

1908. *Silvanus scuticollis* : Grouvelle, *Annl. Soc. ent. Fr.*, **77** : 491.

1912. *Silvanoprus scuticollis* : Grouvelle, *Annl. Soc. ent. Fr.*, **81** : 342.

1979. *Silvanoprus scuticollis* : Pal and Sengupta, *Entomologica Basiliensia*, **4** : 70.

Diagnosis : Yellowish- to reddish-brown and covered with short pubescence; eyes slightly shorter than half of length of head, temple about as long as one eye facet and its outer apical angle slightly pointed, puncturation on vertex coarse and dense; prothorax broader than long and distinctly narrowed posteriorly, widest across anterior spines, anterior spine about two-thirds as long as eye, lateral depressions on pronotum slightly developed, puncturation on pronotum almost similar to that of vertex of head; elytra slightly less than twice as long as broad, side margins little wavy, punctures deep and large. Length-2.15-2.55 mm.

Material : 56 ex. India : Andaman Is., South Andaman, Austinabad, Port Blair, 8 ex., 26.ii.2000, T.K. Pal & party, *ex.* haystack; Garacharma, 3 ex., 4.iii.2000, T.K. Pal & party, *ex.* haystack; Chiriatapu, 2 ex., 6.ii.2000, T.K. Pal & party, *ex.* haystack; Middle Andaman, Phooltala, 2 ex., 20.ii.2000, T.K. Pal & party, *ex.* haystack; Nimbutala, 18 km.O-Bakultala, 5 ex., 20.x.2001, T.K. Pal & party, *ex.* haystack; North Andaman, Danapur, nr. Mayabunder, 35 ex., 22.x.2001, T.K. Pal & party, *ex.* haystack; Aereal Bay, Diglipur, 1 ex., 20.x.2001, T.K. Pal & party, *ex.* bushy vegetation.

Distribution : India : Assam, Nagaland, Manipur, Meghalaya, Mizoram, Sikkim, West Bengal, Bihar, Uttar Pradesh, Uttarakhand, Tamil Nadu, Andaman Is. (New record); Sri Lanka; Malaysia; Indonesia; Japan; East Africa; Madagascar; France; Guyana; West Indies.

9. *Silvanoprus longicollis* (Reitter)

1876. *Silvanus longicollis* Reitter, *Col. Hefle*, 15 : 60.
 1908. *Silvanus longicollis* Grouvelle (nec. Reitter), *Annl. Soc. ent. Fr.*, 77 : 491.
 1912. *Silvanoprus longicollis* Grouvelle (nec. Reitter), *Annl. Soc. ent. Fr.* 81 : 341.
 1984. *Silvanoprus longicollis* : Pal, *Rec. Zool. Surv. India*, 81(3-4) : 339.

Diagnosis : Yellowish- to blackish-brown and covered with short pubescence; eyes short, temple long, slightly longer than length of eye and its outer margin slightly rounded, antennal scape large and about twice as long as broad, antennal segments 2-8 narrow-elongate, club 3-segmented, puncturation on vertex coarse and ocellate; prothorax elongate and almost parallel-sided, anterior spine small, about half as long as eye and projected forward, puncturation on pronotum almost similar to that of vertex of head and little finer anteriorly, lateral depressions on pronotum indistinct; elytra about twice as long as broad, side margins little wavy, punctures deep and large. Length-2.20-2.28 mm.

Material : 29 ex. India: Andaman Is., South Andaman, Austinabad, Port Blair, 6 ex., 26.ii.2000, T.K. Pal & party, ex. haystack; Bambooflat, 4 ex., 2.iii.2000, T.K. Pal & party, ex. haystack; Stewartgunj, Tapu Basti, 14 ex., 14.ii.2000, T.K. Pal & party, ex. haystack; Burmanallah, Baratang, 2 ex., 23.ii.2000, T.K. Pal & party, ex. haystack; North Andaman, Danapur, nr. Mayabunder, 3 ex., 22.x.2001, T.K. Pal & party, ex. haystack.

Distribution : India : Assam, Nagaland, Manipur, Mizoram, Meghalaya, Sikkim, West Bengal, Uttar Pradesh, Uttarakhand, Tamil Nadu, Andaman Is. (New record); Sri Lanka; Malaysia; Indonesia; China; Japan; Madagascar; East Africa.

10. *Monanus concinnulus* (Walker)

1858. *Monanus concinnulus* Walker, *Ann. Mag. Nat. Hist.* (3) 2 : 207.
 1867. *Silvanus signatus* Frauenfeld, *Verh. Zool. Bot. Ges. Wien* 17 : 438.
 1874. *Ceyptamorphia fasciatus* Wollaston, *Entomologist's mon. Mag.* 10 : 169.
 1876. *Ceyptamorphia concinnula* : Waterhouse, *Entomologist's mon. Mag.* 13 : 122.
 1899. *Emporius signatus* : Ganglbauer, *Die Käfer von Mitteleuropa* 3 : 586.
 1908. *Emporius concinnulus* : Grouvelle, *Annl. Soc. ent. Fr.* 77 : 489.
 1911. *Emporius concinnulus* : Reitter, *Fauna Germanica* 3 : 48.
 1912. *Monanus* (s. str.) *concinnulus* : Grouvelle, *Annl. Soc. ent. Fr.* 81 : 371.
 1981. *Monanus* (s. str.) *concinnulus* : Pal, *Oriental Ins.* 15(3) : 247.

Diagnosis : Moderately convex, rather shiny, yellowish- to reddish-brown and with black markings on elytra, covered with short pubescence; eyes shorter than one-third as long as head, temple about as long as 1.5 eye facets and its outer apical angle slightly pointed, antenna shorter than head and prothorax together, puncturation on vertex coarse and dense; quadrate prothorax slightly rounded anteriorly, side margin with about ten small and blunt denticles and each denticle bear an anteriorly directed seta, puncturation on pronotum almost similar to that of vertex of head; elytra shorter than twice as long as broad, side margins almost uniformly curved, a transverse black spot near middle and that extends towards apex along suture, punctures large. Length- 2.00-2.30 mm.

Material : 296 ex. India: Andaman Is., South Andaman, Austinabad, Port Blair, 11 ex., 26.ii.2000, T.K. Pal & party, ex. haystack; Bambooflat, 35 ex., 2.iii.2000, T.K. Pal & party, ex. haystack; Garacharma, 12 ex., 4.iii.2000, T.K. Pal & party, Stewartgunj, Tapu Basti, 100 ex., 14.ii.2000, T.K. Pal & party, ex. haystack; Burmanallah, Baratang, 49 ex., 23.ii.2000, T.K. Pal & party, ex. haystack; Azadnagar, 2 ex., 1.iii.2000, T.K. Pal & party, ex. haystack; Chiriatapu, 4 ex., 6.ii.2000, T.K. Pal & party, ex. haystack; Middle Andaman, Phooltala, 3 ex., 20.ii.2000, T.K. Pal & party, ex. haystack; Nimbutala, 18 km. O-Bakultala, 2 ex., 20.x.2001,

T.K. Pal & party, ex. haystack; North Andaman, Danapur, nr. Mayabunder, 78 ex., 22.x.2001, T.K. Pal & party, ex. haystack.

Distribution : India : Nagaland, Manipur, Meghalaya, Mizoram, Sikkim, West Bengal, Bihar, Uttar Pradesh, Uttarakhand, Delhi, Tamil Nadu, Karnatka, Andaman Is. (New record); outside India this species is widely distributed in both the old and New World.

Genus *Anasverus* Gozis

1881. *Ahasverus* Gozis, *Annls. Soc. ent. Fr.*, (6) 1 : Bull. p. CXXVII [Type-species : *Cathartus advena* Waltl].
 1882. *Cathartus (Ahasverus)* : Reitter, *Dt. Ent. Z.*, 26 : 296.
 1911. *Ahasverus* : Reitter., *Fauna Germanica*, 3 : 45.

Diagnosis : Elongated, moderately convex, transverse prothorax, pubescent. Head devoid of fronto-clypeal suture, moderately large eyes coarsely faceted, temple short and flattened beneath eye, no distinct transverse impressed line on vertex behind eyes; antenna moderately long, 11-segmented, antennal insertions hidden under projection of frons, club 3-segmented; mandible with well developed mola and 3 apical teeth, apical segments of both maxillary and labial palpi elongate-fusiform. Prothorax transverse, side margins finely serrated, front angles projected and forming callosity-like structure, front coxal cavities closed behind and prosternal process broad at apex, mesocoxae narrowly separated, metasternum with coxal lines, hind coxae widely separated; each elytron with 9 rows of striae punctures; tarsi 5-5-5, tarsal segment 3 lobed; intercoxal process of first abdominal vertebra broadly pointed at apex, with coxal/ femoral lines.

11. *Ahasverus advena* (Waltl)

1832. *Cryptophagus advena* Waltl, *Faunas*, 1 : 169.
 1834. *Cathartus advena* : Waltl, *Revue Entomologique*, 2 : 256.
 1846. *Cryptophagus angustatus* Lucas, *Explor. Alger.* : 221.
 1847. *Cryptophagus guerinii* Allibert, *Revue Zool.*, 10 : 12.
 1876. *Cryptophagus ? striatus* Rouget, *Annls. Soc. ent. Fr.*, (5) 6 : Bull. p. CCVII.
 1881. *Ahasverus advena* : Gozis, *Annls. Soc. ent. Fr.*, (6) 1 : Bull. P. CXXVII.

Diagnosis : Elongate-ovoid, transverse prothorax narrower than elytra, yellowish-brown and covered with short pubescence; transverse head with eyes about one third as long as head, temple shorter than the eye facet and its outer apical angle pointed, punctation on vertex fine and dense; transverse prothorax widest near middle, side margins arcuate; anterior angles produced into short-broad tuberos projections, about half as long as eye; pronotum devoid of any depression, narrowly bordered, punctation similar to that of vertex of head; elytra less than twice as long as broad, sides slightly rounded, punctures moderately large and deep. Length-2.1 mm.

Material : 2 ex. India : Andaman Is.; North Andaman, Kalighat 24.x.2001, T.K. Pal & party, ex. stored flour.

Distribution : World-wide through trade and commerce. in India : Madhya Pradesh, Maharashtra, West Bengal, Bihar, Kerala, Andaman Is. (New Records).

Genus *Silvanolomus* Reitter

1911. *Silvanopsis* Reitter (*sensu nec.* Grouvelle), *Fauna Germanica*, 3 : 44.
 1912. *Silvanotomus* Reitter, *Wien. ent. Ztg.*, 31 : 286 [Type-species : *silvanus denticollis* Reitter].

Diagnosis : Elongated, moderately convex, convex pronotum with six lateral teeth on either side. Head transverse, devoid of fronto-clypeal suture, moderately large eyes, temple short and flattened beneath eye, no distinct transverse impressed line on vertex behind eyes; antenna moderately long, antennal insertions hidden under projection of frons, 11-segmented with 3 segmented club; mandible with well developed mola and 3 apical teeth, apical segments of both maxillary and labial palpi elongate-fusiform. Prothorax subquadrate to slightly transverse, side margin with six large teeth, front coxal cavities closed behind and prosternal process broad at apex; mesocoxae closely situated, metasternum devoid of coxal lines, hind coxae widely separated; each elytron with 9 rows of striae punctures; tarsi 5-5-5, tarsal segment 3 strongly lobed; intercoxal process of

first abdominal ventrite broad with blunt apical margin, no femoral lines.

12. *Silvanolomus denticollis* (Reitter)

1876. *Silvanus denticollis* Reitter, *Col. Hefte*, 15 : 56.

1911. *Silvanopsis denticollis*: Reitter, *Fauna Germanica*, 3 : 44, nota.

1912. *Silvanolomus denticollis* : Reitter, *Wien. Ent. Ztg.*, 31 : 286.

Diagnosis : Elongate-ovoid, slightly transverse and dentate prothorax, reddish- brown and covered with short pubescence; eyes about half as long as exposed part of head, temple shorter than one eye facet and its outer apical angle slightly pointed, antenna slightly shorter than head and prothorax together, basal segments of club (9-10) transverse and apical segment (11) about as broad as long or marginally transverse, puncturation on vertex coarse and dense; slightly transverse prothorax broader medially, front margin feebly rounded, side margin with six broad and slightly pointed teeth, pronotum convex and puncturation similar to that of vertex of head; elytra less than twice as long as broad, sides slightly rounded, punctures moderately large and deep. Length-1.8 mm.

Material : 1 ex. India: Andaman Is., South Andaman, Burmanallah, Baratang, 23.ii.2000, T.K. Pal & party, ex. haystack.

Distribution : India : West Bengal, Bihar, Karnataka, Tamil Nadu, Andaman Is. (New Record); Sri Lanka; Indonesia.

Genus *Oryzaephilus* Ganglbauer

1899. *Silvanus (Oryzaephilus)* Ganglbauer, *Die Käfer von Mitteleuropa*, 3 : 584 [Type- species: *Silvanus surinameus* (Linnaeus)].

1911. *Oryzaephilus* : Reitter, *Fauna Germanica*, 3 : 45.

Diagnosis : Elongated, moderately depressed, somewhat parallel-sided, pronotum with three longitudinal carinae and six lateral teeth on either side. Head elongate, devoid of fronto-clypeal suture, eyes small to large, temple flattened beneath eye, no distinct transverse impressed line on vertex behind eyes; antenna moderately long, antennal insertions hidden under projection of frons, 11-segmented with 3-segmented club; mandible with

well developed mola and 3 apical teeth, apical segments of both maxillary and labial palpi elongate and fusiform. Prothorax elongate, side margin with six distinct teeth, pronotum with a discal area demarcated by a median and two lateral carinae; lateral longitudinal groove on either side of median carina, front coxal cavities closed and prosternal process broad at apex, mesocoxae closely situated, lateral margins of mesosternal process not notched, no coxal lines on metasternum, hind coxae widely separated; each elytron with 9 rows striae punctures, intercoxal process of first abdominal ventrite broad with blunt apical margin, no femoral lines.

13. *Oryzaephilus mercator* (Fauvel)

1889. *Silvanus mercator* Fauvel, *Revue Ent.*, 8 : 132.

1897. *Silvanus gossypii* Chittenden, *Bull., Bur., Ent., U.S. Dep Agric.*, 8 : 13.

1899. *Silvanus (Oryzaephilus) mercator*: Ganglbauer, *Die Käfer von Mitteleuropa*, 3 : 585.

1911. *Oryzaephilus mercator*: Reitter, *Fauna Germanica*, 3 : 46.

Diagnosis : Elongate, moderately elevated carinae of pronotum, short temple, deep brown, covered with short and semicret pubescence. Head (exposed part) broader than long, eye moderately large and about one third as long as head, temple about as long as 2 to 2.5 eye facets or about one third as long as eye; antenna moderately long, segments 4-8 about as broad as long or slightly transverse, basal segments of club (9-10) transverse, apical segment (11) about as broad as long, puncturation on vertex coarse and dense; elongate prothorax with front margin rounded, teeth on margin broad and pointed, anterior tooth more acute, lateral carinae of pronotum slightly convergent towards extremities, puncturation on pronotum similar to that of vertex of head; elytra more than twice as long as broad, punctures moderately large; interstices 3, 5 and 7 slightly carinate. Length-2.5-3.0 mm.

Material : 60 exs. India : Andaman Is., North Andaman, Kalighat, Diglipur, 20.x.2003, T.K. Pal & party, ex. cashew nut.

Distribution : Worldwide through trade and commerce. In India : West Bengal, Bihar, Rajasthan, Maharastra, Tamil Nadu, Andaman Is. (New record).

Subfamily PSAMMOECINAE

Genus *Psammoecus* Latreille

1829. *Psammoechus* Latreille, *Cuv. Regne Anim.* ed. 2, 5 : 135 [Type species : *Dermestes bipunctatus* (Fabricius)].
 1830. *Crypta* Stephen, *Illustration of British Entomology : Mandibulata*, 3 : 103.
 1846. *Psammoecus* : Erichson, *Naturgeschichte der Insekten Deutschlands* 1, Coleoptera, 3 : 329.

Diagnosis : Elongate, slightly ovoid; head with fronto-clypeal suture, two lateral longitudinal striae on vertex originating near bases of antennae, eyes small to moderately large and coarsely faceted, temple may or may not extend beneath eye, transverse impressed line on vertex behind eyes, 11-segmented antenna with no distinguishable club, antennal insertions somewhat dorso-lateral, mandible with large basal mandibular cavity and three apical teeth, apical segments of both maxillary and labial palpi securiform or transverse, maxillary lacinia without apical spine; prothorax usually transverse, side margins with more or less prominent denticles, front coxae contiguous and coxal cavities closed behind, apical margin of prosternal process little sinuate, sterno-pleural suture extending to lateral margin; wing with single anal vein; each elytron with 10 rows of striae punctures; tarsal segments 1-3 of legs lobed below; intercoxal process of first abdominal ventrite broad and its apical margin broadly pointed, femoral lines almost marginal striae of hind coxal cavities.

14. *Psammoecus* sp.

Diagnosis : Elongate-oval, moderately convex, slightly shiny, reddish-brown, blackish spots on elytra and antennal segments 7-10 blackish, body covered with moderately long and semierect pubescence; eyes about half as long as temple, short and flattened beneath eye; antenna long and slender, scape elongate and more than 2x as long as broad, segments 2-6 shorter and elongate, 7-10

slightly wider, segment 11 elongate and acuminate at apex, segments 7-10 darker than others segments; puncturation on vertex coarse and dense; prothorax broader than long, convex, slightly wider than head across eyes, maximum width near front margin and then narrowed posteriorly, teeth on lateral margin minute, usually broader than long, anterior and posterior angles obtuse, puncturation on pronotum slightly coarser than that on vertex of head; elytra more than 1.5x as long as broad, ovoid, widest near middle, punctures large; a broad transverse blackish spot near middle and that extends posteriorly as sutural spot. Length-2.9 mm.

Material : 1 ex. India : Andaman Is., Middle Andaman Nimbutala, 18 km. O- Bakultala, T.K. Pal & party, ex. haystack.

Remarks : This species resembles *Psammoecus lepidus* Grouvelle in facies but shows differences in having larger eyes and broader prothorax. For absence of more specimens, this species could not be critically compared with *lepidus* by examining male genitalia and hence its specific identity has remained unascertained.

15. *Psammoecus gratiosus* Grouvelle

1908. *Psammoecus gratiosus* Grouvelle, *Annls. Soc. ent. Fr.*, 77 : 448.

Diagnosis : Elongate-oval, moderately convex, slightly shiny, reddish-brown, head and prothorax slightly darker, blackish spots on elytra and antennal segments 7-10 blackish, body covered with moderately long and semierect pubescence; eyes about half as long as head, temple short and flattened beneath eye, antenna long and slender, scape slightly longer than twice as long as broad, segments 2-6 shorter and elongate, 7-10 slightly wider, segment 11 elongate and acuminate at apex, segments 7-10 blackish and other segments yellowish, puncturation on vertex coarse and dense; prothorax transverse, front margin rounded and slightly sinuate near either extremity, maximum width near middle and narrowed posteriorly, side margin arcuate with 7 distinct teeth, teeth small

and some of them hardly longer than broad, anterior and posterior angles obtuse and bearing teeth, puncturation on pronotum slightly coarser than that of vertex of head; elytra more than 1.5x as long as broad ovoid, widest near middle, punctures large; two large spots on elytra near middle, these coalesce transversely, a sutural spot posterior to above spots and transverse spot near apex. Length-2.3 mm.

Material : 1 ex. India : Andaman Is., South Andaman, Burmanallah, Baratang, 23.ii.2000, T.K. Pal & party, ex. haystack.

Distribution : India : Tamil Nadu, Andaman Is. (New record).

16. *Psammoecus trimaculatus* Motschulsky

1858. *Psammoecus trimaculatus* Motschulsky, *Etud. Ent.*, 7 : 45.

1859. ?*Cucujus incommodus* Walker, *Ann. Mag. Nat. Hist.*, (3) 3 : 53.

1876. *Psammoecus trimaculatus* : Waterhouse, *Entomologist's mon. Mag.*, 13 : 124.

1876. *Telephanus cruciger* Waterhouse, *Entomologist's mon. Mag.*, 13 : 125.

1879. *Psammoecus trimaculatus* : Reitter, *Verh. Zool. Bot. Ges. Wien*, 29 : 509.

1906. *Psammoecus trimaculatus* : Grouvelle, *Annls. Soc. ent. Fr.*, 75 : 125.

1908. *Psammoecus trimaculatus* : Grouvelle, *Annls. Soc. ent. Fr.*, 77 : 406.

1979. *Psammoecus trimaculatus* : Pal & Sengupta, *Ent. Basel.*, 4 : 75.

1985. *Psammoecus trimaculatus* : Pal, *Misc. Publ. Rec. Zoo. Surv. India, Occ. Pap.*, 71 : 41.

Diagnosis : Elongate-oval, moderately convex, slightly shiny, yellowish-brown with blackish spots on elytra and antennal segments 7-10 blackish, elytra covered with moderately long pubescence; eyes slightly shorter than half as long as head, temple short and slightly flattened beneath eye, antenna long and slender, scape moderately large and elongate, segments 2-6 shorter, subequal and elongate, segments 7-11 slightly wider than segment 6, segment 7 slightly elongate, segments 8-10 about as broad as long or slightly transverse, segment 11 elongate and acuminate apically; prothorax transverse, anterior margin narrower than head

across eyes, front margin and side margins feebly rounded, side margin with six or seven teeth of variable length, longest tooth in posterior half, slightly elongate and blunt apically, puncturation on pronotum coarse and dense, disc setose; elytra shorter than one and a half times as long as broad, widest near middle, punctures moderately large, interstices about as wide as or wider than punctures, a more or less rounded blackish spot on each elytron in posterior half and a longitudinal sutural spot present behind them. Length-2.5 mm.

Material : 4 ex. India: Andaman Is., Middle Andaman, Nimbutala, 18 km. 0- Bakultala, 20.x.2001, T.K. Pal & party, ex. haystack.

Distribution : India : Arunachal Pradesh, Assam, Nagaland, Manipur, Mizoram, Meghalaya, Sikkim, West Bengal, Bihar, Orissa, Uttarakhand, Uttar Pradesh, Jammu & Kashmir, Delhi, Karnataka, Tamil Nadu, Kerala, Andaman Is. (New record); Nepal; Bhutan; Sri Lanka; Myanmar; Malaysia; Japan; Madagascar.

Key to the subfamilies, genera and species of SILVANIDAE

1. Head without fronto-clypeal suture and devoid of longitudinal groove or striae on vertex; antennal insertions hidden under projection of frons, with distinct antennal club (Silvaninae).....2
- Head with a distinct fronto-clypeal suture and a pair of longitudinal striae on vertex; antennal insertions more or less exposed and dorso-lateral, no distinguishable antennal club (Psammoecinae: *Psammoecus*).....15
2. Lateral margin of prothorax finely serrated and without large teeth or denticles 3
- Lateral margin of prothorax with more or less large teeth or denticles 14
3. Prothorax transverse, anterior spines of prothorax moderately large, broadly rounded apically and callosity-like; elytra somewhat ovoid and lateral margins evenly curved outwardly; femoral lines on metasternum *Ahasverus advena* (Waltl)
- Prothorax elongate, anterior spines of prothorax small to large and more or less

- pointed apically; elytra somewhat parallel-sided and lateral margins more less wavy; metasternum devoid of femoral lines 4
4. Species markedly fattened; front coxae widely separated, much wider than coxal diameter; apical segments of maxillary and labial palpi shorter than segment 2; 7th elytral interstice more or less carinate
..... *Protosilvanus* Grouvelle..... 5
- Species moderately flattened; front coxae less widely separated, not wider than coxal diameter; apical segments of maxillary and labial palpi longest; elytral interstices not carinate 6
5. Antennal segments 9 and 10 with apical spines; median impressed line on metasternum extends anteriorly slightly beyond middle
..... *Protosilvanus lateritius* (Reitter)
- Antennal segments 9 and 10 without apical spines; median impressed line on metasternum extends anteriorly upto apex of metasternum *Protosilvanus granosus* (Grouvelle)
6. Lateral margins of prothorax finely serrated and without large teeth or denticles 7
- Lateral margin of prothorax with more or less large teeth or denticles 13
7. Tip of anterior spines lying beneath level of front margin of prothorax; antennal segments 4-8 about as broad as long; coxal lines on abdominal ventrite 1 open; dorsal surface of head and prothorax sparsely punctuate and somewhat shiny
..... *Silvanoides cribricollis* (Grouvelle)
- Tip of anterior spines lying in same level or beyond front margin of prothorax; antennal segments 4-8 moderately elongate; coxal lines on abdominal ventrite 1 close; dorsal surface of head and prothorax densely punctuate and rather dull 8
8. Tarsi simple and not lobed
..... (*Silvanus* Latreille)..... 9
- Tarsal segments 3 strongly lobed below
..... (*Silvanoprus* Reitter)..... 12
9. Temple short and represented by a thin platform, length of temple shorter than width of an eye facet and its outer apical angle pointed *Silvanus lewisi* Reitter
- Temple distinct and thick, length of temple longer than width of one eye facet and its outer apical angle somewhat broad 10
10. Outer margins of anterior spine of prothorax curved inwardly and its tip projected somewhat inwardly and towards front, prothorax somewhat elliptical excluding anterior spines; antennal segment 9 slightly elongate; hind trochanter of male with a short spine; aedeagus with apical projection of median lobe elongate and pointed
..... *Silvanus robustus* Halstead
- Outer margin of anterior spine of prothorax straight and directed antero-laterally, prothorax not elliptical excluding anterior spines and narrowed posteriorly; antennal segment 9 transverse; hind trochanter of male devoid of spine; aedeagus with apical projection of median lobe short and blunt 11
11. Anterior spine of prothorax short and about one-third as long as eye; in male aedeagus with inner lobe of paramere bearing single seta *Silvanus andamanicus* Sengupta & Pal
- Anterior spine of prothorax distinctly longer and at least half as long as eye; in male aedeagus with inner lobe of paramere bearing two setae *Silvanus difficilis* Halstead
12. Prothorax broader than long, width of prothorax across anterior spines more than 1.5x as broad as width across posterior angles, prothorax distinctly narrowed posteriorly, lateral margins almost straight, shape of prothorax rather triangular
..... *Silvanus scuticollis* (Walker)
- Prothorax longer than broad, width of prothorax across anterior spines less than 1.25x as broad as width across posterior angles, prothorax slightly narrowed posteriorly behind middle, lateral margins distinctly curved, shape of prothorax somewhat elongate-oblong. Temple about as long as eye and its outer margin rounded
..... *Silvanoprus longicollis* (Reitter)

13. Lateral margins of prothorax with 6 distinct teeth or denticles 14
- Lateral margin of prothorax with at least 8 teeth or denticles, tarsal segment 3 strongly lobed below
..... *Monanus concinnulus* (Walker)
14. Pronotum with three distinct longitudinal carinae; lateral margins of mesosternal process simple and not notched. Temple about as long as 2-2.5 eye facets, eye about 2.5-3x as long as temple
..... *Oreyzalophilus mercator* (Fauvel)
- Pronotum uniformly convex and devoid of longitudinal carinae, lateral margins of mesosternal process notched
..... *Silvanolomus denticollis* (Reitter)
15. Teeth on lateral margin of prothorax minute, indistinct, either broader than long or about as broad as long, slightly wavy and sinuate before posterior angles *Psammoecus* sp.
- Teeth on lateral margin of prothorax partly long, distinct, and longer than broad, lateral margin of prothorax not wavy and slightly rounded.. 16
16. A transverse blackish spot on apical part of elytra; teeth on lateral margin of prothorax small, subequal and broadly elongate, no transverse depression on pronotum
..... *Psammoecus gratiosus* (Grouvelle)
- No transverse blackish spot on elytra ; teeth on lateral margin of prothorax subequal, partly long and at least twice as long as wide , a slightly distinct transverse depression on pronotum in front of prothoracic base
..... *Psammoecus trimaculatus* Motschulsky.

SUMMARY

The paper deals with 16 species under 9 genera of 2 subfamilies from Andaman Islands. Of these, 12 species are recorded first time from the insular part of India. The species are systematically keyed and characterized.

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INSECTA : COLEOPTERA : COLYDIIDAE

T.K. PAL

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

E-mail: tkpal51@rediffmail.com

INTRODUCTION

The Colydiidae are a moderately large family of the superfamily Heteromera (= Tenebrionoidea) of the suborder Polyphaga. The family is yet to be sufficiently worked out in both the specific and supraspecific levels. Over the years, the family Colydiidae have been used as a repository of various genera, both Clavicornia and Heteromera, which possessed features like 4-segmented tarsi and clubbed antennae (Lawrence, 1980). The family Colydiidae was erected by Erichson (1842) and in Lacordaire's scheme of classification in 1854 it included several genera, now distributed in various clavicorn and heteromeroid families. This broad perception of the familial assemblage was followed by Reitter (1911) dealing with the fauna of Germany and by Hetschko (1930) for the preparation of world catalogue of Coleoptera. The constitution of the family has been changed considerably since the publication of Hetschko's Catalogue in 1930. Crowson (1955) made notable moderation in the constitution of the Colydiidae. He transferred Cerylonini, Murmidiinae and Euxestinae to the Clavicorn family Cerylonidae and retained the remaining colydiids in the section Heteromera under two subfamilies, viz., Colydiinae and Bothriderinae. Subsequently, there was a consideration by some coleopterists dealing with higher taxa (especially J.F. Lawrence) that Colydiidae as delineated by Crowson (1955) to be an assemblage of both clavicorn and heteromerans. The recent treatment by Pal and Lawrence (1986) has accepted the genera close to *Bothrideres* (Bothriderinae *sensu* Crowson) as a separate family, Bothrideridae. The remainders

of the heteromeroid genera of the world were listed by Ivie and Slipinski (1990) and arranged them under 10 tribes of Colydiidae. The treatment of Ivie and Slipinski (1990) is followed in the present account.

The colydiids are small to moderately large beetles those occur in both adult and larval stages in dead wood, under barks, leaf litter etc. Several species are predators on wood inhabiting larvae of insects. Since Grouvelle (1908), Pal (1984, 2003, 2007) and Pal and Slipinski (1984) described five species of Colydiidae from India. The present account is based on the collection made by the author in Andaman & Nicobar Is. where no colydiid is hitherto recorded.

CHARACTERS OF FAMILY COLYDIIDAE

Facies elongate to broadly ovate, subdepressed to strongly convex, dorsal surface glabrous or clothed with setae, scales or tuberosities.

Head elongate to transverse, eyes small to large, often constricted behind eyes, no fronto-clypeal suture, antennal insertions hidden under projection of frons, antenna 10- or 11-segmented with 1- or 3-segmented club, club occasionally of more segments, gular sutures well separated, with or without antennal grooves on ventral side. Mandible large, with 2-3 apical teeth, without dorsal mandibular cavity. Maxilla with well-developed lacinia and galea, apical segment of maxillary palpi elongate. Labium with transverse mentum, apical segment of palpi elongate.

Prothorax elongated to transverse, pronotum with varying grades of sculptures, front coxae

closely to widely situated, coxal cavities open or close. Mesocoxae usually moderately widely separated and closed outwardly, hind coxae moderately to widely separated.

Elytra cover abdomen dorsally, puncturation in regular rows, without scutellary striae, epipleura well developed. Wing with 3 to 4 anal veins, usually with subcubital fleck.

Legs with 4-4-4 or 3-3-3 tarsi (basal two tarsomeres apparently fused).

Abdomen with 5 visible ventrites, ventrite 1 longer than other, intercoxal process narrow to broad-truncate, with or without femoral lines.

LIST OF TAXA

Family COLYDIIDAE

Tribe SYNCHITINI

1. *Bitoma siccana* (Pascoe)
2. *Lasconotus lushaicus* Pal
3. *Synchita* sp.
4. *Colobicus parilis* Pascoe
5. *Cerchanotus orientalis* (Slipinski)
6. *Endeitoma* sp.
7. *Neotrichus* sp.

Tribe PYCNOMERINI

8. *Pycnomerus nitidicollis* (Reitter)

KEY TO THE GENERA AND SPECIES OF COLYDIIDAE OF ANDAMAN & NICOBAR ISLANDS

1. Tibiae with large, nonarticulated spine or tooth at outer apical angle; front coxal cavities closed behind. Dorsally glabrous *Pycnomerus nitidicollis* (Reitter)
- Tibial apex devoid of spine, sometime with 2 or few simple apical spurs; front coxal cavities open or closed. Dorsally usually dull and setose 2
2. Pronotum and elytra with prominent longitudinal carinae or costae 3
- Pronotum and elytra without longitudinal carinae or costae 4

3. Antennal club composed of two segments; front coxal cavities open posteriorly *Bitoma siccana* (Pascoe)
- Antennal club composed of three segments; front coxal cavities closed posteriorly *Lasconotus lushaicus* Pal
4. Antenna 10-segmented with 1-segmented club *Synchita* sp.
- Antenna 11-segmented with 2-segmented club 5
5. Form elongate-elliptical, prothorax markedly transverse, antennal segment 3 distinctly longer than segments 4 and 5 together. sides of prothorax smooth. Antennal groove on ventral side of head long and little convergent posteriorly *Colobicus parilis* Pascoe
- Form elongate-subparallel, prothorax more or less elongate, antennal segment 3 shorter than segments 4 and 5 together, sides of prothorax denticulate 6
6. Pronotum little transverse; antennal cavities on ventral side of head long and extending beyond posterior margin of eyes. Sides of pronotum narrowly explanate *Cerchanotus orientalis* (Slipinski)
- Pronotum elongate to about as broad as long; antennal cavities on ventral side of head shorter and not extending up to posterior margin of eyes 7
7. Apical segment of antennal club (segment 11) much smaller than penultimate segment *Endeitoma* sp.
- Apical segment of antennal club (segment 11) about same size of the penultimate segment or longer *Neotrichus* sp.

Tribe SYNCHITINI

Genus *Bitoma* Herbst

1793. *Bitoma* Herbst, *Natursystem der Insekten* : Käfer 5 : 25 (Type species : *Tritoma crenata* Fabricius).
1807. *Ditoma* Illiger, *Magazin für Insektenkunde* 6 : 320.
1857. *Euditoma* Gistel, *Vacuna*, 2 : 26.
1863. *Coniophaea* Pasco, *J. Ent.*, 2 : 90.

1873. *Synchytodes* Crotch, *Checklist Col. North America*, : 45.

1882. *Synchitodes*: Retter, *Best-Tab. eur. Col.* 6 : 130.

Diagnosis : Elongated, subparallel, almost cylindrical, pronotum and elytra longitudinally carinate and body sparsely pubescent. Head with prominent eyes, 11-segmented antenna with 2-segmented club, antenna inserted under projection of frons, antennal segments 4-9 subequal in length and shorter than preceding segments, ventrally antennal groove short and extending not beyond middle of eye, mandible with 2 apical teeth, apical segments of labial and maxillary palpi elongate and somewhat fusiform. Prothorax subquadrate, side margins crenulate, pronotum convex medially with sides not explanate, two pairs of longitudinal carinae (sublateral and admedian) on pronotum with a pair of short carinae between admendian carinae, front coxae separated not wider than diameter of coxae, front coxal cavities open, mesosternal process little narrower than prosternal apex, metasternum devoid of femoral lines; elytra striate-punctate, alternate interstices feebly carinate, tibiae of legs with two spurs at outer apical angle and with a single one at inner side, tarsal segments 1-3 subequal in length; intercoxal process of first abdominal ventrite narrowed towards apex, no femoral lines.

Distribution : North, Central and South America; Europe; Africa; Egypt; Syria; India; Sri Lanka; Myanmar; Japan; Philippines; Indonesia; Australia; New Zealand; Pacific Islands.

***Bitoma siccana* (Pascoe)**

1863. *Xuthia siccana* Pascoe, *J. Ent.*, 2 : 128.

1863. *Xuthia rufina* Pascoe, *J. Ent.*, 2 : 128.

1863. *Xuthia maura* Pascoe, *J. Ent.*, 2 : 129.

1867. *Bitoma lyctiformis* Wollaston, *Col. Hesperidum*, : 63.

1885. *Xuthia parallela* Sharp, *J. Linn. Soc. Lond.*, 19 : 70.

1892. *Bitoma elongata* Grouvelle, *Annls. Soc. Ent. Fr.*, 59 : 296.

1898. *Bitoma rufipes* Kolbe, *Deutsch. Ost.-Afr.*, 4 Käfer : 111.

1908. *Xuthia siccana* : Grouvelle, *Annls. Soc. Ent. Fr.*, 77 : 399.

1930. *Bitoma siccana* : Hetschko, *Col. Cat.*, 107 : 19.

1980. *Bitoma siccana* : Dajoz, *Faune de Madagascar*, : 28.

1985. *Bitoma siccana* : Slipinski, *Pol. Pismo Ent.*, 55 : 485.

Diagnosis : Elongated, subcylindrical, reddish-brown to dark brown, not shining and finely setose; head transverse, anterior clypeal margin little emarginate medially, frons and vertex slightly impressed laterally, sides of head behind antennal base raised to form carinae like structure, eyes about half as long as head, rugose granular punctures on dorsal side; quadrate prothorax with anterior margin arcuate medially, two pairs of well developed carinae on pronotum with the additional carinae in anterior half short and rather parallel, side margins finely sinuate and widest in anterior half, puncturation on pronotum almost similar as on vertex of head; elytra little more than twice as long as broad, each elytron with five feeble longitudinal carinae not joined either anteriorly or posteriorly. Length—2.5-3.2 mm.

Material : 523 ex. India : Andaman Is., South Andaman, Chatham, Port Blair, 168 ex., 5.x.2001, T.K. Pal & Party, ex. under bark; Chouldari, 6 ex., 28.ix.2003, T.K. Pal & Party, ex. under bark; Sipighat, 55 ex., 7.x.2001, T.K. Pal & Party, ex. under bark; Lorazig, 10 km. 0- Nilambur, 55 ex., 22.ii.2000, T.K. Pal & Party, ex. under bark; Middle Andaman, Yerata, 12 km. 0- Bakultala, 7 ex., 18.ii.2000, T.K. Pal & Party, ex. under bark; Pooltala, 6 ex., 20.ii.2000, T.K. Pal & Party, ex. under bark; Nimbutala, 18 km. 0- Bakultala, 5 ex., 20.x.2001, T.K. Pal & Party, ex. under bark; North Andaman, Danapur, nr. Mayabunder, 25 ex., 22.x.2001, T.K. Pal & Party, ex. under bark; Kalara 11 km. N-0 Kalighat, 115 ex., 24.x.2001, T.K. Pal & Party, ex. under bark; Little Andaman, Vivekanandapur, 28 km. 0- Hut Bay, 10 ex., 2001, T.K. Pal & Party, ex. under bark; Hut Bay, 68 ex., 9.x.2001, T.K. Pal & Party, ex. under bark; Great Nicobar, Campbell Bay, 3 ex., 7.x.2003, T.K. Pal & Party, ex. under bark.

Distribution : India : Sikkim, West Bengal, Mizoram, Tamil Nadu, Andaman & Nicobar Is. (New record); Bhutan; Nepal; Myanmar; Sri Lanka; Japan; Indonesia; Seychelles Is.; Mascarene Is.; New Guinea; New Caledonia; Madagascar; Reunion; Mauritius; Guinea Bissau; South Africa; Saudi Arabia.

Genus *Lasconotus* Erichson

1845. *Lasconotus* Erichson, *Natur. Ins. Deutschl., Col.*, (1) 3 : p. 258 nota. (Type species : *Lasconotus complex* Le Conte).
 1867. Lado Wankowicz, *Ann. Soc. Ent. Fr.*, (4) 7 : 249.
 1863. *Illeustus* Pascoe, *J. Ent.*, 2 : 33.
 1863. *Ithris* Pascoe, *J. Ent.*, 2 : 134.
 1871. *Othismopteryx* J. Sahlberg, *Not. Sällsk. Faun. Flor. Fenn. Forh.*, 11 : 441.
 1935. *Lasconotus* : Hinton, *Rev. Ent.*, 5 : 204.
 1935. *Chrysopogonius* Hinton, *Rev. Ent.*, 5 : 207.
 1997. *Lasconotus* : Slipinski & Lawrence, *Ann. Zool.*, 47 : 392.

Diagnosis : Elongated, nearly parallel-sided, carinate elytral interstices and pronotal disc. Head with large eyes, temple short and not apparent in entire specimen; 11-segmented antenna, club 3-segmented and rather abrupt, antennal segments 4-8 subequal in length and shorter than preceding segments; ventrally antennal groove weak and short, mandible with two apical teeth, apical segments of maxillary and labial palpi elongate and somewhat fusiform. Prothorax subquadrate, lateral portions slightly explanate, margins crenulate, two pairs of longitudinal carinae (sublateral and admedian) on pronotum, prosternum, prosternal process medially not raised above front coxae, front coxal cavities externally closed, front coxae separated by space narrower than coxal diameter, mesosternal process little narrower than prosternal apex, metasternum devoid of femoral lines; elytra striate-punctate, alternate interstices carinate, tarsal segments 1-3 subequal in length; intercoxal process of first abdominal ventrite narrowed towards apex, no femoral lines.

Distribution : North and Central America; India: Nepal; Australia; Papua.

Lasconotus lushaicus Pal

2007. *Lasconotus lushaicus* Pal, *Zool. Surv. India, State Fauna Ser.*, 14 *Fauna of Mizoram* : 310.

Diagnosis : Elongate, sub-cylindrical, costate pronotum and elytra, punctate-pubescent, reddish-brown, dorsum not shiny, Head broader than long, apical margin of elypeus nearly straight, eyes about half as long as head, coarsely faceted and non-projecting, sides of vertex raised and carinate, frons

slightly depressed above antennal insertions, puncturation on frons and vertex granulose and moderately closely arranged, antenna slightly longer than head, segments of club (9-11) transverse. Prothorax about as broad as long, sides feebly arched and serrulate, pronotal disc with 4 longitudinal carinae : 2 sublateral and 2 admedian, admedian carinae strongly elevated in anterior two-thirds and then continued posteriorly as two weaker carinae. Elytra little more than twice as long as broad, each elytron with five longitudinal carinae, carinae III and IV terminate little before apex. Length 1.92 mm.

Material : 1 ex., India: Andaman Is., Middle Andaman, Yerata, 12 km. 0- Bakultala, 18.ii.2000, T.K. Pal & Party, ex. under bark.

Distribution : India : Mizoram, Andaman Is. (New record).

Genus *Colobicus* Latreille

1807. *Colobicus* Latreille, *Genera Crustaceorum et insectorum*, 2 : 9. [Type-species : *Colobicus marginatus* Latreille].

Diagnosis : Elongated-ovoid, subdepressed, covered with short squamiform setae. Head with prominent eyes, 11-segmented antenna inserted under projection of frons, 3rd antennal segment longer than segments 4 and 5 together, antennal club 2-segmented, ventrally antennal groove long and little convergent posteriorly; mandible with 2 apical teeth, apical segments of labial and maxillary palpi elongate and somewhat fusiform. Prothorax broader than long, sides rounded, front margin deeply emarginated, front coxae separated less than diameter of coxae, front coxal cavities open, mesosternal process a little narrower than prosternal apex, metasternum devoid of femoral lines, elytra striate-punctate, tibiae of legs with no distinct apical spurs, tarsal segments 1 to 3 subequal in length; intercoxal process of first abdominal ventrite broadly pointed at apex, no femoral lines.

Distribution : Russia; Middle Europe; Continental Africa; Madagascar; Reunion; Mauritius; India; Myanmar; Sri Lanka; Indonesia; Malaysia; Philippines; Hawaii Is.

***Colobicus parilis* Pascoe**

1860. *Colobicus parilis* Pascoe, *J. Ent.*, 1 : 202.

1863. *Colobicus conformis* Pascoe, *J. Ent.*, 2 : 124.

1908. *Colobicus parilis* : Grouvelle, *Annls. Soc. Ent. Fr.*, 77 : 406.

1909. *Colobicus parilis* : Arrow, *Ann. Mag. Nat. Hist.*, (8) 4 : 193.

Diagnosis : Elongated, oblong, dark brown; Head transverse, anterior clypeal margin almost straight, surface flat with slightly rugose punctures and punctures with setae, eyes shorter than half as long as head, antennal segment 3 about as long as three successive segments together; transverse prothorax with anterior margin little arcuate medially and strongly sinuate to produce front angles, widest near posterior third, pronotal sides moderately explanate and margin finely serrulate, transverse striations on explanate portions, pronotum with a prebasal impression, punctures on pronotal disc slightly rugose and setose; elytra about 1.5 times as long as broad, sides narrowly explanate, interstices wider than rows of punctures, with recumbent short squamiform setae. Length 3.3-3.8 mm.

Material : 12 ex. India : Andaman Is., South Andaman, Chatham, Port Blair, 9 ex., 13.ii.2000, T.K. Pal & Party, ex. under bark; Lorazig, 10 km, 0- Nilambur, 1 ex., 22.ii.2000, T.K. Pal & Party, ex. under bark; Middle Andaman, Yerata, 12 km, 0- Bakultala, 2 ex., 18.ii.2000, T.K. Pal & Party, ex. under bark.

Distribution : India : Sikkim, Kerala (Mahe), Andaman Is. (New record); Myanmar; Philippines; Indonesia (Moluccas); Hawaii Is.

Genus *Synchita* Hellwig

1792. *Synchita* Hellwig (in) Schneider, *Neuest. Mag. Ent.*, 1(4) : 401 [Type-species : *Synchita juglandis* Hellwig].

1824. *Cicones* Curtis, *British Entomology*, 4 : 149.

1863. *Bupala* Pascoe, *J. Ent.*, 2 : 125.

1922. *Pseudosynchita* Pic, *Rev. Linn.*, 38(408) : 21.

1939. *Pseudocicones* Fursov, *Bull. Soc. Nat. Mosc.*, Sec. Biologique, (n.s.) 48(1) : 88.

Diagnosis : Elongated, sub-parallel, moderately depressed, no longitudinal carinae on pronotum and elytra, covered with squamiform setae. Head with prominent eyes, no distinct temple, frontal zone

relatively flat, antennal groove on ventral side somewhat long and about as long as eye. Antenna 10-segmented, inserted under projection of frons, club 1-segmented, strong and abrupt. Mandible with two apical teeth, apical segments of labial and maxillary palpi elongate and somewhat fusiform. Prothorax broader than long, lateral sides moderately explanate, margin serrate, pronotal disc moderately convex, front coxal cavities open, prosternal process wider than front coxae; mesocoxae separated by less than half as wide as coxal cavity, metasternum longer than ventrite 1; elytral punctures in linear rows. epiplurae complete; 4-segmented tarsi with segments 1-3 subequal in length; intercoxal process of first abdominal ventrite broadly pointed at apex, no femoral lines.

Distribution : North, Central & South America, Europe, Continental Africa, Madagascar, Seychelles, Japan, Sri Lanka, India (New Record).

***Synchita* sp.**

General appearance (Text-fig. 1) elongate, subdepressed, dorsally dull and covered with squamiform setae.

Head transverse, anterior margin of clypeus slightly notched, no depression or elevation on frons; eyes more than half as long as head, moderately projecting; temple not visible from above, neck hidden under pronotum; antenna slightly longer than head, scape oblong and hidden under frons, pedicel narrower than scape and oblongate, segment 3 narrower and slightly shorter than pedicel, segments 4-8 short, subequal, about as broad as long or slightly transverse, segment 9 slightly wider than preceding segment, club abrupt, somewhat balloon-like, slightly elongate with a transverse impression near middle, apical part of the club more densely setose; disc of frons and vertex with moderately coarse punctures, punctures separated by about their diameter, covered with moderately dense and semierect squamiferous setae, clypeal part more finely punctuate.

Prothorax transverse (1.0:1.4), sides slightly arcuate, slightly narrowed towards apex and base;

front angles produced, blunt and somewhat acute, hind angles slightly obtuse; pronotum with moderately impressed prebasal margin, lateral margins slightly explanate and serrate; pronotal disc set with moderately coarse punctures, punctures separated by less than their diameter, covered with moderately dense and semierect squamiferous setae.

Scutellum slightly transverse, round apically and punctate.

Elytra less than twice as long as broad (1.6 : 1.0), convex, sides subparallel or feebly arched, slightly broader towards posterior third, apex rounded, sides slightly explanate; punctures of striae coarse, separated longitudinally by about one diameter, interstices about as wide as diameter of punctures, intervals between punctures on striae feebly tuberculate and bearing squamiferous setae in linear rows; puncturation on ventral side much finer, no squamiferous seta. Length—2.60 mm.

Material : 6 ex. India : Andaman Is., South Andaman, Chatham, Port Blair, 13.ii.2000, T.K. Pal, ex. under bark.

Remarks : This species shows some resemblances with *Synchita compactus* (Grouvelle) from Seychelles but can be differentiated by its antennal club marginally elongate (vs. distinctly elongate in *compactus*) and more elongate elytra (1.6x as long as broad vs. 1.3x as long as broad in *compactus*).

Genus *Cerchanotus* Erichson

1845. *Cerchanotus* Erichson, *Naturg. Ins. Deutschl. Col.*, 3 : 257 [Type species : *Syntarsus asperulus* Fairmaire, by subsequent designation].

1869. *Syntarsus* Fairmaire, *Annl. Soc. ent. Fr.*, (4) 9 : 205.

1990. *Asprecodes* Nakane, *Kita-kyushu no Konchu*, 37(2) : 66.

Diagnosis : Elongated, subparallel, moderately depressed, dull, covered with squamiform setae. Head with prominent eyes, 10-segmented antenna with 2-segmented club, antenna inserted under projection of frons, ventrally antennal groove long reaching below posterior level of eye, mandible with 2 apical teeth, apical segments of maxillary

and labial palpi elongate. Prothorax broader than long, sides dentate, front coxae separated by less than the diameter of coxae, front coxal cavities open, mesosternal process a little narrower than prosternal apex, metasternum devoid of femoral lines, elytra striate-punctate, tibiae of legs with no distinct apical spurs, tarsal segments 1-3 subequal in length and division between segments 1 and 2 not apparently distinct; intercoxal process of first abdominal ventrite narrowed towards apex, no femoral lines.

Distribution : Madagascar; South China; Japan; India; Nepal; Bhutan; Sri Lanka; Malaysia; Indonesia; Philippines; Australia; New Guinea.

Cerchanotus orientalis (Slipinski)

1985. *Syntarsus orientalis* Slipinski, *Annl. Zoologici*, 39 : 183.

1908. *Cebia rugosa* (nec. Pascoe) : Grouvelle, *Annl. Soc. ent. Fr.*, 77 : 412.

1975. *Cebia rugosa* (nec. Pascoe) : Dajoz, *Ent. Basel.*, 1 : 297.

2003. *Cerchanotus orientalis* : Pal, *Zool. Surv. India, State Fauna Ser.*, 9, *Fauna of Sikkim* : 169.

Diagnosis : Facies as noted above; head transverse, anterior clypeal margin almost straight, surface flat with slightly rugose punctures, punctures with whitish squamiform setae, eyes nearly half as long as head and studded with short whitish setae; transverse prothorax slightly convergent basally, pronotal sides narrowly explanate and dentate, front angles acute, pronotum coarsely punctate and covered with whitish squamiform setae; elytra less than twice as long as broad, parallel-sided and rounded apically, each elytron with 9 rows of deep punctures, with semirecumbent whitish squamiform setae. Length—2.8 mm.

Material : 1 ex. India: Andaman Is., South Andaman, Chatham, Port Blair, 13.ii.2000, T.K. Pal & Party, ex. under bark.

Distribution : India : Sikkim, Andaman Is. (New record); Bhutan; Nepal; Sri Lanka; Indonesia (Sumatra); Australia.

Genus *Endeitoma* Sharp

1894. *Endeitoma* Sharp, *Biologia-Centralia Americana*, Coleoptera, 2(1) : 450 [Type-species : *Endeitoma mexicana* Sharp].
1899. *Keklasmenus* Sharp, *Entomologist's mon. Mag.*, (2) 10 : 9.
1937. *Pabula* Carter & Zeck, *Proc. Linn. Soc. N.S.W.*, 62 : 193.
1980. *Mahetrichus* Dajoz, *Faune de Madagascar*, 54 : 37.

Diagnosis : Narrow, elongated, subparallel, no longitudinal carinae on pronotum and elytra, body covered with dual vestiture of short and long setae. Head with moderately large eyes, temples short, no distinct neck constriction, frontal zone relatively flat, antennal groove on ventral side short and about half as long as eye. Antenna 11-segmented, inserted under projection of frons, segment 3 about thrice as long as its width; club 2-segmented, strong and abrupt, apical segment distinctly narrower than preapical one. Mandible with two apical teeth, apical segments of labial and maxillary palpi elongate and somewhat fusiform. Prothorax elongate, sides subparallel and margins denticulate, pronotal disc convex with rugose tubercles, prosternal process wider than front coxal cavity, front coxal cavities open; mesocoxae separated by less than half as wide as coxal cavity, metasternum longer than ventrite 1; elytral punctures in 9 linear rows, epipleura complete; tarsi apparently 3-segmented (as segments and 2 semifused); intercoxal process of first abdominal ventrite narrowed towards apex, no femoral line on ventrite.

Distribution : All major biogeographic regions except Palaearctic, and New Zealand.

Endeitoma sp.

General appearance (Text-fig. 2) rather narrowly elongate, moderately depressed, reddish-brown to dark brown, head and pronotum with rugose punctuations, dorsum setose and rather dull.

Exposed part of head moderately transverse, mouth parts partly exposed, anterior margin of clypeus slightly arcuate, shallow longitudinal impressions on frons over antennal bases, eyes

about one-third as long as exposed part of head and moderately projecting, temple about half as long as eye, neck constriction not distinct but post-ocular neck-line apparent; antenna slightly longer than exposed part of head, scape oblong and hidden under frons, pedicel narrower than scape and somewhat globose, segment 3 narrower and longer than pedicel, segments 4-8 short, subequal, about as broad as long or slightly transverse, segment 9 slightly wider than preceding segment, basal segment of club (segment 10) broad and transverse, apical segment (segment 11) shorter, narrower and more pubescent; disc of frons and vertex with distinctly raised tubercles (rugose punctures), tubercles separated by less than their diameter and each bearing an erect squamiferous seta, clypeal apex non-tuberculate.

Prothorax elongate (1.1 : 1.0), sides almost straight and slightly narrowed from apex to base, front angles produced and hind angles not very well marked, pronotum with moderately impressed preapical and prebasal margins, lateral margins not explanate and distinctly dentate, pronotal disc set with rugose tubercles, size of tubercles almost similar to those on vertex of head, tubercles separated by much less than their diameter and bear squamiferous setae.

Scutellum about as broad as long, round apically and impunctate.

Elytra more than twice as long as broad (2.3 : 1.0), convex, rather parallel-sided and slightly broader towards posterior third, apex rounded, sides not explanate; punctures of striae coarse, separated longitudinally by about one diameter, interstices about as wide as diameter of punctures, intervals between punctures on striae feebly tuberculate and each bearing squamiferous seta; puncturation on ventral side much finer, no squamiferous seta. Length-3.50 mm.

Material : 8 ex. India : Andaman Is., South Andaman, Chatham, Port Blair, 2 ex., 13.ii.2000, T.K. Pal, ex. under bark; South Andaman, Lorazig, 10 km. O-Nilambur, 1 ex., 22.ii.2000, T.K. Pal,

ex. under bark; Middle Andaman, Nimbulata, 18 km. O-Bakultala, 5 *ex.*, 20.10.2000 T.K. Pal, *ex.* under bark.

Remarks : This species shows some resemblances with *Endeitoma parallellocollis* (Grouvelle) from Seychelles but can be differentiated by its distinctly elongate prothorax (vs. about as broad as long in *parallellocollis*) and dentitions on sides more pronounced.

Genus *Neotrichus* Sharp

1886. *Neotrichus* Sharp, *J. Linn. Soc. Lond.*, **19** : 61 [Type-species : *Neotrichus hispidus* sharp].

Diagnosis : Elongated subparallel, no longitudinal carinae on pronotum and elytra, body covered with squamiform setae. Head with moderately large eyes, temples slightly extended like shelf beneath eye, 11-segmented antenna with 2-segmented club, antenna inserted under projection of frons, antennal segments 4 to 9 subequal in length and shorter than preceding segments, ventrally antennal groove moderately long, little convergent posterad and reaching not up to posterior border of eye; mandible with 2 apical teeth, apical segments of labial and maxillary palpi elongate and somewhat fusiform. Prothorax elongate of subquadrate, side margins denticulate, pronotum more or less convex medially, front coxae separated not wider than diameter of coxae, front coxal cavities open; mesosternal process narrower than prosternal apex, metasternum devoid of femoral lines, elytra striate-punctuate, interstices not carinate, tibiae of legs with two small apical spurs, tarsal segments 1 to 3 subequal in length; intercoxal process of first abdominal ventrite narrowed and pointed towards apex, no femoral lines.

Distribution : South America, Africa, Seychelles, Japan, Sri Lanka, India, Australia.

Neotrichus sp.

General appearance (Text-fig. 3) rather narrowly elongate, moderately depressed, dark brown, head and pronotum with rugose

punctations, dorsum with scant setae, not very dull. Exposed part of head moderately transverse, mouthparts partly exposed but not seen from above, anterior margin of clypeus slightly arcuate, shallow longitudinal impressions on frons above antennal bases, eyes about one-third as long as head and moderately projecting, temple short and slightly extended beneath eye, no post-ocular neck constriction; antenna slightly longer than exposed part of head, scape oblong and partly hidden under frons, pedicel narrower than scape and somewhat globose, segment 3 narrower than pedicel and slightly elongate, segments 4-9 short, subequal, about as broad as long or slightly transverse, basal segment of club (segment 10) broad and transverse, apical segment (segment 11) about as broad as long and not quite narrower than preceding segment; disc of frons and vertex with distinctly raised and flat-topped round tubercles (rugose puncture), tubercles separated by 0.5-1.0 diameter, clypeal apex more finely tuberculate.

Prothorax slightly elongate (1.1 : 1.0), sides almost straight and slightly narrowed from apex to base, front angles produced and hind angles not very well marked, pronotum with moderately impressed prebasal margins lateral margin, lateral margins not explanate and distinctly dentate, pronotal disc set with rugose tubercles and slightly larger in size than those on vertex of head, tubercles separated by 0.5-1.0 diameter.

Scutellum about as broad as long, round apically and punctuate.

Elytra more than twice as long as broad (2.5 : 1.0), convex, rather parallel-sided and slightly broader towards posterior third, apex rounded, sides not explanate; punctures of striae coarse, separated longitudinally by about one diameter, interstices about as wide as diameter of punctures, intervals between punctures on striae feebly tuberculate, squamiferous setae on tubercles near lateral borders; puncturation on ventral side much finer.

Measurements of holotype : Total length 3.64 mm., width of head across eyes 0.51 mm., length of antenna 0.61 mm., length and width of prothorax 0.91 mm. and 0.80 mm., length and width of elytra 2.15 mm. and 0.84 mm.

Material : 1 ex. India : Nicobar Is., Great Nicobar, 35 km. O- Campbell Bay, 8.xii.1978, B.N. Nandi & party, ex. decaying log.

Remarks : This species shows some resemblances with the lone Indian species, *Neotrichus afoveicollis* Pal from Sikkim but can be distinguished by its longer body, frons above antennal bases more elevated, elongate prothorax not explanate on sides (vs. about as broad as long with explanate sides in *afoveicollis*), pronotum devoid of distinctly impressed preapical margin; and more elongate elytra.

Tribe PYCNOMERINI

Genus *Pycnomerus* Erichson

1842. *Pycnomerus* Erichson, *Archiv für Naturgeschichte*, 8 (1) : 214 [Type species : *Ips terebrans* Olivier].
 1860. *Penthelispa* Pascoe, *J. Ent.*, 1 : 111.
 1861. *Endectus* LeConte, *Classif. Col. N. Amer.*, 1 : 91.
 1899. *Pycnomeroplesius* Ganglbauer, *Die. Käfer von Mitteleuropa*, 3 : 885.

Diagnosis : Elongated, subparallel, moderately depressed, punctate body with ribbed elytra, glabrous and shiny. Head with moderately large eyes, postocular temple may be short or long, 11-segmented moniliform antenna with 2-segmented club (sometimes segments 10 and 11 fused into 1-segmented club), antenna inserted under projection of frons, no distinct antennal groove on ventral side, mandible with 2 apical teeth, apical segments of labial and maxillary palpi elongate and fusiform, Prothorax usually little elongate, sides smooth (rarely finely serrate), pronotum moderately convex, side margins not explanate but finely bordered, front coxae separated wider than diameter of coxae, prosternal process expanded apically, front coxal cavities closed, mesosternal process narrower than prosternal apex, metasternum devoid of femoral lines, elytra striate-

punctate, interstices not carinate but ribbed, tibiae of legs with a distinct tooth at outer apical angle and spine at inner apical angle, tarsal segments 1 to 3 subequal in length; intercoxal process of first abdominal ventrite broad and truncate apically, no femoral lines.

Distribution : North, Central and South America; West Indies; Continental Africa; Madagascar; India; Sri Lanka; Indonesia; Australia; Tasmania; New Zealand.

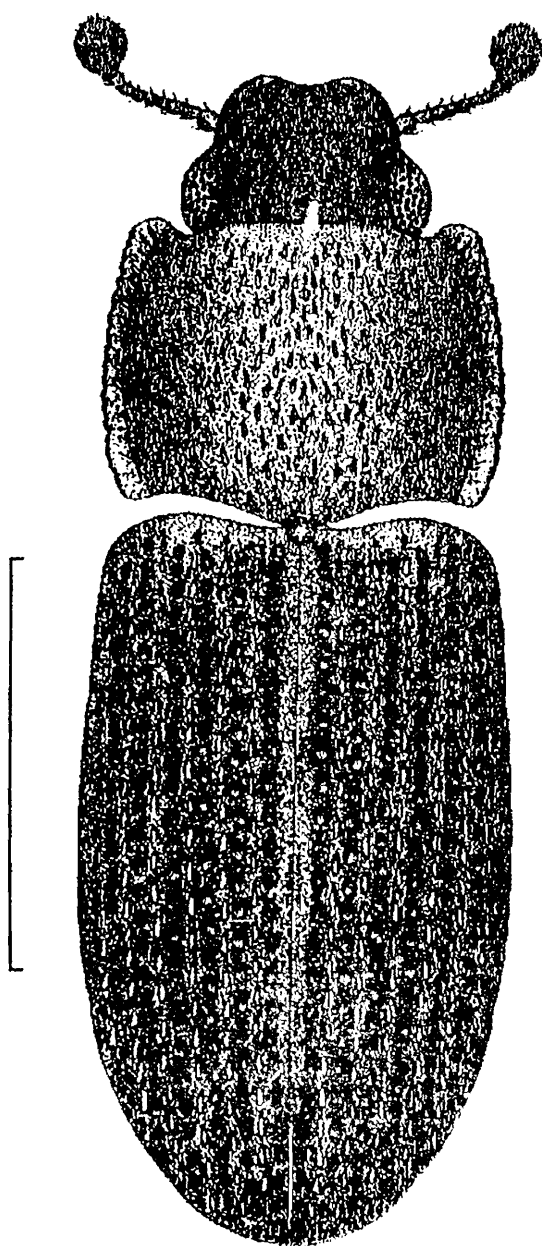
Pycnomerus nitidicollis (Reitter)

1877. *Penthelispa nitidicollis* Reitter, *Stettin. Ent. Ztg.*, 38 : 305.

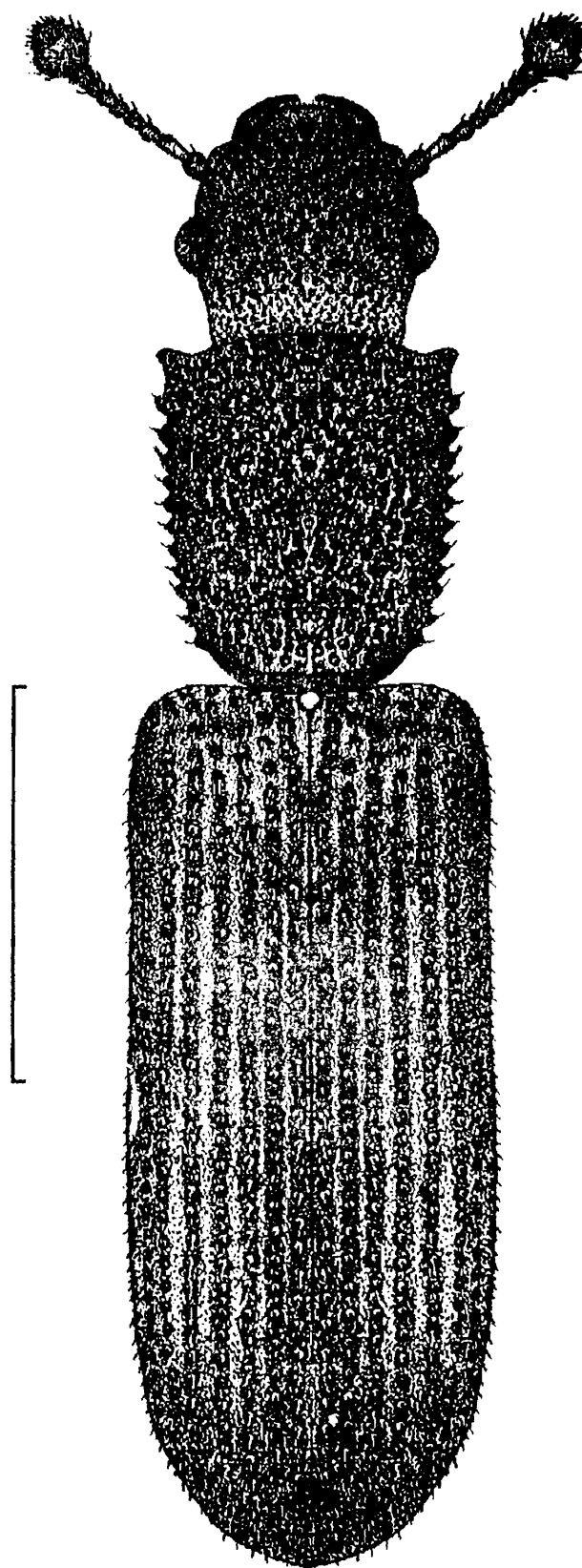
1908. *Pycnomerus nitidicollis* : Grouvelle, *Annls. Soc. Ent. Fr.*, 77 : 428.

Diagnosis : Moderately broadly elongated, reddish-brown, shiny; head transverse, anterior clypeal margin emarginate, frons little elevated above antennal bases, two sublateral small elongate depressions near antennal bases, antenna slightly longer than head, antennal segment 2 to 9 transverse, segments 10 and 11 distinctly separated and more and less transverse, eyes shorter than half as long as head, dorsal surface moderately coarsely punctate; punctures separated by about a diameter or little more; prothorax little elongate; widest in anterior third and little narrower posteriorly, front angles slightly produced and hind angles not prominent, pronotal sides smooth and finely bordered, with two transverse admedian prebasal depressions, punctures on pronotal disc coarser near middle and little finer anterad and posterad; elytra more than twice as long as broad, almost parallel sided at basal two-thirds and then narrowed to rounded apex, interstices little raised and rounded dorsally, interstices 2 and 4 fused at level of posterior border of fourth abdominal ventrite, interstices 6, 7 and 8 fused at level of posterior border of third abdominal ventrite. Length—2.9-3.1 mm.

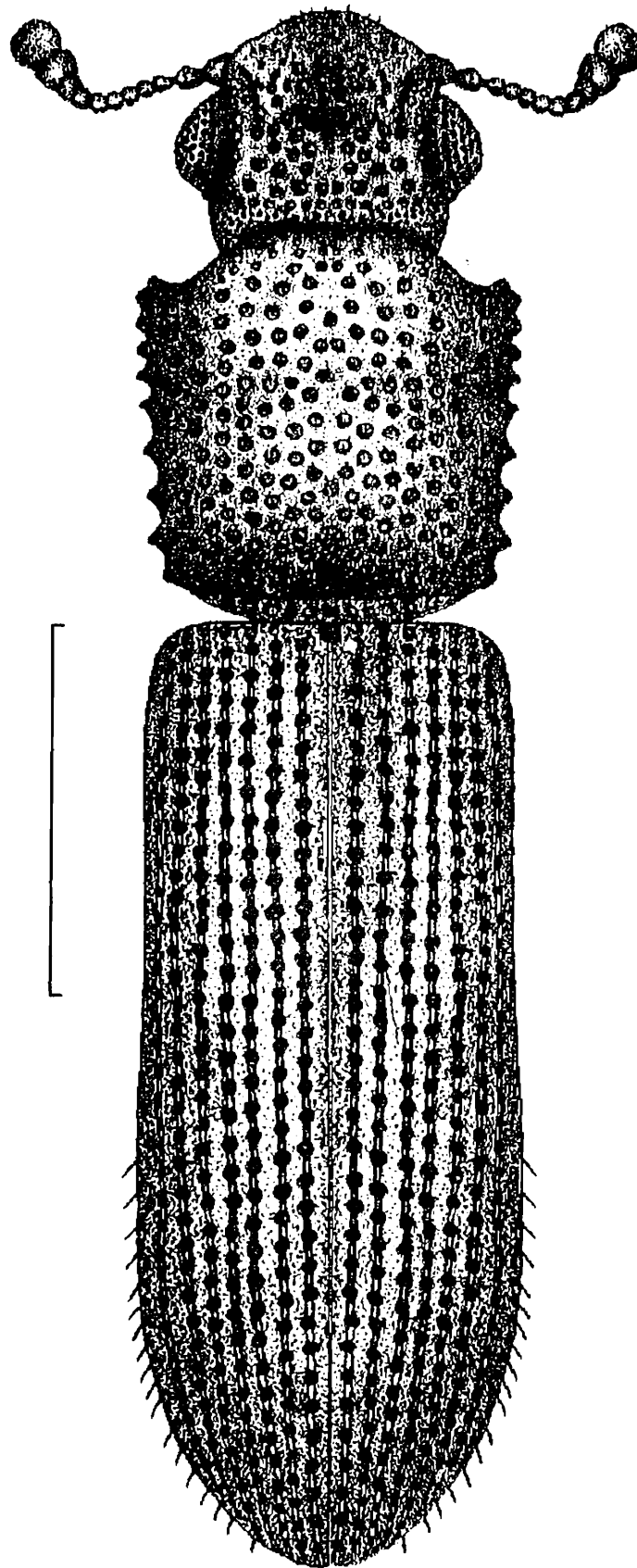
Material : 43 ex. India : Andaman Is., South Andaman, Lorazig, 10 km. O- Nilambur, 1 ex., 22.ii.2000, T.K. Pal & Party, ex. under bark;



Text-fig. 1 : *Sychita* sp., Dorsal view (Scale= 1.0 mm.).



Text-fig. 2 : *Endeitoma* sp., Dorsal view (Scale= 1.0 mm.).



Text-fig. 3 : *Neotrichus* sp., Dorsal view (Scale= 1.0 mm.).

Middle Andaman, Betapur, 35 km. O- Bakultala, 1 ex., 19.x.2000, T.K. Pal & Party, ex. fungusy log; Great Nicobar Is., Campbell Bay, 1 ex., 3.xi.1978, B. Nandi & Party, ex. Dhup log; 24 km. S- 0 Campbell Bay, 1 ex., 2.xii. 1978, B. Nandi & Party, ex. decaying Mango log; Campbell Bay, 8 ex., 7.x.2003, T.K. Pal & Party, ex. under bark; Sital Pahar, 15 km. W- 0 Campbell Bay, 30 ex., 10.x.2003, T.K. Pal & Party, ex. Badam log; Shastri Nagar, 14 km. O- Campbell Bay, 1 ex., 4.x.2003, T.K. Pal & Party, ex. under bark;

Distribution : India : Sikkim, Tamil Nadu, Andaman & Nicobar Is. (New record); Sri Lanka.

SUMMARY

The paper deals with 8 species under 8 genera of 2 tribes of which 3 species appear to be undescribed. The family is recorded for the first time from Andaman & Nicobar Is. as no taxonomic study of this group was carried out earlier from this area. The species are systematically keyed and characterized.

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INSECTA : COLEOPTERA : BOTHRIDERIDAE

T.K. PAL

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

E-mail: tkpal51@rediffmail.com

INTRODUCTION

The Bothrideridae are a moderately large family of the superfamily Cucujoidea with about 300 species which are represented in all major biogeographic regions. The history of the Bothrideridae (and related family Cerylonidae) remained complex and had undergone changes at times. Most of the species currently placed in two taxa were variously placed into several subgroups of the family Colydiidae by most coleopterists since Erichson (1845). But they cannot be placed with true colydiids in one assemblage owing to their situation of antennal base, structure of aedeagus and characters of larva. The Bothrideridae was first proposed by Craighead (1920) on the basis of larval features. However, over the years the Colydiidae used as a repository of various genera which possessed features like, 4-segmented tarsi and clubbed antennae (Lawrence, 1980). This scheme was followed in the *Coleopterorum Catalogus* by Hetschko (1930), and Crowson (1955) with several moderations. For several years, workers concerned with the higher classification of the Coleoptera have considered the Colydiidae as set out in the *Coleopterorum Catalogus* (Hetschko, *op. cit.*) to be a mixture containing parts of several families of beetles. Subsequently, the treatment by Pal & Lawrence (1986) has accepted the genera close to *Bothrideres* Dejean (Bothriderinae, *sensu* Crowson, 1955) as a separate family and divided the family into four subfamilies viz., Bothriderinae, Annomatinae, Teredinae and Xylariophilinae. The bothriderids are small to moderately large beetles, those occur in dead and fungusy wood, under bark, with elongate and subcylindrical to slightly flattened body. Several

species are predators on wood inhabiting larvae of insects. By now, about 12 species have been recorded from India with no reports from the insular parts of the country. Recently, during the field works in Andaman & Nicobar Islands beetles of this family were collected from the woodlands and vegetation. The present account incorporates the taxonomic inventory of this material comprising four species including an undescribed species of *Pseudobothrideres* Grouvelle.

CHARACTERS OF THE FAMILY BOTHRIDERIDAE

Facies elongate to oblong, subcylindrical to dorsally subdepressed, glabrous or clothed with setae or scales, sometime longitudinally ribbed.

Head more or less transverse, eyes small to large, often with fronto-clypeal suture. Antenna relatively short, 10- or 11-segmented with 1- or 2-segmented club, antennal insertions dorso-lateral and exposed. Mandible large, with 2-3 apical teeth, no dorsal mandibular cavity, Maxilla with well developed lacinia and galea, apical segment of maxillary palpi elongate. Apical segment of labial palpi elongate.

Prothorax elongate to transverse, pronotum with varying grades of sculpture, front coxal cavities open or closed. Mesocoxae moderately to widely separated, closed or open outwardly, hind coxae moderately to widely separated. Elytra covers abdomen dorsally, puncturation in rows, sometimes with longitudinally raised interstices, epiplurae well developed. Legs with trochantero-femoral articulation oblique, sometimes trochanter reduced and more or less concealed by femoral base, tibiae with expanded spinous apices, tarsi 4-4-4 or 3-3-3.

Abdomen with 5 visible ventrites, ventrite 1 longer than others, intercoxal process narrow to broad-truncate, with or without femoral lines.

KEY TO THE SUBFAMILIES OF BOTHRIDERIDAE

1. Trochanter highly reduced and concealed within notch at base of femur; protibial spurs usually unequal in length, one being enlarged and curved; elytra with longitudinal ridges or carinae Bothriderinae
- Trochanter not reduced, visible; protibial spurs more or less equal in length, not enlarged or curved; elytra without longitudinal ridges or carinae 2
2. Eyes absent; hind wings absent; metasternum shorter than abdominal ventrite 1; tarsi 3-segmented Anommatainae
- Eyes present; hind wings present; metasternum longer than abdominal ventrite 1; tarsi 4-segmented 3
3. Mesocoxal cavities closed laterally by meeting of mesosternum and metasternum; hind wing with 3 or 4 anal veins; antennal grooves absent; body elongate, narrow, subglabrous or sparsely setose Teredinae
- Mesocoxal cavities not closed laterally by meeting of sterna (partly closed by meeting of mesepimeron); hind with 1 anal vein; antennal grooves present; body short-broad and densely setose Xylariophilinae

LIST OF TAXA

Subfamily BOTHRIDERINAE

1. *Pseudobothrideres velatus* Grouvelle
2. *Pseudobothrideres* sp.
3. *Erotylathris philippinensis* Heinze
4. *Machlotes porcatus* Pascoe

Family BOTHRIDERIDAE

Subfamily BOTHRIDERINAE

Genus *Pseudobothrideres* Grouvelle

1908. *Pseudobothrideres* Grouvelle, *Annl. Soc. Ent. Fr.* 77 : 438 [Type-species : *Pseudobothrideres neglectus* Grouvelle].

Diagnosis : Elongate-elliptical to rather parallel-sided, subdepressed. Head with moderately prominent eyes, 11-segmented antenna with 2-segmented club, penultimate segment of antennal club broader and longer than apical one, ventrally antennal groove long, mandible with two apical teeth, maxillary lacinia with a bifid apical spine, apical segment of maxillary and labial palpi elongate and fusiform. Prothorax trapezoidal with sides little sinuate before base, pronotum with a rectangular tubercle encircled by well marked sulcus, front coxae moderately widely separated; prosternal process broad, expanded apically with transverse impressed suture between coxae; mesocoxae moderately widely separated, metasternum with well marked femoral lines; elytra striate-punctate, alternate interstices carinate; tibiae of legs with two apical spurs, tarsal segments 1-3 subequal in length; intercoxal process of first abdominal ventrite broad and truncate apically, with well marked femoral lines.

Distribution : Africa, Australia, Pacific Islands, South and Southeast Asia [Indonesia, Malaysia, Philippines, Thailand, Vietnam, India].

Pseudobothrideres velatus Grouvelle

1908. *Pseudobothrideres velatus* Grouvelle, *Annl. Soc. ent. Fr.* 77 : 441.

Diagnosis : Elongate, subparallel, reddish brown, slightly shiny; eyes about one-third as long as head, anterior clypeal border straight, puncturation on vertex coarse and dense; antenna short, antennal segments 3-8 more or less transverse and slightly widening anteriorly; elongate prothorax with front angles slightly projected, side margins finely bordered and sinuate before posterior angles, pronotal tubercle nearly rectangular with its anterior margin angularly notched, puncturation on pronotum elongate and finer than on vertex of head; elytra more than twice as long as broad, slightly broadened from shoulders to about middle, carinae more strongly raised on apical part, all carinae joined apically except third one which ends freely, striae punctures minute. Length-3.2 mm.

Material : 1 ex., India, Andaman Is., South Andaman, Lorazig, 10 km. O-Nilambur, 22.ii.2000, T.K. Pal & party, *ex.* under bark.

Distribution : India : Sikkim, Tamil Nadu, Andaman Is. (New record); Thailand, Vietnam.

***Pseudobothrideres* sp.**

General appearance (Fig. 1) elongate-oblong, dark brown, moderately shiny. Head transverse, anterior margin of clypeus slightly arcuate, no marked elevation or depression on frons; eyes more than one-third as long as head, post-ocular temple long and parallel-sided; antenna slightly longer than head, scape large and subglobular, pedicel distinctly narrower and shorter than scape, segment 3 shorter than pedicel and about as broad as long, segments 4-8 subequal and slightly widening anteriorly, segment 9 slightly wider than preceding segment, club more or less abrupt, basal segment of club (segment 10) broad and transverse, apical segment (segment 11) shorter and narrower than penultimate segment; frons with punctures distinctly coarser than those of clypeus, smaller and somewhat elongate anteriorly and antero-laterally where they are more closely set than on top, punctures separated on top by 0.5-1.0 diameter.

Prothorax almost subquadrate (0.97 : 1.00), subtrapezoidal, front margin somewhat excavated with distinctly produced front angles; sides arcuate and sinuate prebasally, finely margined, hind angles less prominent; basal margin emarginate medially and slightly sinuate on either side; medio-basal sulcus elongate and quite prominent, with median and sublateral grooved extensions to base, median tubercle elongate and slightly indented anteriorly; punctures on tubercle and remaining part of pronotum rather finer than those on frons.

Scutellum about as broad as long and angulate posteriorly.

Elytra about twice as long as their greatest combined width (1.0 : 2.0), very slightly broadened from rounded shoulders to about middle, narrowed thence to obtusely rounded apical borders; sutural

carinae broadly and shallowly raised, more strongly so on apical declivity, entire; carinae of third intervals also entire, shallowly raised on disc and more strongly so on apical declivity, joined at basal borders of sutural carinae; carinae of fifth intervals about as wide as third, more prominently raised, ending freely at base and terminate shortly before reaching apical borders; carinae of seventh and ninth intervals narrowly raised, joined at shoulders and shortly before apices, combined carinae reaching apical borders; even intervals flat, second intervals more deeply excavate along apical declivity than elsewhere; almost impunctate, only except minute punctures on raised intervals near apical declivity; ventrally almost impunctate, Length- 5.0 mm.

Material : 1 ex. India, Nicobar Is., Campbell Bay, 27.x.2003, T.K. Pal & party, *ex.* under bark.

Remarks : This species comes close to *Pseudobothrideres velatus* Grouvelle but can be differentiated by its prothorax nearly quadrate (0.97 : 1.00) in comparison to elongate in *velatus* (1.05 : 1.00); puncturation on head and pronotum finer and sparser, raised intervals of elytra almost devoid of punctures (vs. minute punctures on raised intervals in *velatus*). Its placement in the genus *Pseudobothrideres* is not out of question as the transverse impressed line on prosternal process between anterior coxae is not visible.

Genus *Erotylathris* Motschulsky

1861. *Erotylathris* Motschulsky, *Bull. Soc. Imp. Nat. Moscou*, **34** : 130 [Type-species : *Erotylathris septemcostatus* Motschulsky, by monotypy].

1885. *Antoderus* Sharp, *J. Linn. Soc. Lond.*, **19** : 126.

Diagnosis : Narrowly-elongate, subdepressed. Head with large eyes, frons comparatively extended and convex laterally, vertex medially grooved, ventrally antennal groove prominent; 11-segmented antenna with 2-segmented club, penultimate segment longer than apical one; mandible with two apical teeth, apical segment of maxillary and labial palpi elongate and fusiform. Prothorax narrowly trapezoidal, pronotum with three pairs of longitudinal carinae and transverse

depressions; front coxae somewhat closely situated; prosternal process expanded apically, longitudinally grooved anterior to coxae; mesocoxae moderately widely separated, metasternum with well marked femoral lines; elytra somewhat elliptical, alternate interstices carinate; tibiae of legs without apical spurs, tarsal segments 1-3 elongate and subequal in length; intercoxal process of first abdominal ventrite broad and truncate apically, well marked femoral lines on ventrite 1.

Distribution : Sri Lanka, Indonesia, Malaysia, Philippines, Australia, New Guinea, India (New record).

***Erotylathris philippinensis* Heinze**

1943. *Erotylathris septemcostatus philippinensis* Heinze, *Ent. Blätter*, **39** : 122.

1989. *Erotylathris philippinensis* : Slipinski, Pope & Aldridge, *Pol. Pismo Ent.*, **59** : 137.

Diagnosis : Elongate-elliptical, reddish-brown, slightly shiny, moderately long legs and antennae. Head produced; eyes protuberant, shorter than half as long as head; temple extended beneath eye, anterior clypeal border arcuate, dorsum of head above antennal bases elevated and extending posteriorly, frons moderately coarsely punctate and setose; antennal scape large and oblongate, pedicel distinctly shorter, narrower and about as broad as long, segments 3-9 short, subequal and slightly transverse; club somewhat abrupt, basal segment (segment 10) slightly wider than long, apical segment slightly narrower, shorter and clearly transverse. Prothorax about 1.1x as long as broad, widest near middle, more narrowed towards base than front, front and basal margins arcuate, front angles broadly rounded and obtuse, hind angles acute, side margins carinate, two pairs of sublateral carinae on pronotum, outer sublateral carina joins lateral carina near anterior third, a pair of admedian carinae in posterior two-thirds, two transverse depressions on anterior and posterior thirds, a small longitudinal carina only above anterior transverse depression. Elytra about 2.08x as long as broad,

widest near middle and narrower anteriorly and posteriorly; intervals 1, 3, 5, 7 distinctly carinate from base to almost apex, elytral surface glabrous. Length-2.40 mm.

Material : 1 ex. India, Nicobar Is., Campbell Bay, 7.x.2003, T.K. Pal & party, ex. under bark.

Distribution : India : Nicobar Is. (New record); Indonesia, Malaysia, Philippines.

Genus *Machlotes* Pascoe

1836. *Machlotes* Pascoe, *J. Ent.*, **2** : 36 [Type species : *Machlotes porcatus* Pascoe].

Diagnosis : Elongated, subparallel, longitudinal costae on pronotum and elytra. Head with moderately large eyes, temple slightly extended like shelf beneath eye; 11-segmented antenna with 2-segmented club, antennal segments 4-9 subequal in length and shorter than preceding segments; ventrally antennal groove moderately long, little convergent posterad and reaching not up to posterior border of eye; mandible with two apical teeth, apical segments of labial and maxillary palpi elongate and somewhat fusiform. Prothorax elongate or subquadrate, pronotum with three pairs of longitudinal carinae, median pair of carinae interrupted near base by deep fovea, front coxae separated not wider than diameter of coxae, front coxal cavities open; mesosternal process narrower than prosternal apex; elytra striate-punctate, interstices sharply carinate, tibiae of legs with two small apical spurs, tarsal segments 1-3 subequal in length; intercoxal process of first abdominal ventrite narrowed and pointed towards apex, vaguely distinct or indistinct femoral lines on metasternum and abdominal ventrite 1.

Distribution : India, Sri Lanka, Myanmar, Malaysia, Philippines, Japan, Pacific Islands, Madagascar, Africa.

***Machlotes porcatus* Pascoe**

1836. *Machlotes porcatus* Pascoe, *J. Ent.*, **2** : 36.

Diagnosis Elongate, subcylindrical, dark brown, dull; head with eyes about one-third as long as head, temple long, anterior clypeal border

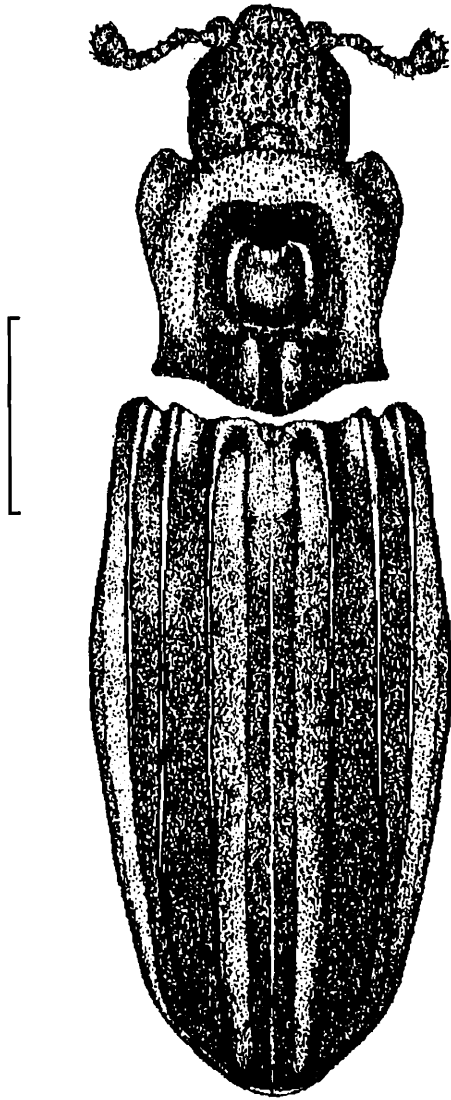


Fig. 1 : *Pseudobothrideres* sp., Dorsal view (scale = 1.0 mm).

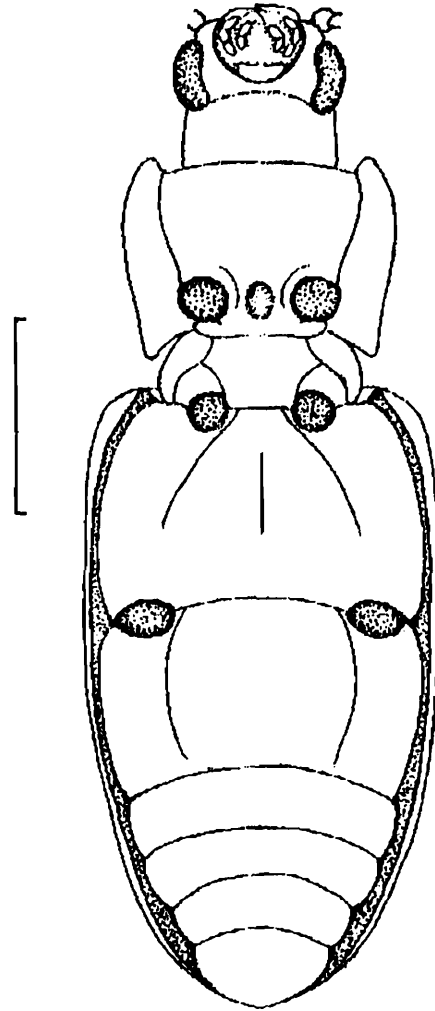


Fig. 2 : *Pseudobothrideres* sp., Ventral view (scale = 1.0 mm).

truncate, clypeal puncturation moderately coarse, puncturation on frons and vertex coarser than those on clypeus and separated by about 1.0-1.5 diameter, puncturation behind eyes much coarser and denser; antenna short, scape large and oblongate, pedicel short, narrow and almost as broad as long, segments 3-9 short and more or less transverse, apical segment of antennal club slightly shorter and narrower than basal one; elongate prothorax (1.1 : 1.0) somewhat convergent anteriorly and posteriorly, widest near anterior third, anterior border arcuate, front angles produced inwardly, lateral borders arcuate in anterior third and then nearly straight towards hind angles, pronotal carinae broad and round dorsally, paired sublateral carinae unite near posterior third and united carinae extend basally, a deep transverse fovea interrupts admedian pair of carina below the level of union of sublateral carinae, outer carinae joining lateral border near front angles, puncturation on pronotum slightly finer and denser than those on frons of head; elytra more than twice as long as broad (2.05 : 1.0), almost parallel-sided and

narrowed for apical third, carinae strongly raised, carinae on third interval terminate before apical border, elytral punctures large and deep. Length-3.5 mm.

Material : 1 ex. India, Nicobar Is., Campbell Bay, 2.xii.1978, B. Nandi & party, ex. Papita log (under bark).

Distribution : India : Tamil Nadu, Pondicherry, Nicobar Is. (New record); Malaysia.

SUMMARY

The paper deals with 4 species under 3 genera of 1 subfamily which form the first record of Bothrideridae from Andaman & Nicobar Is. The genus *Erotylathris* Motschulsky is first time recorded from India.

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INSECTA : COLEOPTERA : EROTYLIDAE

T.K. PAL

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

E-mail: tkpal51@rediffmail.com

INTRODUCTION

The Erotylidae with about 2500 species from the world are a well defined large family of the section Clavicornia under the superfamily Cucujoidea. The representatives of Erotylidae are small to large, elongate-ovoid, generally brightly coloured and are commonly called as “pleasing fungus beetles”. The Erotylidae have world-wide distribution, with more abundance in warmer parts of both the Old and New worlds and with a fewer representatives from the temperate regions. They are usually fungus feeders of certain basidiomycetes, with adults and larvae sometimes found together. Hosts may be mushrooms, bracket fungi, or soft hyphae filled bark. They are often found in moist woodland areas and adult beetles are generally gregarious, either on the host plant or in hiding.

Following the publication of Arrows “Fauna” in 1925 not much works have come out from the Indian sub region. In recent times, Pal (1992, 2003, 2006) dealt with the erotylids of the states of Arunachal Pradesh, Sikkim and Nagaland including description of 2 species from Arunachal Pradesh. The present account is based on some recent collection made by the author from different Islands of Andaman & Nicobar plus earlier material records from this insular territory.

CHARACTER OF THE FAMILY EROTYLIDAE

Facies ranging from suborbicular, hemispherical to elongate-elliptical, more or less convex, rarely pubescent.

Head transverse, eyes large, no fronto-clypeal suture, stridulatory files usually present and double;

11-segmented antenna usually with 3-segmented club, rarely club of more than 3 segments, antennal insertions dorso-lateral or lateral; on ventral side gular sutures widely separated, without antennal cavities; mandible with well developed mola and usually with two apical teeth; maxilla with well developed galea and lacinia, lacinia often with apical spine, apical segment of palpi may be elongate to transverse and securiform; labium with mentum variously shaped, ligula not well developed, apical segment of palpi elongate or transverse.

Prothorax usually transverse and narrowed in front, sides smooth, pronotum usually with prebasal impression, front coxal cavities more or less well separated, prosternal process broad, front coxal cavities closed with hidden trochantins.

Elytra often striato-punctate but occasionally with confused punctures, no scutellary striae, epipleura well developed. Wing usually with four anal veins, anal cell, radial cell, r-m cross vein and subcubital fleck.

Mesocoxae widely separated, coxal cavities closed laterally by sterna; metasternum often transverse and occasionally with coxal lines, metacoxae widely separated, metendosternite with moderately widely separated anterior tendons.

Legs moderately long, trochanters simple, tibiae often expanded apically, tarsal formula 5-5-5.

Abdomen fully covered by elytra, ventrites more or less equal in length, ventrite 1 sometimes with coxal lines. Aedeagus retracted on one side, with articulated parameres, median lobe bearing one or two struts. Ovipositor with well developed paraprocts, valvifers, coxites and styli.

KEY TO THE SUBFAMILIES OF EROTYLIDAE

1. Fourth tarsal segment scarcely reduced, subequal to third and attached in normal manner to end of third segment; apical segment of maxillary palpi cylindrical, not transverse or triangular; mentum strongly transverse DACNINAE
- Fourth tarsal segment strongly reduced, not more than half length of width of third, attached mediodorsally to third segment; apical segment of maxillary palpi strongly transverse or triangular; mentum not transverse 2
2. Elytra nonstriate, confusedly punctate with large black punctures; prothorax at base little more than half as wide as greatest common elytral width EROTYLINAE*
- Elytra regularly striate-punctate; prothorax at base subequal to greatest common elytral width TRIPLACINAE (= TRITOMINAE)

*Not recorded from Andaman & Nicobar Is.

LIST OF TAXA

Family EROTYLIDAE

Subfamily DACNINAE

1. *Episcapha quadrimacula* (Wiedemann)
2. *Episcapha nocte* Pal
3. *Episcapha* sp.
4. *Megalodacne difficilis* (Gorham)
5. *Megalodacne andamanensis* (Gorham)
6. *Triplatoma sexnotata* (Wiedemann)

Subfamily TRITOMINAE

7. *Aulacochilus quadripustulatus* (Fabricius)
8. *Spondotriplax andamana* Arrow
9. *Spondotriplax* sp.

KEY TO THE GENERA OF EROTYLIDAE FROM ANDAMAN & NICOBAR Is.

1. Mentum strongly transverse, terminal segment of maxillary palpi elongate and fusiform; three

basal segments of tarsi not widening from first to third (Dacninae).....2

- Mentum not transverse, terminal segment of maxillary palpi transverse and securiform; three basal segment of tarsi widening from first to third (Tritominae).....4
- 2. Third antennal segment about as long as fourth segment or slightly longer; dorsal surface of body pubescent *Episcapha* Lacordaire.
- Third antennal segment distinctly longer than fourth segment; dorsal surface of body glabrous 3
- 3. Prosternal process broad, coxae separated by distance of about the width of coxae, prosternal process above coxae broadly convex; apical segment of maxillary palpus elongate and fusiform *Megalodacne* Lacordaire.
- Prosternal process moderately broad, coxae separated by distance of about 0.6-0.7x of width of coxae, prosternal process above coxae somewhat keeled; apical segment of maxillary palpus elongate, broad and blunt apically *Triplatoma* Westwood
- 4. Sides of mouth cavity with rather sharp edge or carinate; all coxae with oblique femoral lines; antennal club 3-segmented *Aulacochilus* Lacordaire
- Sides of mouth cavity form flat plates or lobes; only mesocoxae with oblique femoral lines; antennal club 5-segmented *Spondotriplax* Crotch.

Family EROTYLIDAE

Subfamily DACNINAE

Genus *Episcapha* Lacordaire

1842. *Episcapha* Lacordaire, *Monog. Erotyl.*, : 48 [Type-species : *Engis quadrimacula* Wiedemann].

Diagnosis : Oblong, often moderately pubescent, head partly inserted into prothorax; maxillary lacinia without spine, apical segment of palpi fusiform; mentum transverse, apex of ligula bilobed; front margin of prothorax emerginate, prosternum moderately broad; legs simple with

tarsal segments 1-3 not broad, 4th segment smaller; elytral punctures confused or linear; no femoral line on abdomen.

KEY TO THE SPECIES

Episcapha Lacordaire

1. Prothorax transverse, at least 1.5x as wide as long *quadrimacula* Wiedemann.
- Prothorax less transverse, at most 1.4x as wide as long 2
2. Hind angles of prothorax slightly acute *nocte* Pal.
- Hind angles of prothorax about right angles ... *Episcapha* sp.

1. *Episcapha quadrimacula* Wiedemann

1823. *Engis quadrimacula* Wiedemann, *Zool. Mag.*, (2) 1 : 132.
1825. *Dacne quadrimacula*: Macleay, *Annul. Jav.*, : 41.
1842. *Episcapha quadrimacula*: Lacordaire, *Monog. Erotyl.*, : 53
1918. *Episcapha quadrimacula*: Heller, *Arch. f. Nat.*, **84** : 67.
1842. *Episcapha quadrimacula*: Arrow, *Fauna Brit. India, Coleoptera* ; *Clavicornia*, : 39.

Diagnosis : Facies elongate-ovoid, sub-depressed and covered with fine pubescence; head with large eyes, 11-segmented antenna with 3-segmented club, 3rd antennal segment slightly longer than 4th; transverse prothorax with lateral margins gently curved and converging in front, a pore at each extremity of lateral margin; elongate ovoid elytra with confused punctures; blackish body with each elytron decorated with two transverse orange bands- one at base and other before apex and rather irregular in outline, anterior band immediately behind shoulder with an extended base to basal margin. Length–10.8-14.4 mm.

Material : 6 ex. India : Andaman Is., Little Andaman, South Creek, 3 ex., 9.xii.1985, B. Mitra, ex. at light; South Andaman, Rutland, 3 ex., 12.vi.1982, B. Mitra.

Distribution : India : Sikkim, West Bengal, Uttarakhand, Tamil Nadu, Andaman Is. (New record); Sri Lanka; Myanmar; Vietnam; Malaysia; Indonesia; Philippines.

2. *Episcapha nocte* Pal

1992. *Episcapha nocte* Pal, *Rec. Zool. Surv. India*, **90**(1-4) : 204.

Diagnosis : Facies rather narrowly elongate, moderately convex, covered with fine velvety pubescence, body blackish and elytra with two pairs of yellowish bands; head broader than long, eyes large and separated by slightly less than thrice its width, 11-segmented antenna with 3-segmented compact club; transverse prothorax (1.0 : 1.4) widest at base and narrowed anteriorly, sides feebly rounded, front angles acutely produced, side margins carinate, posterior angles slightly acute; puncturation on pronotum fine and rather closely arranged; elongate elytra little wider than prothorax with fine irregular punctures, each elytron with two transverse yellowish bands- one at base and other at posterior third, basal bands leave a small blackish spot near humeral angle, bands rather irregular in outline. Length–11.2 mm.

Material : 1 ex. India : Andaman Is., South Andaman, Rutland, 12.vi.1982, B. Mitra, ex. fungusy log.

Distribution : India : Arunachal Pradesh, Andaman Is. (New record).

3. *Episcapha* sp.

Diagnosis : Facies narrowly elongate, moderately convex, covered with fine pubescence, body blackish and elytra with two pairs of yellowish bands; head broader than long, eyes large and separated by less than thrice its width, 11-segmented antenna with 3-segmented club; transverse prothorax (1.0 : 1.4) widest at base and converge anteriorly, sides feebly rounded, front angles acutely produced, side margins carinate, posterior angles almost right angles, puncturation on pronotum fine and rather closely arranged; elongate elytra little wider than prothorax, with fine irregular punctures, each elytron with two transverse yellowish bands-one at base and other at posterior third, basal band leave a small blackish spot near humeral angle, bands rather irregular in outline. Length–11.0 mm.

Material : 4 ex. India : Andaman Is., South Andaman, Sipighat, 7.x.2001, T.K. Pal & Party, ex. under bark.

Remarks : The examined specimens show close similarity with *Episcapha nocte* Pal except slight degree of difference in the posterior angles of prothorax and hence could not be placed under the above species. Further study and comparison with more material from the type locality of *E. nocte* (i.e., Arunachal Pradesh) may resolve the doubt.

Genus *Megalodacne* Crotch

1873. *Megalodacne* Crotch, Trans. Amer. Ent. Soc., 4 : 352 [Type-species : *Ips fasciata* Fabricius].

1876. *Episcaphula* Crotch, Cist. Ent., 4 : 409.

1925. *Megalodacne* : Arrow, Fauna Brit. India, Coleoptera : Clavicornia, : 44.

Diagnosis : Facies oblong, usually glabrous, head partly inserted into prothorax; no stridulatory file, 11-segmented antenna with 3-segmented club, 3rd antennal segment markedly longer than the 4th, mouthparts similar to *Episcapha*; transverse prothorax with front margin emerginate, leg structure similar to *Episcapha*.

KEY TO THE SPECIES OF *Megalodacne* Crotch

1. Club of antenna compact, apical segment about as broad as long; transverse yellowish band on anterior half of elytron not extending up to basal margin *difficilis* Gorham
- Club of antenna relatively loose, apical segment distinctly transverse; transverse yellowish band on anterior half of elytron extending up to basal margin *andamanensis* Gorham

4. *Megalodacne difficilis* (Gorham)

1883. *Episcapha difficilis* Gorham, Proc. Zool. Soc. Lond., 1883 : 2.

1925. *Megalodacne difficilis* : Arrow, Fauna Brit. India, Coleoptera : Clavicornia, : 47.

Diagnosis : Facies elongate-ovoid, somewhat convex, shining; head transverse, moderately coarsely and densely punctate, eyes large with moderately coarse facets; antennal club broad and

segments closely articulated, apical margins of segments 10 and 11 concave; prothorax distinctly transverse, sides rounded, pronotum moderately coarsely and sparsely punctate; elytra with linear rows of fine punctures, interstices minutely punctate, blackish body, each elytron with two yellowish spots- one in both anterior and posterior halves, spots lateral but not reaching margin, anterior spot neither reaching suture nor basal border, posterior spot placed before apex with diffused margin. Length-7.78-7.83 mm.

Material : 5 ex. India : Andaman Is., Middle Andaman, Betapur, 35 km. O- Bakultala, 19.x.2001, T.K. Pal & Party, ex. fungusy log.

Distribution : India : Andaman Is.(New record); Myanmar.

5. *Megalodacne andamanensis* (Gorham)

1888. *Episcaphula andamanensis* Gorham, Notes Leyd. Mus., 10 : 141.

1921. *Megalodacne affinis* Arrow, Trans. Ent. Soc. Lond., 1921 : 289.

1925. *Megalodacne andamanensis*: Arrow, Fauna brit. India, Coleoptera : Clavicornia : 50.

Diagnosis : Facies elongate-ovoid, somewhat convex, moderately shining; head transverse, moderately coarsely and densely punctate, with coarsely faceted large eyes; antennal club moderately broad and segments loosely articulated, apical margins of segments 10 and 11 straight; prothorax distinctly transverse, sides rounded, pronotum moderately coarsely and densely punctate; elytra with linear rows of fine punctures, interstices minutely punctate, blackish body, each elytron with two yellowish spots- one in both anterior and posterior halves, spots lateral but not reaching outer margin, anterior spot reaching basal border with a crescentic extension, posterior spot placed before apex with irregular margin. Length-8.8 mm.

Material : 1 ex. India : Andaman Is., Middle Andaman, Betapur, 35 km. O-Bakultala, 19.x.2001, T.K. Pal & party, ex. fungusy log.

Distribution : India : West Bengal (Northern Bengal), Andaman Is.; Myanmar.

Genus *Triplatoma* Westwood

1832. *Triplatoma* Westwood, *Griffith's Anim. Kingd.*, 2 : pl. IX, fig. 5 [Type-species : *Engis picta* Perty].
 1856. *Pantheropterus* Thomson, *Annl. Soc. ent. Fr.*, (3) 5 : 323.
 1882. *Triplotoma* : Bedel, *Ann. Mus. Civ. Genova*, 18 : 435.
 1882. *Nesitis* Bedel, *Ann. Mus. Civ. Genova*, 18 : 436.

Diagnosis : Facies elongate, convex, glabrous, head partly inserted into prothorax, no stridulatory file; 11-segmented antenna with 3-segmented club, 3rd antennal segment distinctly longer than 4th; eyes moderately large, widely separated; mandible, elongate, sub-triangular, apex bifid; maxillary palpi thick and broad, apical segment elongate with blunt apex; mentum transverse, ligula broadly bilobed, labial palpi broad and apical segment securiform. Prothorax moderately broad, front margin emarginate, prosternum moderately broad and compressed in front of coxae, mesocoxae not widely separated; legs simple, tarsal segments 1-3 moderately broad, 4th segment smaller, tarsi densely setose ventrally; elytral punctures linear, no femoral lines on abdomen.

6. *Triplatoma sexnotata* (Wiedemann)

1823. *Engis sexnotata* Wiedemann, *Zool. Mag.*, 2(1) : 131.
 1825. *Dacne sexnotata* : Macleay, *Annul. Jav.*, : 42.
 1842. *Triplotoma sexnotata* : Lacordaire, *Monog. Erotyl.*, : 46.
 1883. *Triplotoma andamanensis* Gorham, *Proc. Zool. Soc. Lond.*, 1883 : 79.
 1925. *Triplotomata sexnotata* : Arrow, *Fauna brit. India, Coleoptera : Clavicornia* : 59.

Diagnosis : Elongate elliptical, convex, glabrous and moderately shiny; blackish body with orange spots on pronotum and elytra, head transverse, minutely punctate, finely faceted moderately large eyes, moderately long antenna with moderately broad compact club, segments 10 and 11 transverse; prothorax slightly transverse; sides rounded and little contracted near base, narrowly margined; front angles projected and acute, pronotum minutely punctate; transverse, irregular orange markings near front angles of pronotum. Elongate-ovoid elytra wider than prothorax, sides feebly rounded, apex rounded, each elytron with two orange spots- one in both anterior and posterior

halves, anterior transverse spot just behind basal margin and close to humeral angle, posterior spot situated near posterior three-fourths, spots with irregular margins and crescentic extensions. Length-14.4 mm-17.2 mm.

Material : 6 ex. India : Andaman Is., South Andaman, Tirur, 29.iv.2002, S Barua.

Distribution : India : Andaman & Nicobar Is.; Malaysia; Indonesia.

Subfamily TRITOMINAE

Genus *Aulacochilus* Lacordaire

1842. *Aulacochilus* Lacordaire, *Monog. Erotyl.*, : 245 [Type-species : *Erotylus javanus* Guérin-Meneville].
 1871. *Aulacochilus* Bedel., *Trans. ent. Soc. Fr.*, (5) 1 : 271.

Diagnosis : Facies ovoid, usually glabrous; head without stridulatory file, 11-segmented antenna with 3-segmented club, 3rd antennal segment much longer than 4th, mandible with bifid tip, apical segment of maxillary palpi transverse; transverse prothorax with front margin emarginate, broad prosternum, all coxae with oblique femoral lines; legs simple with tarsal segments 1 to 3 gradually wider and 4th one minute; elytra with linear punctures.

7. *Aulacochilus quadripustulatus* (Fabricius)

1801. *Erotylus quadripustulatus* Fabricius, *Systema Eleutheratorum*, 2 : 6.
 1825. *Engis subrotunda* Macleay, *Annul. Jav.*, : 42.
 1842. *Aulacochilus quadripustulatus* : Lacordaire, *Monog. Erotyl.*, : 247.
 1925. *Aulacochilus quadripustulatus* : Arrow, *Fauna Brit. India, Coleoptera : Clavicornia* : 85.

Diagnosis : Facies elongate-ovoid, rather convex; head with moderately large eyes, antennal club broad, antennal segments 10 and 11 closely and densely punctate; side margins of prothorax ridged and gently curved, pronotal punctures little sparser than vertex; outer margin of elytra gently flattened, gradually converging from a little behind humeral angle towards apex, blackish body with each elytron decorated with two transverse orange bands, the first one extending from basal margin to near external margin leaving humeral angle, its posterior border tridentate, the second one situated

before apex and not touching outer or sutural margin, both its anterior and posterior border dentate. Length—8.8 mm.

Material : 1 ex. India : Andaman Is., North Andaman, Kalighat, 23.x.2001, T.K. Pal & Party, ex. at light.

Distribution : India : Sikkim, Andaman Is.; Myanmar; Vietnam; Malaysia; Indonesia.

Genus *Spondotriplax* Crotch

1876. *Spondotriplax* Crotch, *Cist. Ent.*, 1 : 469 [Type-species: *Spondotriplax endomychoides* Crotch].

1918. *Neotritoma* Heller, *Arch. f. Nat.*, 84 : 28.

Diagnosis : Facies broadly ovoid with moderately stout legs; head broad, 11-segmented antenna with 5-segmented club, sides of mouth cavity moderately dilated, apical segment of maxillary palpi markedly transverse; transverse prothorax with front coxae widely separated. Mesocoxae with femoral lines; elytra with linear punctures.

KEY TO THE SPECIES OF *Spondotriplax* Crotch

1. Head and prothorax orange coloured, four pairs of blackish spots in addition to two sutural spots on orange coloured elytra *andamana* Arrow
- Head and prothorax blackish, two pairs of subquadrate orange spots in blackish elytra *Spondotriplax* sp.

8. *Spondotriplax andamana* Arrow

1925. *Spondotriplax andamana* Arrow, *Fauna Brit. India, Coleoptera: Clavicornia*, : 144.

Diagnosis : Facies elongate-ovoid, convex, orange coloured body with blackish spots on elytra and antennal segments 3-11 blackish, dorsally smooth and shining; transverse head with moderately large eyes, antennal bases moderately widely separated, moderately long antenna with distinctly elongate 3rd segment, apical three segments of club much wider than preceding two segments, vertex moderately coarsely punctate; prothorax widest at base and narrowed anteriorly,

front angles little produced and hind angles about right angle, pronotum moderately coarsely punctate; broadly elongate elytra with evenly rounded sides, distinct linear rows of punctures, orange elytra with blackish spots- two sutural spots near middle and before apex, one spot each near humeral angle and close to scutellum, a sub-lateral large spot near middle, a small sub-lateral spot at posterior three-fourths. Length—4 mm.

Distribution : India : Andaman Is.

9. *Spondotriplax* sp.

General appearance (Fig. 1) elongate-ovoid, convex with moderately long legs and antennae, dorsum shining and smooth; head and pronotum blackish, sides of pronotum occasionally faint orange-coloured, two pairs of subquadrate orange spots on blackish elytra, antennae blackish and legs reddish.

Head broader than long, apical margin of clypeus truncate; eyes moderately large, moderately finely faceted, separated dorsally by about 2.6x of its length; antennal bases widely separated; puncturation on vertex moderately coarse and dense, separated by about 1-2 diameter, puncturation on clypeus slightly finer. Antenna moderately long and slender, scape moderately large and broadly elongate, pedicel shorter and narrower than scape, segment 3 about as long as segments 4-6; club 5-segmented, slightly asymmetrical, last three segments much broader than preceding two segments.

Prothorax transverse (1.0 : 1.6), widest at base, moderately narrowed anteriorly, sides evenly rounded, front margin deeply emarginated with fine elevation of pronotum at middle, front angles produced and forming acute angles, lateral margin finely bordered; basal margin bi-emarginate with broad median lobe, no prebasal impression; pronotal disc moderately coarsely and densely punctate, punctures separated by 1-2 diameter. Scutellum triangular, transverse and finely punctate.

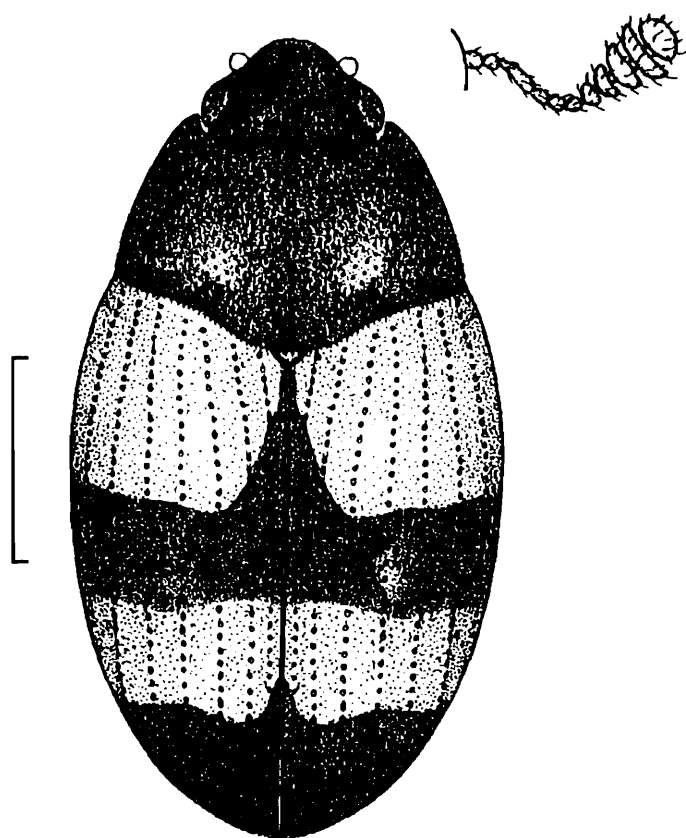


Fig. 1 : *Spondotriplax* sp., Dorsal view, right antenna shown separately (scale = 1.0 mm.)

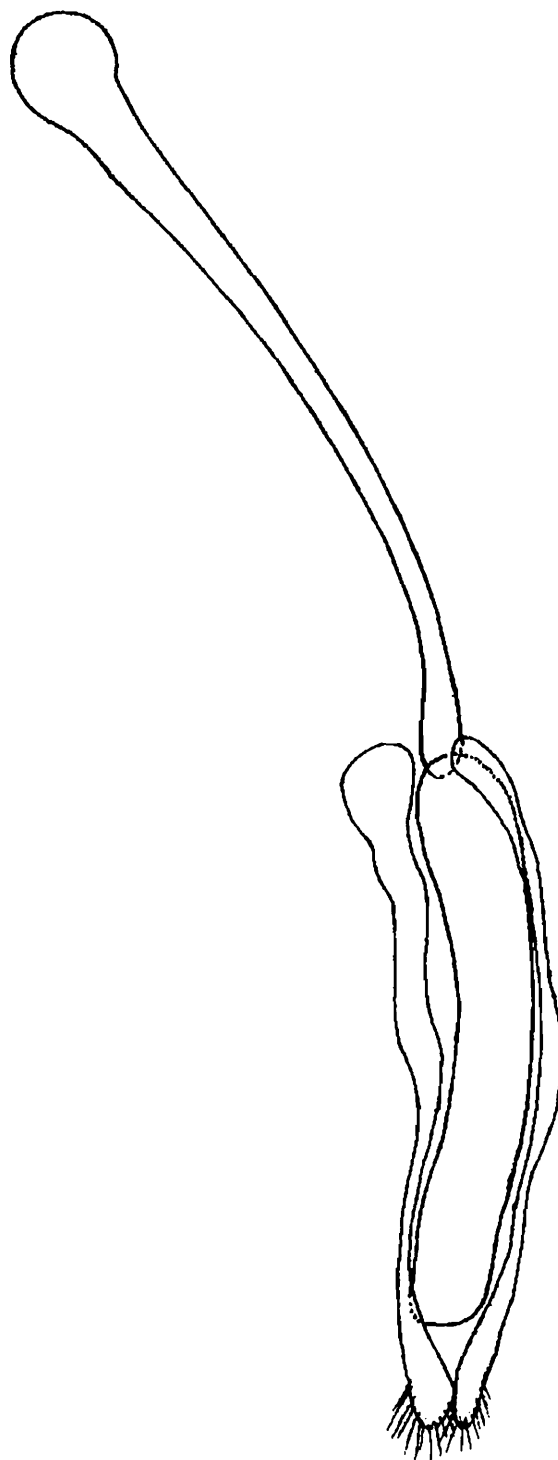


Fig. 2 : *Spondotriplax* sp., Aedeagus, Dorsal view (slightly tilted leftwards).

Elytra broadly elongate, about as wide as prothorax at base and closely fitting with it, sides evenly rounded to apex, lateral edges very narrowly flanked and finely bordered; distinct puncture rows visible, eight in number; blackish elytra decorated with two transverse orange spots: one in basal half and other in apical third, blackish patches extend along suture and form divider between either half.

Ventral side reddish, pro- to metasternum with fine and sparse punctures, punctures on abdominal ventrites slightly coarser.

Aedeagus (Fig. 2) with median lobe long, tubular and curved, from base of median lobe arises long, slender median strut, tegminal cap formed of a pair of elongated lateral lobes and apices of which setose. Length-3.08 mm.

Material : 10 ex. India, Nicobar Is., Great Nicobar, Sital Pahar, 15 km.-O Campbell Bay, 10.x.2003, T.K. Pal, ex. fallen log.

Remarks : This species shows some resemblances with *Spondotriplax diaperina*

Gorham [from Myanmar] and *S. andamana* Arrow [from Andaman Is.]. It differs from *S. diaperina* in having orange spots in basal half of elytra without angular lobes at posterior borders, humeral angles of elytra devoid of any blackish spot (vs. presence of humeral spot in *diaperina*), antennae entirely blackish. It differs from *S. andamana* by its head and prothorax blackish (vs. orange-coloured in *andamana*), two pairs of subquadrate orange spots on elytra (vs. four pairs of blackish spots on each elytron in addition to two sutural spots in *andamana*).

SUMMARY

The paper deals with 9 species under 5 genera of 2 subfamilies of which 3 species are recorded first time from the Islands and 1 species from the Indian Territory. The species are systematically keyed and characterized.

ACKNOWLEDGEMENTS

The author is indebted to the Director, Zoological Survey of India for providing necessary facilities for the work.

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- Pal, T.K. 2006. Insecta : Coleoptera : Erotylidae. *Zool. Surv. India, State Fauna Series 12 : Fauna of Nagaland* : 131-135.

INSECTA : COLEOPTERA : LANGURIIDAE

T.K. PAL

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

E-mail: tkpal51@rediffmail.com

INTRODUCTION

The Languriidae are a moderately large, well defined family of the section Clavicornia under the superfamily Cucujoidea. The languriids are small to large, elongate-oval to narrow-elongate, slightly flattened and often glabrous. They are usually bicoloured or metallic and are commonly called 'lizard beetle'. The family with about 900 species have world-wide distribution but are found more commonly in the tropical parts of both the Old and New worlds. Larvae of many species are stem borers and their adults feed on pollen or the foliage of host plants. Following the publication of Arrow's 'Fauna' in 1925 not much works on this family have come out from the Indian subcontinent. Only recently, Sengupta and Mukherjee (1977, 1979, 1985) have dealt with the languriines of Himalaya and described a new genus from this part. Subsequently, Pal (1992) recorded some species from Arunachal Himalaya. Further, Pal (2003, 2004, 2007) dealt with the languriids of Sikkim, Manipur and Mizoram, and he (2006) described 2 new genera and 3 new species from the State of Nagaland. The present work is based on some recent collection made by the author from the Andaman Is.

CHARACTERS OF FAMILY LANGURIIDAE

Head usually transverse, rarely with distinct tempora, vertex often with a pair of stridulatory files or occasionally single, often with transverse impressed line on vertex behind eyes, often with fronto-clypeal suture, eyes moderately large, gular

sutures well separated, antenna 11-segmented with variable club, antennal insertions somewhat exposed; mandible usually with two apical teeth, mola more or less developed; maxilla with well developed lacinia, galea and palpi, lacinia often bears three apical spines, apical segment of palpi elongate and never securiform; mentum often transverse, ligula often bilobed, apical segment of labial palpi usually with truncated tip and rarely elongate-fusiform.

Prothorax a little elongate to slightly transverse, side margins often smooth, occasionally crenulate, pronotum usually bears prebasal impressions and sometimes a basal transverse groove, front coxae slightly transverse, intercoxal process moderately broad, coxal cavities usually open and occasionally closed.

Elytra striate-punctate, with or without scutellary striae, epipleura complete. Wing often with four anal veins and sometimes less in number, often with anal cell when wing possesses four anal veins but devoid of anal cell if with less number of anal veins, usually with subcubital fleck.

Mesocoxae moderately to widely separated, mesocoxal cavities closed outwardly by sterna, mesepimeral pockets usually present. Metasternum sometimes with femoral lines, metacoxae rather narrowly to moderately widely separated; metendosternite usually with moderately widely separated anterior tendons.

Legs moderately long, trochanters usually broadly elongate but never heteromeroid, tibiae often little broadened apically and with two normal

spurs, tarsal formula 5-5-5 with segment 4 often reduced.

Abdomen covered by elytra, five ventrites freely articulated and more or less equally long, ventrite 1 often with femoral lines. Ardeagus on one side when retracted, with articulated parameres, median lobe bears long struts. Ovipositor often with apically pointed coxites and with styli attached laterally.

KEY TO THE SUBFAMILIES OF LANGURIIDAE

1. Front coxal cavities externally as well as internally closed; elytra without scutellary stiole; stridulatory file on head if present, single and median; first anal vein of wing may or may not run into subcubital fleck Cryptophilinae
- Front coxal cavities externally open behind, if closed then internally open and elytra with scutellary striole; stridulatory file on head if present, double in number; first anal vein not running into subcubital fleck 2
2. Trochanters narrow and distinctly elongate; sternal fitting between mesocoxae with two knobs; scutellary striole of elytra and stridulatory files on head absent; wing with less than four anal veins Toraminae
- Trochanters not very narrow-elongate, sternal fitting between mesocoxae with single knob, rarely in straight line; elytra with scutellary striole and stridulatory files on head present; wing usually with four anal veins 3
3. Antennal club 2-segmented Setariolinae
- Antennal club with more than two segments.. 4
4. Antennal club often with more than three segments, antennal insertions dorso-lateral, head with fronto-clypeal suture; maxillary galea short and broad, mandibular mola poorly developed; front coxal cavities internally closed behind
..... Languriinae
- Antennal club 3-segmented, antennal insertions lateral, fronto-clypeal suture absent; maxillary

galea narrow-elongate, mandibular mola well developed and projecting; front coxal cavities internally open behind Loberinae

LIST OF TAXA

Family LANGURIIDAE

Subfamily LANGURIINAE

1. *Caenolanguria andamanica* Arrow

Subfamily CRYPTOPHILINAE

2. *Cryptophilus integer* (Heer)

Subfamily LANGURIINAE

Genus *Caenolanguria* Gorham

1887. *Caenolanguria* Gorham, *Proc. Zool. Soc. Lond.*, 1887 : 361 [Type-species : *Languria coarctata* Crotch].

Diagnosis : Facies elongate with moderately slender legs and antennae; head without stridulatory files, coarsely faceted prominent eyes, 11-segmented antenna with 3-segmented club (rarely 4- to 5- segmented), mandible with bifid tip, maxillary lacinia tridentate, ligula bilobed and apical segment of labial palpi securiform; prothorax contracted towards base, pronotum margined laterally and basally, front coxae not widely separated and prosternal process produced behind coxae; elytra rather parallel in anterior half and then gradually narrowed posteriorly, epipleurae distinct; first abdominal ventrite with acutely pointed intercoxal process.

Distribution : India; Sri Lanka; China; Myanmar; Malaysia; Australia; Papua Is.

1. *Caenolanguria andamanica* Arrow

1925. *Caenolanguria andamanica* Arrow, *Fauna of British India, Coleoptera : Clavicornia* : 237.

Diagnosis : Facies elongate, deep chocolate-brown with slight metallic lustre, head, prothorax and base of antenna reddish-brown, antennal segment 7 onwards deep reddish-brown, long legs deep reddish-brown; head with moderately large and coarsely faceted prominent eyes, moderately long antenna slightly shorter than head and prothorax together, club 3- segmented, not very

broad and segments asymmetrical; prothorax about as broad as long, sides rounded and little sinuate before hind angles, pronotal punctures fine and moderately dense; scutellum about as broad as long; elytral base wider than pronotal base, with rows of small and distinct punctures; first abdominal sternite with slightly diverging coxal lines. Length-5.6mm.

Material : 1 ex., India : Andaman Is., South Andaman, Austinabad, 15 km. O- Port Blair, 27.ix.2003, T.K. Pal & party, *ex. sweeping bush*.

Distribution : India : Andaman Is.

Subfamily CRYPTOPHILINAE

Genus *Cryptophilus* Reitter

1874. *Cryptophilus* Reitter, *Verh. Zool. bot. Ges. Wien* 14 : 381. [Type-species : *Cryptophagus integer* Heer].

Diagnosis : Facies elongate, more or less ovoid; head with transverse impressed line on dorsal side behind eyes; stridulatory file single, narrow and median; antennal insertions hidden under projection of frons, 11-segmented antenna with 3-segmented club, mandible bidentate at tip, maxillary lacinia with a bifid apical spine, apical segment of maxillary palpi fusiform, apical segment of labial palpi elongate; prothorax transverse, front coxal cavities closed, prosternal process broad at apex and apical margin little emarginate; elytral epipleurae distinct, punctures not in regular rows; intercoxal process of first abdominal ventrite broad and its apex rounded.

Distribution : All major Zoogeographical regions of world.

2. *Cryptophilus integer* (Heer)

1838. *Cryptophagus integer* Heer, *Fauna Helvetica*, 1 : 426.

1874. *Cryptophilus integer* : Reitter, *Verh. zool.-bot. Ges. Wien*, 14 : 381.

1971. *Cryptophilus integer* : Sengupta & Crowson, *Mem. zool. Surv. India*, 15(2) : 24.

Diagnosis : Facies elongate-oval, subdepressed, punctate-pubescent, reddish-brown in colour; head with coarsely faceted moderately large eyes, antennal segments 1-8 almost and segments 9 and 10 weakly transverse and segment 11 about as broad as long, club segments loosely articulated; pronotum finely margined, sides gently rounded, front and hind angles not pronounced; transverse scutellum impunctate; elytral punctures not very coarse and diffused, elytral apex rounded. Length-2.2-2.5 mm.

Material : 2 ex., India: Andaman Is., South Andaman, Calicut, 15 km. O- Port Blair, 26.ix.2003, T.K. Pal & Party, *ex. haystack*.

Distribution : Many parts of the world through transport of food grains (Aitken, 1975); no earlier record from Andaman Is.

SUMMARY

The paper deals with 2 species under 2 genera of which 1 species (*Cryptophilus integer*) is recorded first time from Andaman Is.

ACKNOWLEDGEMENTS

The author is indebted to the Director, Zoological Survey of India for providing necessary facilities for the work.

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INSECTA : COLEOPTERA : ENDOMYCHIDAE

T.K. PAL

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

E-mail: tkpal51@rediffmail.com

INTRODUCTION

The Endomychidae with about 1300 species are a rather distinct family of the section Clavicornia under the superfamily Cucujoidea. The endomychids are small to large, broadly ovoid to elongate and narrow, strongly convex to moderately flattened, seldom brightly coloured and are commonly called 'handsome fungus beetles'. The Endomychidae have a worldwide distribution but are more diverse in tropical Asia. The endomychids consume mostly softer tissues of various fungi or are sap-feeders. They are often seen beneath bark or in rotten wood, decayed fruit refuse or in leaf litter, and in moist woodland areas.

Following the publication of Arrow's 'Fauna' in 1925, not many works have come out from the Indian region on this group. In recent past, Vazirani & Saha (1972) described 1 new species, and Strohecker (1974, 1975, 1982, 1983) described at least 11 new species and recorded a few more species from the Indian territory. Tomaszewska & Pal (2003) described 1 new species from Mizoram. Pal (2003, 2004) dealt with the Endomychidae of Sikkim and Manipur States. The earlier workers recorded a few species from Andaman Is. The present work is based on some recent collection made by the author plus earlier material records from these Islands which represent 3 species under 2 genera.

CHARACTERS OF THE FAMILY ENDOMYCHIDAE

Body broadly ovate to elongate and narrow, strongly convex to moderately flattened, glabrous but occasionally clothed with hairs, and often brightly coloured.

Head with fronto-clypeal suture, eyes moderately large, vertex sometimes bear stridulatory files, antennal insertions lateral or dorso-lateral; antenna 10- or 11-segmented with 3-segmented club, club rarely 4- or 5-segmented; mandibles usually well developed, apical teeth three or less in number, mola well developed; maxillary lacinia and galea well developed, lacinia with or without apical spine, apical segment of palpi elongated and more or less fusiform; labium is more subject to variation in form, mentum strongly chitinated, apical segment of labial palpi truncate apically.

Prothorax often transverse, side margins usually smooth and rarely serrulate, front edge sometimes has a stridulatory membrane; pronotal disc often with paired basal impressions, grooves or carinae, and a transverse prebasal groove; prosternum moderately long to very short, front coxae subglobular or slightly transverse with hidden trochantins.

Elytra entire, punctation usually confused, epipleura usually incomplete. Wing devoid of radial cell and usually without anal cell, with a trace of subcubital fleck.

Mesosternum sometimes reduced and concealed, anteriorly excavate or bicarinate, mesocoxae narrowly to moderately widely separated, mesocoxal cavities narrowly open outwardly; metasternum transverse, rarely with femoral lines, hind coxae widely separated, metendosternite usually with widely separated anterior tendons.

Legs short to moderately long, trochanters simple or slightly heteromeroid, narrow tibia slightly

broadened at apex and without prominent apical spurs, tarsal formula 4-4-4 or 3-3-3, tarsi either simple, or segment 3 reduced with segments 1 and 2 lobed.

Five abdominal ventrites freely articulated, ventrite 1 longer than others and sometimes with femoral lines, often with five pairs of spiracles. Aedeagus with or without articulated parameres, median lobe devoid of strut. Ovipositor with fused valvifers and coxites.

KEY TO THE SUBFAMILIES OF ENDOMYCHIDAE*

1. Size small, rarely more than 3 mm.; tarsi 3-segmented and linear, or distinctly 4-segmented 2
 - Size usually larger than 3 mm; tarsi pseudotrimerous, penultimate segment minute and almost fused with apical segment, second segment lobed 4
2. Antenna 8-11 segmented 3
 - Antenna 4- or 5-segmente Trochoideinae
3. Scutellum minute or invisible; metasternum extending laterally to anterior corner of elytral epipleura; first abdominal ventrite with femoral lines Sphaerosominae
 - Scutellum plainly visible; metasternum separated from elytral epipleura by the epimeron Mycetæinae
4. Pronotum with a stridulatory membrane on its front margin Eumorphinae
 - Pronotum without a stridulatory membrane on its front margin Endomychinae

LIST OF SPECIES

Family ENDOMYCHIDAE

Subfamily EUMORPHINAE

1. *Eumorphus andamanensis* Gorham
2. *Eumorphus quadriguttatus* Illiger

Subfamily TROCHOIDEINAE

3. *Trochoideus desjardinsi* Guérin-Meneville

Family ENDOMYCHIDAE

Subfamily EUMORPHINAE

Genus *Eumorphus* Weber

1801. *Eumorphus* Weber, *Observ. Ent.*, p. 31 [Type-species : *Erotylus quadriguttatus* Illiger].

Diagnosis : Facies elongate, broadly ovoid; head with transverse eyes, 11-segmented antenna with 3-segmented club, segment 3 twice as long as segment 4, mandible with a sharp apical tooth and well developed prostheca, maxillary palpi well developed and its apical segment fusiform, labial palpi short and its apical segment hemispherical; transverse prothorax more or less flattened at sides, hind angles produced, pronotal base with a marginal sulcus and lateral foveae moderately impressed, front coxae narrowly separated and prosternal process projecting little beyond coxae; with four yellow spots on elytra.

KEY TO THE SPECIES OF

Eumorphus Weber

1. Apical half of femora yellowish; in male a tooth arises from front tibial edge near middle; antennal club broad ... *andamanensis* Gorham
- Apical half of femora reddish; in male a tooth arises from tibial edge little above middle; antennal club less broad *quadriguttatus* Illiger

1. *Eumorphus andamanensis* Gorham

1875. *Eumorphus andamanensis* Gorham, *Ent. Mon. Mag.*, 11 : 180.

1925. *Eumorphus andamanensis* : Arrow, *Fauna Brit. India, Coleoptera : Clavicornia* : 305.

Diagnosis : Facies elongate, convex, with slender legs and antennae; dorsal surface black with purplish tint and glossy; each elytron decorated with two bright yellow, transversely oval spots reaching close to outer margin, separated from each other by about twice their own width and from those on other elytron by about their own length; apical half of femora reddish-yellow; transverse prothorax bisinuate at sides, front angles

*Subfamilial classification is after Strohecker, 1953; Sphaerosominae is at present considered as a separate family, Sphaerosomatidae but not recorded from India.

bluntly and hind angles acutely produced; elytra minutely punctured with narrow side margins. Length—9.8 mm.

Distribution : India : Andaman & Nicobar Is., Nagaland.

2. *Eumorphus quadriguttatus* (Illiger)

1800. *Erotylus quadriguttatus* Illiger, Wiedemann's Arch. f. Zool., 1 : 124.
 1801. *Eumorphus sumatrae* Weber, Observ. Ent., : 59.
 1801. *Eumorphus immarginatus* Fabricius, Syst. Eleuth., 2 : 11.
 1858. *Heterandrus quadriguttatus* : Guérin-Meneville, Rev. Mag. Zool., (2) 10 : 26.
 1858. *Eumorphus quadriguttatus* : Gerstaecker, Monogr. Endom., : 110.
 1925. *Eumorphus quadriguttatus*: Arrow, Fauna Brit. India, Coleoptera : Clavicornia : 305.

Diagnosis : Facies elongate-ovoid, convex, with slender legs and antennae; dorsal surface blackish but not very shining; each elytron decorated with two large and slightly transverse spots close to outer margin, separated from each other by about twice their own width, anterior one situated above middle and posterior one situated considerably above apex, spots separated from those one corresponding elytron by about their own length; apical half of femora reddish; prothorax transverse, distinctly bordered, pronotum not distinctly punctate, with a median impressed line, front angles bluntly produced and hind angles acute sharply; elytra minutely punctate and narrowly margined. Length—10.1-10.8 mm.

Material : 3 ex. India : Andaman Is., Forest, John Lawrence, 2 ex., 25.iii.1988, B. Mitra and Party; Pawaji Camp, Baratang, 1 ex., 17.xii.1985, B. Mitra.

Distribution : India : West Bengal (Darjeeling Dist.), Karnatka, Andaman Is.; Myanmar; Sri Lanka; Malaysia; Indonesia; Vietnam.

Subfamily TROCHOIDEINAE

Genus *Trochoideus* Westwood

1833. *Trochoideus* Westwood, Trans. Linn. Soc. Lond., 16 : 673 (Type-species : *Paussus cruciatus* Dalm.)
 1838. *Trochoideus* : Westwood, Trans. Ent. Soc. Lond., 2 : 95.
 1858. *Trochoideus* : Gerstaecker, Mon. Endom., : 381.

1876. *Trochoideus* : Chapuis, Hist. Nat. des. Insects, Gen. Coleopt., 12 : 147.

1916. *Pseudopaussus* Schulze, Phil. J. Sci., 11 : 292.

1925. *Trochoideus* : Arrow, Fauna Brit. India, Coleoptera : Clavicornia : 402.

Diagnosis : Elongate-ovoid, moderately depressed, with slender legs, 4- or 5-segmented robust antennae, body pubescent. Head with moderately large protruding eyes; antennal scape moderately large, segments 2 and 3 much shorter and narrower, segment 4 large, elongate upon which small 5th segment is fused. Mandible with acutely produced apex, a minute inner tooth below apex; maxillary palpi elongate, apical segment fusiform; mentum triangular, labial palpi large and its apical segment cup-shaped. Prothorax transverse, somewhat caudiform, front margin slightly emarginate, no stridulatory membrane, narrowly margined at sides and base, no distinct lateral foveae, front coxae very closely situated, prosternal process not visible from above; meso- and hind coxae more widely separated, intercoxal process of first abdominal ventrite broad and truncate, no femoral lines; elytra ovoid, fitting closely with pronotal base, humeral angles slightly raised, sides gently curved and apices separately rounded, epipleura extends beyond middle.

Distribution : India; Myanmar; Sri Lanka; Malaysia; Indonesia; Thailand; Philippines; Samoa; Fiji; Seychelles; Rodriguez Is.; Mauritius; Madagascar.

3. *Trochoideus desjardinsi* Guérin Meneville

1838. *Trochoideus desjardinsi* Guérin-Meneville, Rev. Zool., : 38.
 1844. *Trochoides amphora* Cantor, J. Proc. Ent. Soc. Lond., : 118.
 1916. *Pseudopaussus monstrosus* Schulze, Philipp. J. Sci. 11 : 292.
 1919. *Trochoideus termitophilus* Roepke, Treubia 1 : 34.
 1922. *Trochoideus rouyeri* Pic, Mel. Exot.-Entom. 35 : 8.
 1922. *Trochoideus particularis* Pic, Mel. Exot.-Entom. 35 : 8.
 1925. *Trochoideus desjardinsi*: Arrow, Fauna Brit. India, Coleoptera : Clavicornia : 402.

Diagnosis : Elongate, moderately depressed, reddish-brown with darker elytra, robust antennae, legs and antennae little lighter in colour, shiny, punctate-pubescent. Eyes about half as long as head, coarsely faceted, separated by little more

than six times of its diameter, antenna little longer than prothorax, segment 4 much longer and broader than preceding segments, segment 5 small and fused with segment 4 and both the segments together appear a single segment, dorsum of head finely and sparsely punctate, pubescent; prothorax distinctly transverse, broader medially and narrowed posteriorly, sides and base of prothorax narrowly margined, basal fovea little impressed, lateral foveae not marked, puncturation on pronotum coarser than on vertex of head; transverse scutellum impunctate; ovoid elytra fitting closely with the base of prothorax, wider than prothorax at base, sides gently curved, edges not flanked, puncturation moderately coarse and dense and almost similar to that of pronotum. Length—3.0-3.5 mm.

Material : 30 ex., India : Andaman Is., South Andaman, Sipighat, 2 ex., 7.x.2001, T.K. Pal &

party, ex. under bark; Calicut, 15 km. O-Port Blair, 20 ex., 26.ix.2003, T.K. Pal & party, ex. haystack; Great Nicobar, Campbell Bay, 4 ex., 7.x.2003, T.K. Pal & party, ex. under bark; Shastri Nagar, 35 km. O-Campbell Bay, 4 ex., 4.x.2003, T.K. Pal & party, ex. under bark.

Distribution : India : Mizoram, Kerala, Andaman Is.; Myanmar; Thailand; Malaysia; Indonesia; Samoa; Fiji; Seychelles; Rodriguez Is.; Mauritius; Madagascar.

SUMMARY

The paper deals with 3 species, under 2 genera of 2 subfamilies. The species are systematically keyed and characterized.

ACKNOWLEDGEMENTS

The author is indebted to the Director, Zoological Survey of India for providing necessary facilities for the work.

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INSECTA : COLEOPTERA : DISCOLOMIDAE

T.K. PAL

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

E-mail: tkpal51@rediffmail.com

INTRODUCTION

The Discolomidae (= Notiophygidae) are a moderately large family of Cucujoidae with more than 400 species under 18 genera from tropical and subtropical parts of both the Old and New Worlds. Many new forms are encountered in any sizeable collection of this group as they are still underexplored. Recently, Pal (2007) described four new discolomid species from West Africa and Indonesia from an old collection of material in Genova Museum. Pal (1992) recorded this family in India from Arunachal Pradesh with two species of the genera, *Aphanocephalus* Wollaston and *Paramaschema* Heller and subsequently he (1996, 2000, 2005) described five more species from Sikkim, Mizoram and Nagaland. During a recent survey in Andaman & Nicobar Islands, three species of this family, including two undescribed species of *Aphanocephalus* were found and which form the first report of discolomids from these islands.

CHARACTERS OF FAMILY DISCOLOMIDAE

Facies broad, elongate-oblong to oval or rounded; dorsally convex, surfaces tuberculate or smooth.

Head small in comparison to large prothorax, often inserted under pronotum, eyes small to moderately large, usually with a fronto-clypeal suture, without transverse line on vertex behind eyes, antennal insertions dorso-lateral or dorsal but not wide anteriorly; on ventral side gular sutures widely separated, no antennal cavities; antenna 8 to 10 segmented with 1-segmented large club.

Mandible with 3 apical teeth, prostheca and mola well developed; maxillary lacinia without apical spine, segment 2 of maxillary palpi elongate and narrowed towards apex; mentum of labium normal, ligula broadly triangular, segments 2 and 3 of palpi large and elongate.

Prothorax transverse, narrowed in front, sides smooth or wavy, no prebasal impression on pronotum, front coxae rounded, coxal cavities closed or narrowly open.

Elytra broad, convex, punctures irregular, epipleura broad and complete. Species may be apterous or winged, no anal vein on wing, cubitus bifurcate at tip.

Mesocoxae widely separated, mesocoxal cavities closed, sternal fitting between mesocoxae not with knoblike projections, metasternum usually without median impressed line, metendosternite short and represented by two apophyses. Metacoxae widely separated, rounded, lateral prolongation hidden.

Legs moderately long, trochanters simple or slightly heteromerous, tarsal formula 3-3-3 in both sexes, tarsi simple or slightly incrassate.

Abdomen short and broad, ventrites freely articulated, ventrite 1 longest and without femoral lines. Aedeagus in resting condition turned on one side, no distinct parameres.

KEY TO THE SUBFAMILIES OF DISCOLOMIDAE

1. Body distinctly tuberculate, tubercles often form thick lumps on edges and giving rise to more or less wavy contour; edge of pronotum and edge of elytra form an obtuse angle when viewed from side NOTIOPHYGINAE*

- Body smooth or only slightly tuberculate; edge of pronotum and edge elytra form almost a straight line or slightly angulate 2
- 2. Body contour with almost parallel-sided elytra; hair on body partly clubbed or split-tip PONDONATINAE*
- Body contour greatly arched oval with sides of elytra rounded; hairs if present, not like above 3
- 3. Body strikingly coloured with yellow and black; with two hair forms of different length CEPHALOPHANINAE*
- Body not strikingly bicoloured; without hair forms as above 4
- 4. Body greatly convex with narrow ridge or crest-like edge area; surface almost shining bright, hair pits and pseudopores very minute APHANOCEPHALINAE
- Body flat-convex, with wide edge area as well as a smooth contour; tubercles on body not or little raised, their gland ducts often visible DISCLOMINAE*

LIST OF TAXA

Subfamily APHANOCEPHALINAE

1. *Aphanocephalus sikkima* Pal
2. *Aphanocephalus* sp. A
3. *Aphanocephalus* sp. B

Family DISCOLOMIDAE

Subfamily APHANOCEPHALINAE

Genus *Aphocephalus* Wollaston

1913. *Aphocephalus* Wollaston, *Ent. Mon. Mag.*, 9 : 278
(Type : *hemisphaericus* Wollaston).

Diagnosis : Body broadly ovoid, strongly convex dorsally and flattened ventrally, glabrous vestiture often with minute setae not generally visible at lower magnification; transverse head concealed largely by prothorax, 9-segmented antenna with a large club; strongly transverse prothorax with weakly rounded and smooth lateral sides, front coxal cavities closed behind, mesocoxal

cavities closed and sternal fitting in a straight line, hind coxae globular and widely separated; tarsi 3-3-3; abdomen with broad intercoxal process and freely articulated ventrites.

1. *Aphanocephalus sikkima* Pal

1997. *Aphanocephalus sikkima* Pal, *Hexapoda* 8(1) : 10.

Diagnosis : Body oblong-ovate, about 1.2x longer than broad, convex, shiny, finely punctate-pubescent, uniformly dark reddish-brown except for paler front margin of pronotum. Head almost concealed from above by pronotum, fronto-clypeal suture situated just in front of antennal bases; antennal club large, elongate, more than one-third as long as antenna, with two pre-apical annulations, strongly transverse prothorax slightly emarginate in front, lateral margin feebly rounded and finely bordered, two pairs of lateral pits close to antero-lateral and posterior angles; elytra about as broad as long, punctures simple and point-like impressions on cuticle. Length- 1.86-2.08 mm.

Material : 12 ex. Andaman Is., S. Andaman, Austinabad, 15 km. O- Port Blair, 3 ex. 27.ix.2003, T.K. Pal, ex. sweeping bush; S. Andaman, Calicut, 15 km. O- Port Blair, 9 ex., 26.ix.2003, T.K. Pal, ex. haystack.

Distribution : India : Sikkim, Andaman Is. (New record).

2. *Aphanocephalus* sp. A

General appearances (Fig. 1) oblong, ovate, about 1.2x as long as broad, convex dorsally and flattened ventrally, shiny, pronotal disc finely and elytra somewhat coarsely punctate, yellowish-brown to dark brown, darker triangular spot on antero-median part of pronotum.

Head small, exposed part distinctly transverse, largely concealed from above by pronotum, fronto-clypeal suture situated just in front of antennal insertions, less distinctly impressed, clypeus with pubescence; eyes moderately large, visible only from ventral side. Antenna (see Fig. 2) short, shorter than pronotum, scape moderately large,

*Subfamilies not recorded from Andaman & Nicobar Is.

pedicel and segment 3 narrower and little elongate, segments 4-7 short and subequal, segment 8 little wider than 7, club large, elongate, slightly shorter than one-third as long as antenna, with single preapical annulation.

Prothorax strongly transverse (1.0 : 2.3), narrowed in front, front margin feebly emarginate, front angles bluntly rounded, lateral margin arched and finely bordered, two small lateral pits situated close to anterior angle and at posterior third, posterior angles acute, basal margin distinctly sinuate on either side of middle, antero-median part of pronotum with a triangular darker spot; puncturation fine and sparse, devoid of pubescence.

Elytra slightly broader than long (1.0 : 2.3), more than twice (2.6 : 1.0) as long as prothorax, basal margin emarginate and fitting closely with prothorax, humeral angles blunt, widest near middle, sides evenly rounded, bordered and little explanate, unicolourous; punctures simple, about as coarse as eye facets, separated by 2-3 diameter, devoid of pubescence, six pit-like punctures arranged along elytral border.

Ventral side slightly paler, prosternum indistinctly punctate, metasternum with moderately large and dense punctures, little weaker mesally, puncturation on abdominal ventrite 1 coarser than on ventrites 2-5; legs yellowish-brown; epipleura flat, broad basally and acute for entire length.

Aedeagus (Fig. 3) on one side, median lobe forming a broad tube with broad and blunt tip; tegmen forming a cap-piece enveloping median lobe, its proximal end broad cap-like, its distal end broad and blunt. Length-1.33 mm.

Material : 4 ex. India, Andaman Is., South Andaman, Wimberligunj, 15.x.2003, T.K. Pal, ex. rotting log.

Remarks : This species shows certain resemblances with the Sumateran species, *Aphanocephalus distinctus* Grouvelle in having similar facies and coarser elytral punctures than pronotum. But it differs from *distinctus* in having

much coarser elytral punctures, side margins of prothorax uniformly curved and not little angulate prebasally as in *distinctus*. The aedeagus of this species with broad blunt tegminal tip differs from other known species of *Aphanocephalus* (aedeagus of *distinctus* is not described).

3. *Aphanocephalus* sp. B

General appearances (Fig. 4) oblong-ovate about 1.2 X as long as broad, convex dorsally and flattened ventrally, shiny, glabrous, inconspicuously punctate, dark brown with paired orbicular paler spots on elytra.

Head small, exposed part transverse, partly concealed from above by pronotum, fronto-clypeal suture situated just in front of antennal bases, clypeus sparsely setose; eyes moderately large, but partly visible from dorsal side. Antenna (see fig. 5) short, about as long as pronotum, scape moderately large, pedicel and segment 3 narrower and little elongate, segment 4-7 short and subequal, segment 8 little wider; club large, elongate, shorter than one-third as long as antenna, with single preapical annulation.

Prothorax strongly transverse (1.0 : 2.2), narrowed in front, front margin almost unemarginate, front angles bluntly rounded, lateral margin feebly arched and bordered, two lateral pits situated close to anterior angle and behind middle, posterior angles acute, basal margin distinctly sinuate on either side of middle, puncturation inconspicuous on pronotum and devoid of setae.

Elytra about as broad as long, about 2.8x as long as prothorax, basal margin emarginate and fitting closely with prothorax, humeral angles blunt, widest near middle, sides evenly rounded, bordered and little explanate; a pair of admedian, orbicular paler spots near middle, edges of which are not well defined, punctuation inconspicuous and devoid of setae, six large pit-like punctures present along elytral border.

Ventral side not paler than dorsal side, prosternum and mesosternum impunctate and glabrous, metasternum with moderately coarse

punctures but impunctate mesally, punctuation on abdominal ventrites almost similar to that of sides of metasternum and finely setose; legs dark-brown; epipleura flat, broad basally and acute for entire length.

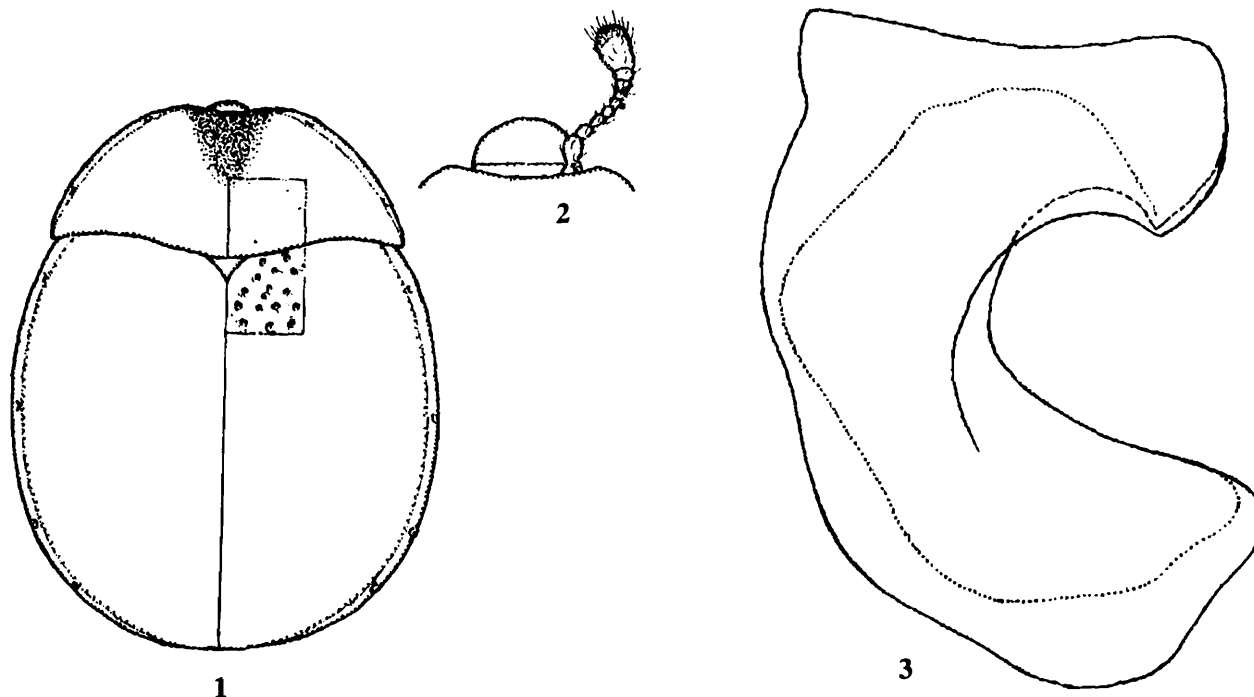
Aedeagus (Fig. 6) not turned on one side, distal end of median lobe broadened with a large orifice, its proximal end concave with a strut, tegmen forming a cap-piece enveloping large part of median lobe leaving only its distal part. Length-1.48 mm.

Material : 8 ex. India, Nicobar Is., Great Nicobar, Sital Pahar, 15 km. 0- Campbell Bay, 10.x.2003, T.K. Pal, ex. fallen log.

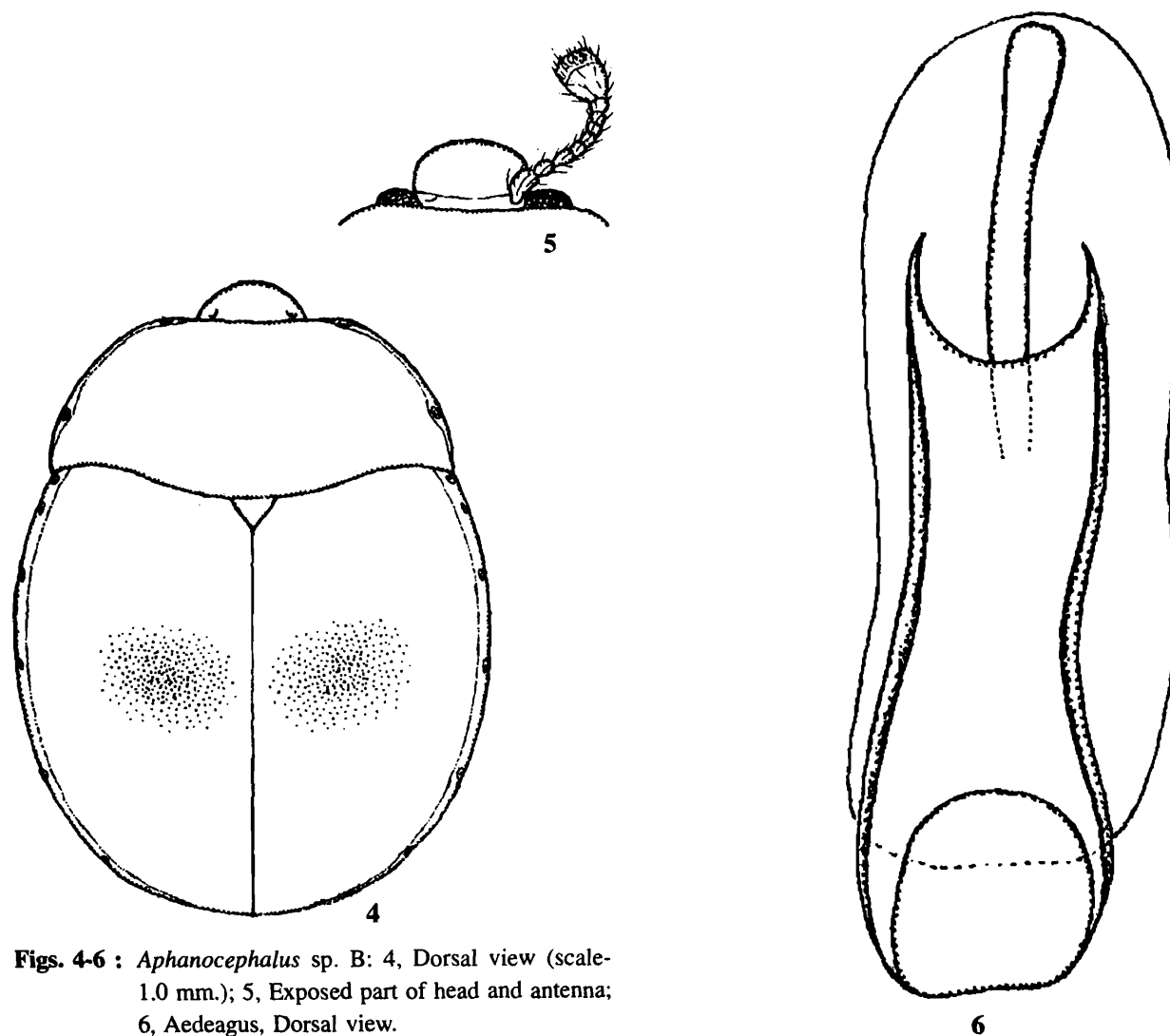
Remarks : This species shows some resemblances with *Aphanocephalus maculipennis* Pal from Mizoram in having hemispherical lighter areas on elytra. But it differs from *maculipennis* by its dorsum darker and glabrous, punctuation on pronotum and elytra finer and almost inconspicuous, no lighter areas on pronotum and elytra except paired hemispherical spots on elytra, antennae not lighter than dorsum; structure of aedeagus different with median lobe straight and not bent near middle.

KEY TO THE SPECIES OF *Aphanocephalus* Wollaston FROM INDIA

1. Front margin of prothorax rather deeply and widely emarginate, one pair of lateral marginal pits of pronotum present near humeral angles and those near basal third absent *superbus* Pal
 - Front margin of prothorax either unemarginate or slightly emarginate, two pairs of lateral marginal pits near humeral angles and near basal third absent 2
2. Antennal club segment with single preapical annulation 3
 - Antennal club segment with two preapical annulations 7
3. A pair of median hemispherical paler spots on elytra 4
 - Elytra devoid of hemispherical paler spots and dark throughout, margins narrowly paler occasionally 5
4. Pronotum and elytra finely punctate and setose, periphery of pronotum and elytra paler than middle in addition to hemispherical paired spots on elytra, antenna paler than dorsum; aedeagus turned on one side, median lobe broad and bent near middle *maculipennis* Pal
 - Pronotum and elytra almost impunctate, glabrous and shiny, no paler area on pronotum except hemispherical paired lighter spots on elytra, antenna not paler than dorsum; aedeagus not turned on one side, median lobe almost straight and not bent near middle *Aphanocephalus* sp. B
5. Antero-median part of pronotum triangularly darker, remaining part of disc paler; elytra coarsely punctate and much coarser than pronotum *Aphanocephalus* sp. A
 - Larger part of pronotum darker, sides or margins variably paler; elytral punctures generally fine, if slightly coarse not markedly coarser than pronotal punctures 6
6. Front and side margins of pronotum with broad, uninterrupted paler band; aedeagus with distal end of tegmen bifid *convexus* Pal
 - Narrow paler bands on antero-lateral part of pronotum which extend posterad towards middle; aedeagus with distal end of tegmen spatulate and be set with setae *angulus* Pal
7. Antero-lateral pale border of pronotum uninterrupted and continuous throughout its length; aedeagus with distal end of median lobe narrowed and rather broadly pointed *johni* Pal
 - Antero-lateral pale border of pronotum uninterrupted near middle, along front margin; aedeagus with distal end of median lobe broad and blunt *sikkima* Pal



Figs. 1-3 : *Aphanoccephalus* sp. A.: 1, Dorsal view (scale- 1.0 mm.); 2, Exposed part of head and antenna; 3, Aedeagus, Lateral view.



Figs. 4-6 : *Aphanoccephalus* sp. B: 4, Dorsal view (scale- 1.0 mm.); 5, Exposed part of head and antenna; 6, Aedeagus, Dorsal view.

SUMMARY

The paper deals with 3 species under 1 genus of the subfamily Aphanocerphalinae which form the first record of Discolomidae from Andaman & Nicobar Is. The species are characterized and a key to the Indian species is appended.

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INSECTA : COLEOPTERA : MONOTOMIDAE

T.K. PAL

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

E-mail: tkpal51@rediffmail.com

INTRODUCTION

The Monotomidae (= Rhizophagidae) with about 250 species are a moderately large family and are represented in all major biogeographic regions. The species of Monotomidae are found under bark of old logs, ascomycetes fungi, haystacks, decaying vegetation and are sometimes called 'root eating beetles'. The concept of Monotomidae had undergone changes since Laporte (1840) and Redtenbacher (1845) until Crowson (1955) delineated the group (Rhizophagidae) in the present sense bringing Monotominae: Cucujidae to it. By the way, genera listed by Méquignon (1914) and Hetschko (1930) under the Rhizophagidae and the Monotominae: Cucujidae respectively were considered to belong to this family. Crowson (*loc. cit.*) transferred 3 genera to the families Smicripidae, Lyctidae, and Curculionidae, and divided the family into 4 subfamilies. Sengupta (1977, 1988) added 4 genera from India. Later, Pakaluk & Slipinski (1993) described a genus from South America; Sengupta and Pal (1995) described 7 genera from Africa and Southeast Asia; Pal (1996) described 1 more genus from India. Pakaluk *et. al.* (1994) proposed change in the family group-name, 'Monotomidae' for 'Rhizophagidae' on the basis of priority. No species of Monotomidae is hitherto known from Andaman & Nicobar Islands. The present work is based on the recent collection made by the author, plus some earlier material, that represent 7 species under 5 genera

CHARACTERS OF THE FAMILY MONOTOMIDAE

Body elongated, somewhat parallel-sided, cylindrical to subdepressed, with short clubbed

antenna and truncate elytra exposing tip of pygidium, light to dark brown in colour.

Head about as broad as long or little elongate, without fronto-clypeal suture, antennal insertions hidden under projection of frons, 10-segmented antenna with 1- or 2-segmented club, small to moderately large eyes not much protruding, often with distinct tempora, on ventral side often with strongly or weakly developed antennal cavities, anterior part of gular region often with transverse curved impressed line, gular sutures widely separated; mandible often partially exposed, with one or two apical teeth, mola well developed, rarely with mandibular cavity; maxilla with well developed lacinia but never with apical spine, galea slender, palpi with apical segment elongate, segments 2 and 3 subequal or rarely segment 2 markedly large (*Monotoma*); labium with mentum about as broad as long or little elongate, palpi often with apical segment elongate and sometimes with larger segment 2 than apical one (*Monotoma*); labrum usually not distinguishable.

Prothorax of variable proportion from distinctly elongate to little transverse, pronotal disc often more or less depressed, front coxal cavities usually rounded with hidden trochantins and rarely little transverse with partially exposed trochantins, coxal cavities broadly closed behind, prosternal process more or less broad at apex.

Meso-metathorax: Mesocoxae closely situated, mesocoxal cavities open outwardly (rarely closed), sternal fitting between mesocoxae often with a projection from metasternum; metasternum transverse, with median impressed line, hind coxae closely situated or little widely separated.

Elytra somewhat parallel-sided, punctures usually in linear rows, without scutellary striae, epipleura narrow and often complete up to apex. Hind wing with 1 to 3 anal veins, no radial cell, often with r-m cross vein or its trace.

Legs moderately long, trochanters usually simple, femora more or less swollen, tibiae broadened at apex with two apical spurs; tarsal formula 4-4-4, or 5-5-4 in male and 5-5-5 in female, or 5-5-5 in both sexes.

Abdomen narrow-elongate, ventrites freely articulated, ventrite 1 longer than others, intercoxal process narrow with pointed apex to broad with truncate apex, femoral lines present or absent. Aedeagus uninverted cucujoid-type, tegmen complete or incomplete, and no distinct parameres, often with a pair of thread-like median strut. Ovipositor with separate paraprocts, valvifers, coxites and styli.

KEY TO THE SUBFAMILIES OF MONOTOMIDAE

1. Tarsi 5-5-5 in both sexes; antennae retractable into very deep recess below and behind eyes; front coxal cavity small, rounded; middle coxal cavity closed LENACINAE
- Tarsi heteromorous in male or 4-4-4 in both sexes; antennae not retractable into such deep recesses 2
2. Tarsi 4-4-4 in both sexes; form cylindrical; middle coxae rather large, their cavities not closed outwardly by sterna; front coxal cavities round THIONINAE
- Tarsi heteromorous in male, 5-5-5 in female, shape less cylindrical 3
3. Middle coxal cavities not closed outwardly by sterna; front coxal cavities with angular external prolongations exposing trochantins RHIZOPHAGINAE
- Middle coxal cavities closed outwardly by sterna; front coxal cavities rounded, trochantins hidden... MONOTOMINAE

LIST OF SPECIES

Family MONOTOMIDAE

Subfamily MONOTOMINAE

1. *Monotoma uhligi* Pal
2. *Monotoma picipes* Herbst
3. *Monotoma bicolor* Villa & Villa
4. *Europs* sp.
5. *Mimemodes insulare* Grouvelle
6. *Indoleptipsius* sp.

Subfamily THIONINAE

7. *Shoguna feae* Grouvelle

KEY TO THE GENERA AND SPECIES OF MONOTOMIDAE

1. Tarsi 5-5-4 in male and 5-5-5 in female; species not quite cylindrical 2
- Tarsi 4-4-4 in both sexes; form cylindrical
..... *Shoguna feae* Grouvelle
2. Segment 2 of both maxillary and labial palpi markedly large and longer than apical segment of both; sides of prothorax crenulate, setiferous; 1-segmented antennal club (*Monotoma*) 3
- Segment 2 of both maxillary and labial palpi moderately large and shorter than apical segment of both; sides of prothorax little serrate, setiferous or glabrous; 1- or 2-segmented antennal club 5
3. Pronotal disc with two pairs of deep foveae in anterior and posterior halves
..... *Monotoma uhligi* Pal
- Pronotal disc with one pair of shallow foveae in posterior half 4
4. Frons with two deep sub lateral longitudinal impressions; side margins of prothorax distinctly denticulate *Monotoma picipes* Herbst
- Frons with two shallow sub lateral longitudinal impressions; side margins of prothorax finely serrate *Monotoma bicolor* Villa & Villa
5. Antennal club 2-segmented. Anterior part of gular region without longitudinal grooves but

- with a transverse line. Abdominal ventrite 1 without femoral lines *Europs* sp.
- Antennal club 1- segmented 6
6. Head large, wider than prothorax; prothorax broader than long
..... *Mimemodes insulare* Grouvelle
- Head normal, not wider than prothorax; prothorax elongate. Antennal cavities slightly marked on ventrum of head bordering inner margin of eyes..... *Indoleptipsius* sp.

Subfamily MONOTOMINAE

Genus *Montoma* Herbst

1793. *Monotoma* Herbst, *Käfer*, 5 : 22 [Type-species : *Monotoma picipes* Herbst].

Diagnosis : Elongated, moderately depressed, somewhat elliptical, narrower anteriorly, densely setose and dull. Head elongate, eyes moderately large, tempora well developed, transverse impressed line on vertex behind eyes, 10-segmented antenna moderately long with 1-segmented club, mandible with bifid apical teeth, maxillary galea narrow and finger-like, segment 2 of maxillary palpi markedly large, segment 3 transverse, apical segment short; labium with transverse mentum, segment 2 of labial palpi large and apical segment minute. Prothorax usually elongate, sides serrate, pronotum more or less excavated, front coxal cavities closed behind, prosternal process broader apically than between coxae; mesocoxae moderately widely separated; elytra exposes at least one abdominal segment, striate-punctate; tarsi 5-5-4 in male and 5-5-5 in female; intercoxal process of first abdominal ventrite broad and truncate apically, no femoral lines.

Distribution : All zoogeographical regions of the world.

1. *Monotoma uhligi* Pal

2000. *Monotoma uhligi* Pal, *Mitt. Mus. Nat. kd. Berl., Zool. Reihe*, 76 : 114.

Diagnosis : Elongated, subdepressed, reddish-brown with coarse dense punctures, and short

squamiform pubescence; head about as broad as long, eyes shorter than one-third as long as head, temple shorter than eyes, sides of head behind antennal bases slightly elevated, an elongate medial elevation on vertex which form a moderately broad-elongate depression on either side, antennal scape and pedicel large and subglobular, segment 3-9 distinctly narrower than preceding segments, segments 3-4 more or less elongate, segments 5-9 about as broad as long to slightly transverse, club elongate-oblong and about as long as segment 6-9; prothorax about as broad as long and widest near posterior two-fifths, sides arcuate, a pair of moderately deep oval foveae on either side in both anterior and posterior halves of pronotum; elytra about 1.5x as long as broad, sides feebly arched, punctures on rows moderately large and oval. Length- 2.20- 2.25mm.

Material : 21 ex. India : Andaman Is., South Andaman, Stewartgunj, Tapu Basti, 2 ex., 14.ii.2000, T.K. Pal & party, ex. haystack; Chouldari, 18.ix.2003, 14 ex., T.K. Pal & party, ex. haystack; Calicut, 15 km. O-Port Blair, 4 ex., 26.ix.2003, T.K. Pal & party, ex. haystack; Middle Andaman, Nimbutala, 18 km. O-Port Bakultala, 1 ex., 20.x.2001, T.K. Pal & party, ex. haystack.

Distribution : India : Andaman Is. (New record); Africa : Kenya.

2. *Monotoma bicolor* Villa & Villa

1835. *Monotoma bicolor* Villa & Villa, *Col. Eur. Dupl.* : 49.

Diagnosis : Elongate, reddish-brown, elytra slightly paler than head and pronotum; head and pronotum with coarse, deep, more or less subcontiguous punctures; head slightly transverse, eyes about one-third as long as head, temple about half as long as eye, median area of frons raised, lateral margin between eye and antennal insertion angulate, moderately long antenna with slightly elongate club segment; prothorax about 1.1x as long as broad, sides slightly arcuate, front angles blunt and not protruding, hind angles rounded and not distinct, disc with two shallow prebasal foveae; elytra about 1.5x as long as broad, punctures on

rows moderately large and round. Length-1.96-2.01 mm.

Material : 3 ex. India : Andaman Is., South Andaman, Chidiatapu, 1 ex., 6.iii.2000, T.K. Pal & party, *ex. haystack*; Middle Andaman, Nimbutala, 2 ex., 20.x.2001, T.K. Pal & party, *ex. haystack*.

Distribution : India : Andaman Is. (New record); North Africa; Syria; European countries; North America; New Zealand.

3. *Monotoma picipes* Herbst

1793. *Monotoma picipes* Herbst, in Jablonsky, *Nat. Ins. Käfer*. 5 : 24.

Diagnosis : Elongated, reddish-brown, head and pronotum coarsely punctate, pubescent, 10-segmented antenna with 1-segmented club, temple shorter than half of length of eye; pronotum elongate, widest posteriorly, tapering anteriorly in a gentle curve, sides serrated, anterior tooth moderately large and blunt, one of teeth near base larger than neighbouring ones, disc with two shallow prebasal foveae; elytra with setiferous punctures; tergite of last abdominal segment exposed. Length-2.05-2.25 mm.

Material : 55 ex. India : Andaman Is., South Andaman, Calicut, 15 km. O- Port Blair, 5 ex., 26.ix.2003, T.K. Pal & party, *ex. haystack*; Middle Andaman, Nimbutala, 50 ex., 20.x.2001, T.K. Pal & party, *ex. haystack*.

Distribution : India : Nagaland, Andaman Is. (New record); Japan; Thailand; Europe; Canary Is.; St. Helena; Reunion Is; New Zealand.

Genus *Europs* Wollaston

1854. *Europs* Wollaston, *Insecta Maderensia*. P. 149 [Type-species : *Europs impressicollis* Wollaston].

Diagnosis : Elongate, dorsally depressed, subparallel, with scanty pubescence and shining. Head about as broad as long, eyes large, tempora well developed, transverse impressed line on vertex behind eyes, 10-segmented antenna with 2-segmented club, mandible with single apical tooth, maxilla with fan-like lacinia, apical segment of

maxillary palpi longest, labium with ligula about as broad as long, apical segment of labial palpi longest, prothorax about as broad as long, sides finely serrate, pronotum not excavate but punctate, front coxal cavities closed behind, prosternal process broader apically than between coxae, mesocoxae moderately widely separated; elytra exposes one abdominal segment, striate-punctate; tarsi 5-5-4 in male and 5-5-5 in female; intercoxal process of first abdominal ventrite moderately broad and rounded apically, no femoral lines.

Distribution : South and Central America; West Indies; South Africa; Madagascar; Reunion; India; Myanmar; Japan; Indonesia; Pacific Islands.

4. *Europs* sp.

Diagnosis : Narrow-elongate, subparallel, dorsal surface moderately strongly punctate; clypeal margin of head little indented, sides of frons somewhat raised above antennal bases, eyes slightly shorter than half as long as head, temple about one-third as long as eye, antennal segments 4-9 more or less transverse, apical segment of club about as broad as long and wider than penultimate one, puncturation on vertex moderately coarse with interspaces wider than punctures, prothorax marginally elongate, widest near middle and sides weakly rounded, anterior and posterior angles not produced, pronotum moderately coarsely punctate leaving a dorso-median part; elytra less than twice as long as broad, sides feebly arched, elytral punctures about as coarse as pronotal ones or little stronger. Length-2.1-2.3 mm.

Material : 2 ex. India : Andaman Is., Middle Andaman, Nimbutala, 18 km. O- Bakultala, 20.x.2001, T.K. Pal & party, *ex. under bark*.

Genus *Mimemodes* Reitter

1876. *Mimemodes* Reitter, *Deutsche ent. Zeitschr.*, 20 : 296 [Type-species : *Bactridium monostrosum* Reitter].

Diagnosis : Elongate, dorsally depressed, subparallel with scanty pubescence and moderately shiny. Exposed part of head slightly transverse, with distinct neck constriction, eyes moderately

large, tempora well developed, transverse impressed line on vertex behind eyes, 10-segmented antenna with 1-segmented club, mandible with bifid apical tooth and with dorsal cavity near base; maxillary lacinia sword-like and setose, apical segment of maxillary palpi longest and fusiform; labium with mentum slightly elongate and somewhat triangular, apical segment of labial palpi longest and fusiform, prothorax slightly transverse and little narrowed posteriorly, sides finely serrate, pronotum not excavate, front coxal cavities closed behind and intercoxal process broad at apex, mesocoxae separated about as wide as front coxae, mesocoxal cavities narrowly closed; elytra exposes one abdominal segment, striate-punctate; tarsi 5-5-4 in male and 5-5-5 in female; intercoxal process of first abdominal ventrite rather narrow and rounded apically, with short femoral lines.

Distribution : Taiwan; Japan; India; Indonesia; Australia.

5. *Mimemodes insulare* Grouvelle

1897. *Mimemodes insulare* Grouvelle, *Ann. Mus. Genova*, (2) 18 : 375.

Diagnosis : Elongate, subparallel, dorsal surface moderately strongly punctate, pubescence not visible; head transverse, clypeal margin little indented, sides of frons below antennal bases slightly depressed, temple shorter than eye, antennal scape large, segments 4-9 more or less transverse, club slightly elongate, punctation on vertex moderately coarse with interspaces about as wide as punctures or wider; slightly transverse prothorax narrower than head, narrower posteriorly, front angles obtuse and hind angles rounded, pronotum moderately coarsely and densely punctate, interspaces of punctures much wider mesally; elytra more than 1.5x as long as broad, sides rounded, punctures moderately large and arranged on striae. Length-2.1 mm.

Material : 1 ex. India: Andaman Is., Middle Andaman, B.M. Bhatia, ex. *Dipterocarpus turbinatus*.

Distribution : India: Andaman Is., (New record); Indonesia (Sumatra).

Genus *Indoleptipsius* Pal

1996. *Indoleptipsius* Pal, *Hexapoda*, 8(1) : 2 [Type-species : *Indoleptipsius ushae* Pal, by original designation].

Diagnosis : Elongate, moderately depressed, dorsal punctuation moderately coarse, little shiny, short and fine pubescence on head and elytra. Head with moderately large eyes, well developed temples, partly exposed mandibles, 10-segmented antenna with 1-segmented club, mandible with well developed mola and two apical teeth; maxilla with finger-like galea, broader and setose lacinia, apical segment of palpi longest; labium with apical margin of ligula broadly projected at middle, apical segment of labial palpi longest. Prothorax about as broad as long, side margins finely serrated, front coxal cavities closely situated and closed behind; mesocoxae situated slightly wider than front coxae, coxal cavities closed outwardly; elytra truncate at apex and with 8 rows of stria punctures; tarsi 5-5-4 in male and 5-5-5 in female; intercoxal process of first abdominal ventrite rounded at apex, with short femoral lines.

Distribution : India.

6. *Indoleptipsius* sp.

Diagnosis : Elongate, sub-parallel, reddish-brown, little shiny, elytra exposes one tergite of abdomen. Head transverse, widest across eyes, no distinct sculpture on dorsal side; antenna slightly longer than head, club (segment 10) about as broad as long and about as long as four preceding segments. Prothorax about as broad as long and slightly narrowed posteriorly, sides finely serrated, pronotal disc devoid of any sculpture and punctuation coarser than on vertex of head, glabrous. Elytra less than twice as long as broad, sides feebly arched, punctures on linear rows, interstices not raised or ribbed. Pygidium finely punctate-pubescent. Length-1.68 mm.

Material : 1 ex. India : Andaman Is., Middle Andaman, Yerata, 12 km.O- Bakultala, 18.ii.2000, T.K. Pal & party, ex. under bark.

Remarks : This species comes very close to *Indoleptipsius ushae* Pal (described from Arunachal Pradesh) but the specific identity could not be ascertained for lack of more material and thorough examination of genitalia and other structures.

Subfamily THIONINAE

Genus *Shoguna* Lewis

1884. *Shoguna* Lewis, *Ann. Mag. Nat. Hist.*, (6) 4 : 274

[Type-species : *Shoguna rufotestacea* Lewis.

Diagnosis : Elongate, narrow-cylindrical. Head markedly elongate, eyes comparatively small, apical margin of clypeus notched, postocular transverse impressed line on vertex absent, antennal insertions hidden under projection of frons; antenna short, 10-segmented with 1-segmented club, mandible with single apical tooth, maxilla with fan-like lacinia, apical segment of maxillary palpi longest. Prothorax markedly elongate, front coxae moderately closely situated, coxal cavities closed behind, prosternal process broad apically; meso- and metacoxae almost contiguous, mesocoxal cavities open outwardly; tarsi 5-5-5; elytra exposes one abdominal segment, with distinct longitudinal striae; intercoxal process of first abdominal ventrite narrow, no femoral lines.

Distribution : Madagascar; Seychelles; Japan; India (New record); Myanmar; Indonesia; Philippines; Pacific Islands.

7. *Shoguna feae* Grouvelle

1896. *Shoguna feae* Grouvelle, *Ann. Mus. Genova*, (2) 16 : 41.

Diagnosis : Elongated, cylindrical, dorsally glabrous except a few setae near apex of clypeus; distinctly elongated head with exposed mandibles,

clypeus notched apically, an oblique impressed line on either side of frons above antennal insertion; eyes short, narrow and non-projecting, post-ocular tempora more than twice as long as eye; antenna shorter than head, scape large, segments 4-9 more or less transverse, club large and little elongate, puncturation on vertex slightly coarse, sparse and little elongate, interspaces wider than punctures; prothorax elongate, about 1.5x as long as broad, about as wide as head, slightly narrower posteriorly, anterior and posterior angles rounded, pronotum with fine dot-like punctures and devoid of any sculpture; elytra more than twice as long as broad, fine punctures on linear striae, interspaces slightly ribbed, Length-3.44-4.48 mm.

Material : 5 ex. India : Andaman Is., North Andaman, 2 ex., 15.xii.1928, B.M. Bhatia, ex. *Dipterocarpus turbinatus* and *Pterocarpus dalbergioides*; Yerata, 12 km. O- Bakultala, 1 ex., 18.ii.2000, T.K. Pal & party, ex. under bark; Nicobar Is., 36 km.O-Campbell Bay, 1 ex., 8.xii.1978, B. Nandi & party, ex. decaying log; Kondul Is., 1 ex., 1930.

Distribution : India : Andaman & Nicobar Is., (New record); Myanmar; Indonesia.

SUMMARY

The paper deals with 7 species under 5 genera of 2 subfamilies. One genus and 3 species are recorded first time from India and all the species are recorded first time from Andaman & Nicobar Is.

ACKNOWLEDGEMENTS

The author is indebted to the Director, Zoological Survey of India for providing necessary facilities for the work.

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INSECTA : COLEOPTERA : INOPEPLIDAE

T.K. PAL

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

E-mail: tkpal51@rediffmail.com

INTRODUCTION

The Inopeplidae are a sufficiently distinct small family of the section Heteromera (= Tenebrionoidea) under the superfamily Cucujoidea. The inopeplids are often broadly elongate, flattened with abbreviated elytra, and are seen under bark or in decaying wood. The representatives of the family are mostly found in tropical parts of the world. The constitution of the group has undergone changes till Crowson (1955). Hetschko (1930) listed 3 of 52 species under the genus *Inopeplus* Smith from India, while treating it under the family Cucujidae (Cucujidae: Inopeplinae). Blackwelder (1942) referred *Inopeplus* to the family Staphylinidae, because of apparent similarity of exposed abdominal segments. Crowson (*op. cit.*) recognised the distinct family status of Inopeplidae and included the genera *Inopeplus*, *Diagrypnodes* Waterhouse and *Aciphus* Oliff in it. Sengupta, Pal & Mukhopadhyay (1977) ascertained its systematic position and described 3 more species from India. Subsequently, Pal (1992a, b) added 3 more species from Eastern Himalaya. Earlier, Pal & Datta (1982) recorded this family from Andaman & Nicobar Is. with 2 species. The present work is based on the recent collection by the author in addition to the previous material.

CHARACTERS OF THE FAMILY INOPEPLIDAE

Body elongate, moderately broadened, largely flattened and glabrous. Head more or less prognathous, sometimes little rostrate, eyes entire and more or less emarginated, fronto-clypeal suture prominent, 11-segmented antenna without distinct

club, antennal insertions partly hidden under frons, ventrally gular sutures widely separated, without antennal cavities; mandibles largely exposed, mola well developed, without any mandibular cavity; maxillary lacinia and galea well developed, palpi long and segments 2-4 elongate; mentum transverse, apical two segments of labial palpi elongate; labrum exposed. Prothorax transverse and narrowed towards base, side margin often with denticles, front coxae somewhat oblique with hidden trochantins, coxal cavities open. Mesothorax moderately large, mesocoxal cavities outwardly closed by sterna, metasternum usually without median impressed line, mesocoxae and hind coxae rather widely separated. Elytra truncate at apex, exposing a few abdominal tergites, epipleura narrow or incomplete; hind wings usually lack radial cell or anal cell. Trochanters not distinctly heteromeroid, tibiae provided with apical spurs, tarsi usually 5-5-4. First two ventrites of abdomen may be connate. Aedeagus trilobed-type, with accessory lobes attached to fused parameres.

LIST OF TAXA

Family INOPEPLIDAE

1. *Inopeplus decisus* (Walker)
2. *Inopeplus biocellatus* (Motschulsky)
3. *Inopeplus albonotatus* (Motschulsky)
4. *Inopeplus andamanicus* Pal & Datta

KEY TO THE SPECIES OF INOPEPLIDAE

1. Head and prothorax orange to brownish-red ..
..... 2

- Head and prothorax dark brown to deep black 3
- 2. Lateral margin of prothorax smooth. Anterior half of elytra pale brown and posterior half blackish *andamanicus* Pal & Datta
- Lateral margin of prothorax distinctly denticulate. Elytra blackish with a whitish rounded spot on each elytron near middle *biocellatus* (Motschulsky)
- 3. Lateral margin of prothorax with one anterior and two posterior denticles; a whitish longitudinal sub-lateral spot from below base to apex of each elytron *decisus* (Walker)
- Lateral margin of prothorax with two posterior denticles; a whitish testaceous spot near apex of each elytron *albonotatus* (Motschulsky)

Family INOPEPLIDAE

Genus *Inopeplus* Smith

1851. *Inopeplus* Smith. List. Col. Brit. Mus., 1 : 4.
 1853. *Ino* Castelnau, Elud. ent., 1 : 135.
 1859. *Euryplatys* Motschulsky, Etud. ent., 8 : 195.
 1869. *Pseudino* Fairmaire, Annls. Soc. ent. Fr., 9 (4) : 208.
 1908. *Inopeplus* : Grouvelle. Annls. Soc. ent. Fr., 77 : 461.
 1977. *Inopeplus* : Sengupta. Pal & Mukhopadhyay. Oriental Ins., 11 : 397.

Diagnosis : Elongated, flat, soft-bodied, elytra truncate and exposing at least two abdominal segments. Head transverse with moderately large eyes, distinct fronto-clypeal suture, 11-segmented antenna somewhat moniliform and not clubbed, antennal insertions partly hidden under projection of frons, mandible exposed and with two apical teeth, maxillary lacinia without apical spine, apical segment of maxillary palpi elongate and somewhat fusiform, mentum markedly transverse, apical segment of labial palpi elongate. Prothorax strongly transverse, broader anteriorly and narrowed posteriorly, side margin with or without denticles, front coxal cavities open and coxae moderately widely separated, hind coxae more widely separated than pro- and mesocoxae. Elytral epipleura narrow, puncturation irregular and often indistinct. Legs moderately long, trochanters simple,

tibiae normal with two apical spurs, tarsal formula 5-5-4 in both sexes. Intercoxal process of first abdominal ventrite narrowed towards apex.

1. *Inopeplus decisus* (Walker)

1858. *Prognatha decisus* Walker, Ann. Mag. Nat. Hist., 2(3) : 205.
 1908. *Inopeplus decisus* : Grouvelle, Ann. Soc. ent. France, 77 : 462.

Diagnosis : Facies elongate, flattened, blackish, shiny and last 3 abdominal segments exposed; head broader than long; eyes moderately large, black and coarsely faceted, inner margin of each eye with a semicircular depression; puncturation on head uniform and moderately dense; antennae rather short and slender, scape large and curved, pedicel shorter and slightly narrower than scape, segment 3 slightly longer and wider than pedicel, segments 4-10 subequal, segment 11 elongate, longer than preceding segments and pointed at apex; prothorax blackish, transverse, flattened, widest across front margin and narrowed posteriorly; lateral margin of pronotum with one anterior and two posterior denticles; puncturation on pronotum slightly sparser than that of vertex of head; scutellum slightly transverse and its apex rounded, impunctate; elytra elongate, broadened posteriorly, impunctate, glabrous, a whitish longitudinal spot near base to apex of each elytron, last three abdominal segments exposed; ventral surface blackish, shiny and finely pubescent. Length- 3.0-3.3 mm.

Material : 17 ex. India : Andaman Is., South Andaman, Chatham, Port Blair, 4 ex. 13.ii.2000, T.K. Pal & party, ex. under bark; Middle Andaman, Yerata, 12 km. O-Bakultala, 5 ex. 18.ii.2000, T.K. Pal & party, ex. under bark; Nimbudala, 18 km. O-Bakultala, 8 ex., 20.x.2001, T.K. Pal & party, ex. under bark.

Distribution : India : Arunachal Pradesh, Sikkim, West Bengal, Uttar Pradesh, Kerala, Tamil Nadu, Andaman Is. (New record); Sri Lanka.

2. *Inopeplus biocellatus* (Motschulsky)

1859. *Euryplatys biocellatus* Motschulsky, Etnd. Ent., 8 : 98.

1908. *Inopeplus biocellatus*: Grouvelle, *Ann. Soc. ent. Fr.*, 77 : 46.

Diagnosis : Facies broadly elongate, flattened, shiny, head and prothorax reddish-brown, elytra black with whitish large spot at middle, last two segment of abdomen completely exposed. Head broader than long, apical margin of clypeus truncate and with outer less deep and inner deep sinuation on both sides, fronto-clypeal suture straight, a short impressed median line present and not extending up to apex; puncturation on vertex moderately large and closely arranged; eyes large, convex, finely faceted, a short linear groove present below eye; antennae moderately long and slender, scape moderately large and curved, pedicel distinctly shorter than all other segments, segments 3-10 subequal, segment 11 more than twice longer than broad, scape and pedicel yellowish-brown and segments 3-11 blackish. Prothorax transverse, flattened, widest near middle; lateral margin with four distinct denticles and of which posterior two closely placed, finely bordered; puncturation on disc finely and closely arranged; scutellum transverse and its apex rounded, finely and closely punctured; elytra about as long as broad, widest near apex, an outwardly directed metathoracic spine present near middle of elytra, elytra black at base and apex and with a large, round whitish spot on each elytron, two abdominal segments exposed. Length-3.6 mm.

Material : 1 ex. India: Andaman Is.; Middle Andaman, Yerata, 12 km. O-Bakultala, 18.ii.2000, T.K. Pal & party, ex. under bark.

Distribution : India : Arunachal Pradesh, Nagaland, Sikkim, West Bengal, Andaman Is. (New record).

3. *Inopeplus albonotatus* (Motschulsky)

1859. *Euryplatus albonotatus* Motschulsky, *Eind. Ent.*, 8 : 98.

1908. *Inopeplus albonotatus*: Grouvelle, *Ann. Soc. ent. France*, 77 : 462.

Diagnosis : Facies elongate, flattened, dark brown and last 3 abdominal segments exposed. Head broader than long, apical margin of head

concave, fronto-clypeal suture straight, two moderately large depressions present on sides of vertex; puncturation on vertex coarse and slightly dense; eyes moderately large and coarsely faceted, a semicircular depression on vertex surrounding inner margin of eye slightly marked; antennae moderately long and slender, scape moderately large and curved, pedicel shorter and narrower than scape, segment 3 about as long as pedicel and slightly wider, segments 4-10 slightly elongate and subequal, segment 11 elongate. Prothorax transverse, flattened and widest near apex, finely bordered; lateral margin with two denticles near posterior side; puncturation on pronotum fine and sparse and finer than that of head; scutellum transverse, rounded at apex and impunctate; elytra broader than long, widest near apex, finely punctured and finer than that of pronotum, each elytron with a whitish spot near apex, last three abdominal segments exposed; ventral surface shiny, fine punctures only on head and prothorax. Length-3.0 -3.1 mm.

Material : 3 ex. India: Nicobar Is., Kamorta, 10 ex. 11-13.xi.1978, B. Nandi & party, ex. under bark; Campbell Bay, Premarine area, 2 ex., 3.xii.1978, B. Nandi & Party, ex. under bark.

Distribution : India : West Bengal, Nicobar Is.

4. *Inopeplus andamanicus* Pal & Datta

1982. *Inopeplus andamanicus* Pal & Datta, *Rec. zool. Surv. India*, 79 : 469.

Diagnosis : Facies elongate, flattened, shiny, head and prothorax reddish-brown and elytra partially blackish, last three segments of abdomen exposed, head broader than long, apical margin of head truncate, fronto-clapeal suture distinct and nearly straight, apical margin of frons with a transverse depression; puncturation on vertex fine and sparse; eyes moderately large and finely faceted, a semicircular depression surrounding inner margin of eye less distinct, a short transverse depression arise from semicircular depression; antenna moderately long and slender, scape moderately large and curved, pedicel shorter and

narrower than scape, segment 3 slightly wider and longer than pedicel, segments 4-10 subequal and about as broad as long, segment 11 elongated and acuminate at apex, scape and pedicel reddish-brown and segments 3-11 blackish; prothorax transverse, flattened, widest beyond middle and markedly narrowed towards base; lateral margin curved, smooth and without any denticles, indistinctly bordered; puncturation on pronotum slightly more finer than on vertex and sparsely arranged; scutellum transverse, rounded at apex and impunctate; elytra broader than long, widest near apex, puncturation fine and almost similar as on pronotum, anterior half pale brown and posterior half blackish, three segments of abdomen completely exposed. Length-2.9 mm.

Material : 1 ex. India: Andaman Is.; Quari, Hut Bay, 22.xi.1978, B.N. Nandi & party, ex. under bark of Topping log.

Distribution : India : Andaman Is.

SUMMARY

The paper deals with 4 species under 1 genus, of which 2 species viz., *Inopeplus decisus* (Walker) and *Inopeplus biocellatus* (Motschulsky) are recorded first time from Andaman Is. The species are systematically keyed and characterized.

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INSECTA : COLEOPTERA : PROPALTICIDAE

T.K. PAL AND B. BARAIK

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

E-mail: tkpal51@rediffmail.com

INTRODUCTION

The Propalticidae are a small family with about 35 species under 2 genera (*viz.*, *Propalticus* Sharp and *Discogenia* Kolbe) and are represented in tropical Africa, Pacific islands, Australia and Indian state of Sikkim. They are minute (1.0-1.5 mm), often live under bark of felled trees and seem to be mycophagous. Adults are capable of jumping using the front legs (Lawrence, 1982). Crowson (1955) erected the family Propalticidae for *Propalticus* and John (1960) added *Discogenia* to it. Sengupta (1978) recorded the family from India with a species of *Propalticus* from the lower altitude of Sikkim. During a recent field work in Andaman Is. the material of *Propalticus* was found with different other beetles underneath the bark of log. The species of *Propalticus* is described in this paper.

CHARACTERS OF THE FAMILY PROPALTICIDAE

Very small, broadly ovoid to subcircular, flattened, large prothorax, pubescent and dull. Head small and transverse, clypeus broad, antennal insertions dorsal or dorso-lateral, large eyes, gular region devoid of transverse or longitudinal grooves. Antenna 10- or 11-segmented, slender, club 3-segmented. Mandible with large mola and its asperites extending over dorsal surface, with three apical teeth; maxillary lacinia glabrous, with two apical hooks, galea broad with hairy tip, apical segment of palpi cylindrical; labium with apical segment of palpi narrow-elongate, ligula comparatively large and sclerotized.

Prothorax large with rounded side margins, narrowed towards front, pronotum with a median

line, front coxae widely separated and coxal cavities open. Mesosternum short, mesocoxal cavities broadly closed outwardly by sterna, sternal fitting between mesocoxae in a straight line, metasternum transverse, median impressed line extending up to apex of mesosternal process, metendosternite short and simple. Elytra broad, with longitudinal striae, covered with fine hairs or scales, puncturation irregular, epipleurae complete up to apex; wing venation reduced, anal vein one or two; scutellum large and transverse. Legs long, trochanter short and simple, femora swollen towards middle, tibiae narrow-elongate, front tibiae with a large spur, spurs minute or absent in middle and hind tibiae, tarsi 5-5-5 and simple.

Abdomen short and broad, ventrites freely articulated, intercoxal process of first abdominal ventrite broad and truncate, no femoral lines; aedeagus uninverted cucujoid-type, without articulated parameres, median strut single.

SYSTEMATICS

Family PROPALTICIDAE

Genus *Propalticus* Sharp

1879. *Propalticus* Sharp, Ent. Soc. Lond. Trans., 1879 : 88
[Type: *Propalticus oculatus* Sharp].

Diagnosis : Facies elongate, broadly ovoid, dorsally more or less dull; head transverse with large eyes, filamentous antennae with 3-segmented loose club, no fronto-clypeal suture; large transverse prothorax with a median longitudinal impression, front margin emarginate, front coxae widely separated and cavities externally open; mesosternum short, mesocoxal cavities broadly closed outwardly by sterna; metasternum strongly transverse, hind coxae widely separated; large spur

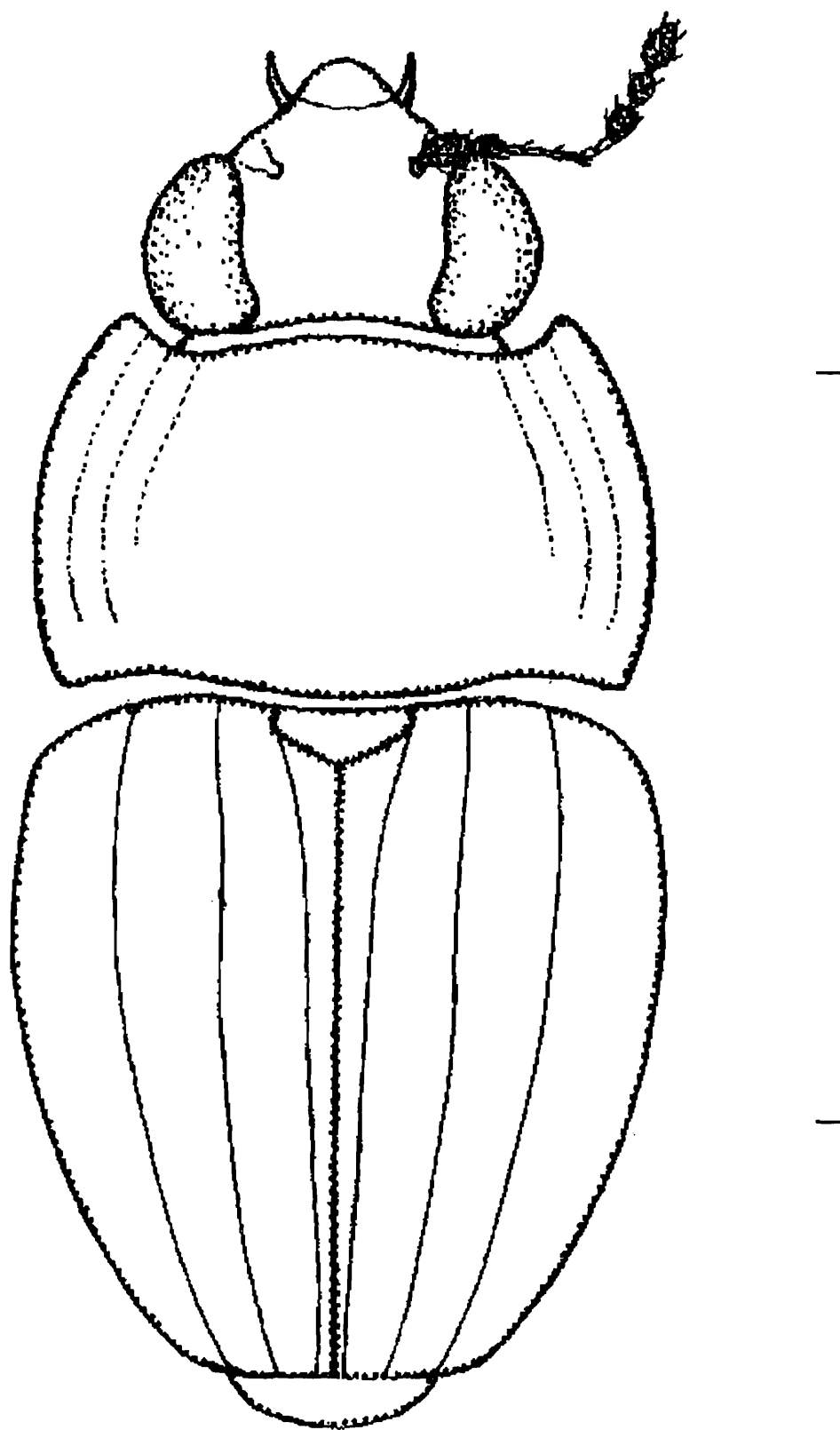


Fig. 1 : *Propalticus* sp., Dorsal view (scale = 1.0 mm)

on tibia of front leg; elytra broad-ovoid, with longitudinal striae, epipleurae well developed and complete up to apex; abdominal ventrites freely articulated, intercoxal process broad and truncate, no femoral lines.

***Propalticus* sp.**

General appearance (Fig. 1) elongate, broad-oval, subdepressed, dark brown, dull, with short fine, recumbent pubescence; apex of abdomen exposed.

Head large, transverse, widest across eyes, inserted into prothorax, front margin of clypeus emarginate, labrum exposed; antennal insertions dorsally on sides, 11-segmented antenna, scape and pedicel large, segments 3-8 slender and more or less elongate, 3-segmented loose club of which segments 9 and 11 elongate and segment 10 about as broad as long, segments 1-2 and 9-11 darker than remaining segments; eyes large, projecting, bean-shaped, more than half as long as head, rather finely faceted; no tempora, distinct transverse line on vertex immediately behind eyes, vertex and clypeus finely pubescent. Prothorax large, transverse (1.0:1.7), wider posteriorly, sides arched, front margin emarginate and slightly sinuate on sides, front angles well marked and acute, hind margin sinuate on sides and hind angles less well marked, sides smooth and finely bordered; disc with a median impressed line, three longitudinal sublateral carinae on either side, outer two carinae continue from front to near base and the inner one shorter, surface finely pubescent. Scutellum large, transverse, angulate apically. Elytra fit well with base of prothorax, about 1.07x as long as

broad, sides arched, finely flanked and narrowed behind one-third, apex of elytra not separately rounded, elytral shoulders obtuse, three longitudinal striae on each elytron continued from base to apex, surface finely pubescent; tip of abdomen exposed.

Measurements : Total length 1.58 mm, width of head across eyes 0.50 mm, length of antenna 0.40 mm, length and width of prothorax 0.44 mm and 0.79 mm, length and width of elytra 0.88 mm and 0.82 mm.

Material : 1 ex., India : Andaman Is., S. Andaman, Chatham, Port Blair, 13.ii.2000, T.K. Pal & party, ex. under bark.

Remarks : This species differs from the other Indian species, *Propalticus indicus* Sengupta by its apical margin of clypeus emarginated, pronotum with three longitudinal sublateral carinae on either side, three striae on each elytron complete from base to apex. This species also shows some resemblances with *P. oculatus* Sharp [Hawaii and Pacific Islands] but can be differentiated by its pronotum with three pairs of sublateral carinae, elytra devoid of any submedian spot and elytral apices are not separately rounded.

SUMMARY

The Propalticidae is recorded from Andaman Is. with a species of *Propalticus* Sharp and its distinction from the related species are given.

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INSECTA : COLEOPTERA : ADEPHAGA : DYTISCIDAE

SUJIT KR. GHOSH

Zoological Survey of India, M-Block, New Alipore, Kolkata-700053

INTRODUCTION

The members of the family Dytiscidae are commonly known as “predacious diving beetles”. They are the largest and most commonly found group amongst the aquatic Adephaga. The adults are smooth and boat shaped with large hind legs which move synchronously in swimming. The dytiscids inhabit wide range of stagnant as well as running freshwater bodies and are prevalent in the littoral zone near edges of ponds and lakes. They may seldom occur in brakish water habitats. The adults generally fly at dusk and at night that enables the beetles disperse to distant and newer water bodies. They are photophilic and often attracted to light or signing objects. Both adults and larvae of the beetles are predators on other aquatic animals including insects, crustaceans, worms or even tadpoles and fishlings.

Moist forest zones and immensely diverse freshwater habitats in Andaman and Nicobar group of Islands are believed to contain a variety of dytiscids beetles. Keeping this in mind the dytiscid beetles of earlier surveys by Z.S.I. in this area were sorted out [viz., B.S. Lamba & party, 1964; T.D. Soota & party, 1969; B.K. Tikader & party, 1971; K.S. Pradhan & party, 1972; A.N.T. Joseph & party, 1988 (all from Andaman); and S.S. Saha, 1984 from Great Nicobar] and assembled. These formed the basis of this study. The first record of the dytiscid beetle from Andaman is by Sharp (1882). He described *Laccophilus elegans* and *Hydaticus bihamatus* var. 3. A new name viz. *Hydaticus andamanicus* was proposed by Regimbart (1899) for the latter species, but subsequently considered as a synonym of *Hydaticus fractifer* by Balfour-Browne (1939).

Zimmermann (1923) described *Bidessus fulvescens* from Nicobar and this is the first record of dytiscids beetle from Nicobar. Vazirani (1970) transferred this species to *Guignotus* Hulbart. Wewalka (1982) treated *Guignotus fulvescens* as a synonym of *Guignotus inconstans* (ultimately transferred to *Hydroglyphus*, vide Pederzani (1995).

Over the last four decades the knowledge of Dytiscidae fauna of these islands was enriched by the sporadic works of Vazirani (1970, 1972) and Wewalka (1982). Hitherto, Vazirani (1970, 1972) recorded 15 species; Wewalka (1982) dealt with 8 species from Andaman and altogether 23 species from Andaman group of islands and 4 species from Nicobar were recorded. In the mean time there has been certain changes and taxonomic rearrangements in the constitution of the family [viz., Brancucci (1983) treated *Laccophilus basalis* Motschulsky as a synonym for *Laccophilus ritsemae* Regimbart; Bistrom (1996), synonymised *Hydrovatus fuscus* Sharp with *Hydrovatus seminaris* Motschulsky and 4 specimens out of 79 specimens of *Hydrovatus confertus* Sharp synonymised as *Hydrovatus subtilis* Sharp; Pederzani (1995) synonymised *Guignotus* Hulbart with *Hydroglyphus* Motschulsky].

Examination of the available collection of dytiscids reveals 15 species from Andaman and Nicobar. An updated check list of the dytiscid fauna (33 species) of this insular part of India following current nomenclature is also given. It is expected that extensive exploration in this insular part having unique biogeographic features, would yield many more curious forms of dytiscid beetles.

LIST OF SPECIES KNOWN FROM ANDAMAN AND NICOBAR ISLANDS

Family DYTISCIDAE

Genus *Laccophilus* Leach, 1817

1. *Laccophilus elegans* Sharp, 1882-[A]*
2. *Laccophilus chinensis* Boheman, 1858-[A]
3. *Laccophilus ritsemae* Regimbart, 1880-[A]
4. *Laccophilus sharpi* Regimbart, 1889-[A]
5. *Laccophilus parvulus parvulus* Aube,
1938-[A]
6. *Laccophilus parvulus obtusus* Sharp,
1880-82-[A]
7. *Laccophilus uniformis* Motschulsky, 1859
-[A]

Genus *Hyphydrus* Illiger, 1807

8. *Hyphydrus (Apirophorus) lyratus flavicans*
Regimbert, 1892-[N]*
9. *Hyphydrus (Apirophorus) lyratus* Swartz,
1880-[AN]*

Genus *Microdytes* Balfour-Browne, 1949

10. *Microdytes maculatus* (Motschulsky,
1859)-[A]

Genus *Hydrovatus* Motschulsky, 1855

11. *Hydrovatus seminarius* Motschulsky, 1859
-[A]
12. *Hydrovatus subtilis* Sharp, 1882-[A]
13. *Hydrovatus confertus* Sharp, 1882-[A]
14. *Hydrovatus acuminatus* Motschulsky, 1859-
[A]
15. *Hydrovatus ferrugatus* Regimbert, 1877-[A]

Genus *Hydroglyphus* Motschulsky, 1853

16. *Hydroglyphus orientalis* (Clark, 1863)-[A]
17. *Hydroglyphus inconstans* (Regimbart, 1892)
-[AN]

Genus *Clypeodytes* Regimbart, 1899

18. *Clypeodytes nicobaricus* (Redtenbacher)-[N]

Genus *Uvarus* Guignot, 1959

19. *Uvarus livens* (Regimbart, 1982)-[A]

Genus *Copelatus* Erichson, 1832

20. *Copelatus andamanicus* Regimbart, 1899
-[A]

21. *Copelatus tenebrosus* Regimbart, 1880-[A]
Genus *Eretes* Castelnau, 1833

22. *Eretes sticticus* (Linnaeus, 1767)-[AN]

Genus *Hydaticus* Leach, 1817

23. *Hydaticus (Guignotites) bipunctatus*
Whencke, 1876-[AN]

24. *Hydaticus (Guignotites) fabricii* MacLeay,
1881-[AN]

25. *Hydaticus (Guignotites) fractifer* Walker,
1858-[A]

26. *Hydaticus (Guignotites) histrio* Clark,
1864-[N]

27. *Hydaticus (Guignotites) litigious* Regimbart,
1880-[A]

28. *Hydaticus (Guignotites) sharpi* Vazirani,
1969-[AN]

29. *Hydaticus (Guignotites) vaziranii* Wewalka,
1979-[AN]

30. *Hydaticus (Guignotites) vittatus* (Fabricius,
1775)-[AN]

Genus *Cybister* Curtis, 1827

31. *Cybister (Melanectes) siamensis* Sharp,
1882-[A]

32. *Cybister (Meganectes) tripunctatus asiaticus*
Sharp, 1882-[AN]

33. *Cybister (Meganectes) ventralis* Sharp, 1882-
[AN]

*N.B. : In parentheses : 'A' denotes available from Andaman; 'N' denotes available from Nicobar; 'AN' denotes available from both the Islands.

Subfamily LACCOPHILINAE Guignot

Genus *Laccophilus* Leach, 1817

1817. *Laccophilus* Leach : Zool. Misc., 3 : 69.

Laccophilus chinensis Boheman, 1858

1858. *Laccophilus chinensis* Boheman : Fregatten Eugenie
Resa : 21.

Diagnostic characters : Length 3.3-3.7 mm.
Last visible sternite without ridge in the middle of the left side; Penis short, in lateral view, with its ventral ridge angled in the posterior 3/5.

Material : 1 ex., Middle Andaman, Rangat, 07.i.1973, Coll. ?; 2 exs., S. Andaman Island, Chidia

Tapu, F.R.H., 20.xii.1972, Coll. K.S. Pradhan; 12 ex., Ferrarganj, 15.i.1973; 6 ex., Herbertabad, 18.i.1973, Coll. ?.

Distribution : India : Andaman, Assam, Manipur, Meghalaya, Sikkim, West Bengal; **Elsewhere** : Nepal; Bangladesh; Bhutan; China; Hong Kong; Taiwan; Thailand; Laos; Vietnam.

Laccophilus sharpi Regimbert, 1889

1889. *Laccophilus sharpi* Regimbert : *Ann. Soc. ent. Fr.*, 9 : 151.

Diagnostic characters : Length 2.9-3.1 mm; Brown sinuous stripes on the elytra double, sometimes confluent, last visible sternite simple.

Material : 1 ex. Andaman, Port Blair, 01.iv.1969, Coll. T.D. Soota.

Distribution : India : Andaman, Assam, Bihar, Gujarat, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Orissa, Rajasthan, Sikkim, Tamilnadu, Tripura, Uttar Pradesh, West Bengal; **Elsewhere** : Nepal; Srilanka; Pakistan; China; Iran; Hong Kong; Japan; Taiwan; Vietnam; Philippines; Australia.

Laccophilus parvulus parvulus Aube, 1938

1938. *Laccophilus parvulus* Aube : in Dejean's, *Species Coleopteres*, 6 : 429.

1983. *Laccophilus parvulus parvulus* : Brancucci, *Ent. Arb. Mus. Frey*, 31/32 : 355.

Diagnostic characters : Length 2.8-3.6 mm. Brown sinuous stripes on the elytra generally distinct and double; Penis broad at the apex.

Material : 2 exs., Andaman, Port Blair, 19.ii.1964, Coll. B.S. Lamba; 2 exs., Port Blair, Manarghat, 2.iv.1964, Coll. B.S. Lamba; 3 exs., Port Blair, Manarghat, 1.iv.1969 Coll. T.D. Soota.

Distribution : India : Andaman, Assam, Goa, Himachal Pradesh, Karnatak, Kerala, Jharkhand, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamilnadu, West Bengal; **Elsewhere** : Srilanka; Pakistan; Myanmar; Malaysia; Singapore; Philippines; Indonesia.

Laccophilus parvulus obtusus Sharp n. stat.

1880-82. *Laccophilus obtusus* Sharp : *Sci. Trans. R. Dublin Soc.*, 2 : 311.

1983. *Laccophilus parvulus obtusus* : Brancucci, *Ent. Arb. Mus. Frey*, 31/32 : 360.

Diagnostic characters : Length 2.9-3.4 mm; Brown sinuous stripes on the elytra generally distinct and double; Penis distinctly narrowed apically.

Material : 2 ex., South Andaman, Port Blair, Haddo, 12.xii.1972, Coll. ?; 18 ex., C' Tapu, F.R.H., 20.xii.1972, Coll. K.S. Pradhan; 9 ex., Herbertabad, 18.i.1973, Coll. ?.

Distribution : India : Andaman, West Bengal; **Elsewhere** : Bangladesh; China; Vietnam; Laos; Thailand; Nepal.

Remarks : This species is first time recorded from Andaman Island.

Subfamily HYDROPORINAE

Genus ***Hyphydrus*** Illiger, 1807

1807. *Hyphydrus* Illiger : *Mag. Ins.*, 6 : 349.

Subgenus ***Hyphydrus (Apriophorus)*** Guignot, 1936

1936. *Hyphydrus (Apriophorus)* Guignot : *Mem. Mus. natn. Hist. nat.*, 8 : 12.

Hyphydrus (Apriophorus) lyratus flavicans
Regimbert, 1882

1892. *Hyphydrus flavicans* Regimbert : *Ann. Soc. ent. Belg.*, 36 : 115.

1982. *Hyphydrus lyratus flavicans* Regimbert : *Acta Zool. Fennica*, 49 : 118.

Diagnostic characters : Length 4.0-4.2 mm; Male with one small tubercle situated on the each side of the apical abdominal segment, clypeus more finely rebordered.

Material : 5 ex., Great Nicobar, Campbell Bay, At light, 26.vi.1984, Coll. S.S. Saha.

Distribution : India : Nicobar, Bihar, Gujarat, Orissa, Rajasthan, Tamilnadu and Uttar Pradesh; **Elsewhere** : Pakistan.

Remarks : This species is first time recorded from Nicobar Island.

Hyphydrus (Apriophorus) lyratus Swartz, 1880

1880. *Hyphydrus lyratus* Swartz : in Schönherr, *Syn. Ins.*, 2 : 29.

Diagnostic characters : Length 4.4 mm; Clypeus distinctly rebordered, male with a profound

depression and one denticle on the each side of the apical abdominal segment.

Material : 9 ex., Great Nicobar, Campbell Bay, 26.vi.1984, Coll. S.S. Saha.

Distribution : India : Nicobar Island; **Elsewhere :** China; Indonesia; Thailand; Vietnam; Srilanka; Myanmar; Japan; Formosa; New Guinea and Australia.

Remarks : This species is first time recorded from Nicobar Island.

Genus *Hydroglyphus* Motschulsky, 1853

1853. *Hydroglyphus* Motschulsky : *Hydro canthares de la Russie*. 1-15. Helsingfors.

Hydroglyphus inconstans (Regimber, 1892)

1892. *Bidessus inconstans* Regimbert : *Ann. Soc. ent. Belg.*, **36** : 119-120.

1923. *Bidessus fulvescens* Zimmermann : *Ent. Blatt.*, **19** : 34.

1969. *Guignotus fulvescens* : Vazirani, *Orient Ins.*, **2** : 323.

1995. *Hydroglyphus inconstans* : Pederzani, *Atti. Acc. Rov. Agiati*, 244(1994) : 5-83.

Diagnostic characters : Length 1.8-2.0 mm; Elytra rather grey, with pale yellow marking.

Material : 1 ex., Andaman Island, Port Blair, 29.ii.1964, Coll. B.S. Lamba.

Distribution : India : Andaman Island, Andhra Pradesh, Bihar, Goa, Karnataka, Maharashtra, Manipur, Orissa, Rajasthan, Sikkim, Tripura, Uttarakhand, West Bengal; **Elsewhere :** Indonesia; Bhutan; Sri Lanka; Myanmar; Nepal; Malaysia.

Hydroglyphus orientalis (Clark, 1863)

1863. *Hydroporus orientalis* Clark : *Trans. ent. Soc. Lond.*, (3) **1** : 427.

1954. *Guignotus orientalis* : Guignot, *Ark. Zool.*, (N.S.) **6** : 563.

1995. *Hydroglyphus orientalis* : Pederzani, *Atti. Acc. Rov. Agiati*, 244 (1994) : 5 : 83.

Diagnostic characters : Length 1.8-2.0 mm; Elytra testaceous with variable ferruginous markings.

Material : 1 ex., Andaman Island, Port Blair, 29.ii.1964, Coll. B.S. Lamba.

Distribution : India : Andaman Island, Assam, West Bengal; **Elsewhere :** Indonesia; Myanmar; Thailand; China.

Subfamily DYTISCINAE

Genus *Eretes* Castelnau, 1833

1833. *Erete* Castelnau : *Ann. Soc. Ent. Fr.*, **2** : 397.

Eretes sticticus (Linnaeus, 1767)

1767. *Dytiscus sticticus* Linnaeus : *Syst. Nat.*, ed. 12, p. 666.

1833. *Eretes sticticus* : Castelnau, *Ann. Soc. Ent. Fr.*, (5) **8** : 450.

Diagnostic characters : Length 10-17 mm; Sides of pronotum rebordered, lateral borders of the elytra serrated in the posterior half.

Material : 1 ex., Andaman Island, Mnnarghat, 2.iv.1964, Coll. B.S. Lamba; 1 ex., South Andaman, Port Blair, 1.iv.1969, Coll. T.D. Soota; 22 ex., Port Blair, 14.xii.1972, Coll. K.S. Pradhan; 2 ex., Janglighat, 14.xii.1972, Coll. K.S. Pradhan; 5 ex., 15.xii.1972, Coll. K.S. Pradhan; 1 ex., Middle Andaman, Yeretta, 08.i.1973, Coll. ?; 3 ex., Andaman, Mayabunder, Tugapur, 10.i.1973, Coll. K.S. Pradhan; 1 ex., Great Nicobar Island, Campbell Bay, 26.vi.1984, Coll. S.S. Saha.

Distribution : India : Andaman Island, Nicobar, Andhra Pradesh, Assam, Bihar, Delhi, Goa, Gujarat, Karnataka, Kashmir, Maharashtra, Manipur, Meghalaya, Orissa, Punjab, Rajasthan, Sikkim, South Andaman, Tamilnadu, Uttarakhand, Uttar Pradesh, West Bengal; **Elsewhere :** Cosmopolitan.

Remarks : This species is first time recorded from Nicobar Island.

Genus *Hydaticus* Leach, 1817

1817. *Hydaticus* Leach : *Zool. Miscell.*, **3** : 69, 72.

Hydaticus (Guignotites) Brinck, 1943

1943. *Hydaticus (Guignotites)* Brinck : *Kungl. Fysiogr. Sallsk. Lund. Forh.*, **13** : 8.

Hydaticus (Guignotites) fabricii MacLeay, 1881

1881. *Hydaticus fabricii* MacLeay : *Annulosa Javanica*, p. 134.

Diagnostic characters : Length 8.75-10.75 mm; Head brown with a transverse black band on the posterior border of vertex, pronotum similarly with a transverse median black band along the posterior cornea.

Material : 1 ex., Andaman Island, Mnnarghat, 2.iv.1964, Coll. B.S. Lamba; 4 exs., Port Blair, 1.iv.1969, Coll. T.D. Soota; 1 ex., Great Nicobar Island, South Bay, 45 kmp on N.S. Road, 22.viii.1984, Coll. S.S. Saha.

Distribution : India : Andaman Island, Nicobar, Andhra Pradesh, Delhi, Gujarat, Goa, Manipur, Ootacamund, Rajasthan, Sikkim, Tamilnadu, Uttarakhand, Uttar Pradesh; *Elsewhere* : Indonesia; Vietnam; Philippines.

Remarks : This species is first time recorded from Andaman and as well as Nicobar Island.

Hydaticus (Guignotites) vittatus (Fabricius, 1775)

1775. *Dytiscus vittatus* Fabricius : *Syst. Ent. App.* : 825.

1838. *Hydaticus vittatus* : Aube, in Dejean's *Species Coleopteres*, 6 : 208.

Diagnostic characters : Length 12-14 mm; Humeral and sub-marginal yellow stripes narrow and joined together posteriorly after the middle.

Material : 4 ex., Andamans, Port Blair, 15.ii.-15.iii.1915, Coll. Kemp (Ind. Mus.); 1 ex., Janglighat, 14.xii.1972, K.S. Pradhan; 1 ex., Car Nicobar, Sawai, 24.xii.1972, Coll. ?; 2 ex., Great Nicobar, South Bay, 45 kmp on N.S. Road, 17.vii.1984, Coll. S.S. Saha; 3 ex., 22.viii.1984, Coll. S.S. Saha.

Distribution : India : Andaman Island, Nicobar Island, Andhra Pradesh, Gujarat, Kerala, Manipur, Meghalaya, Ootacamund, Rajasthan, Sikkim, Tamilnadu, Tripura, Uttarakhand, West Bengal; *Elsewhere* : Myanmar; Pakistan; Sri Lanka; Nepal; Bangladesh; China; Japan; Indonesia; Formosa.

Remarks : This species is first time recorded from Andaman and also Nicobar Island.

Hydaticus (Guignotites) sharpi Vazirani, 1969

1969. *Hydaticus sharpi* Vazirani : *Orient. Ins.*, 2 : 264.

Diagnostic characters : Length 14.5-16.5 mm; Pronotum without a black median stripe, black irritations absent, head without inverted W-mark between the eyes.

Material : 2 ex., South Andaman, Ferrerganj, 15.i.1973, Coll. ?; 12 ex., Car Nicobar, Sawai, 24.xii.1972, Coll. ?; 1 ex., Great Nicobar, South Bay, 45 kmp on N.S. Road, 17.vii.1984, Coll. S.S. Saha; 3 ex., 22.viii.1984, Coll. S.S. Saha.

Distribution : India : Andaman Island, Nicobar Island, Orissa.

Remarks : This species is first time recorded from Andaman and also Nicobar Island.

Hydaticus (Guignotites) histrio Clark, 1864

1864. *Hydaticus histrio* Clark : *Trans. ent. Soc. Lond.*, (3) 1 : 221.

Diagnostic characters : Length 12.0-13.25 mm; Humeral and sub-marginal yellow stripes broad and joined together posteriorly before the middle.

Material : 1 ex., Great Nicobar Island, Campbell Bay, 16.vi.1984, Coll. S.S. Saha.

Distribution : India : Nicobar Island, Bihar, Himachal Pradesh, Kashmir, Punjab and Uttar Pradesh; *Elsewhere* : Pakistan; Iran; Afghanistan; Saudi Arabia.

Remarks : This species is first time recorded from Nicobar Island.

Genus *Cybister* Curtis, 1826

1827. *Cybister* Curtis : *Brit. Ent.*, 4 : 151.

Subgenus *Cybister (Meganectes)* Brink, 1945

1945. *Cybister (Meganectes)* Brink : *K. Flys. Sällsk. Handl.*, 56 : 11.

Cybister (Meganectes) tripunctatus asiaticus
Sharp, 1882

1882. *Cybister asiaticus* Sharp : *Sci. Trans. R. Dublin Soc.*, 2 : 731.

1899. *Cybister tripunctatus asiaticus* : Regimbart, *Ann. Soc. Ent. Fr.*, 68 : 352.

Diagnostic characters : Length 21-30 mm; Elytra with yellow lateral stripe extending to and including the epipleurae, species without any sexual sculpture in the female in the form of longitudinal or zig-zag striations.

Material : 10 exs., Andaman Island, Cowria Ghat, 7.iv.1964, Coll. B.S. Lamba; 1 ex., Rajatgarh, Baratang, 22.iii.1964, Coll. B.S. Lamba; 6 ex., Port Blair, 1.iv.1969, Coll. T.D. Soota; 1 ex., 22.v.1971, Coll. B.K. Tikader; 1 ex., 11.i.1988, Coll. A.N.T. Joseph; 9 ex., Middle Andaman, Yeretta, 08.i.1973, Coll. ?; 1 ex., Great Nicobar Island, Campbell Bay, 26.vi.1984, Coll. S.S. Saha.

Distribution : India : Nicobar, Andaman Island, Andhra Pradesh, Delhi, Gujarat, Manipur, Meghalaya, Ootacamund, Rajasthan, Sikkim, Tamilnadu, Tripura, Uttar Pradesh; *Elsewhere* : Afganistan; Bangladesh; Mayanmar; Srilanka; Nepal; Pakistan.

Remarks : This species is first time recorded from Nicobar Island.

***Cybister (Meganectes) ventralis* Sharp, 1882**

1882. *Cybister ventralis* Sharp : *Sci. Trans. R., Dublin Soc.*, 2 : 742.

Diagnostic characters : Length 27.0-33.0 mm; Abdominal sternites 3-6 with anterior borders black.

Material : 2ex., North Andaman, Mayabunder, 05.v.1971, Coll. B.K. Tikader; 2 ex., 07.v.1971, Coll. B.K. Tikader; 1 ex., Great Nicobar Island, Campbell Bay, 26.vi.1984, Coll. S.S. Sah.

Distribution : India : Andaman Island, Nicobar Island, Assam, Bihar, Karnataka, Madhya Pradesh, Maharashtra, Sikkim, Uttar Pradesh, West Bengal; *Elsewhere* : Bangladesh.

Remarks : This species is first time recorded from Andaman and also Nicobar Island.

SUMMARY

This paper deals with a collection of Dytiscidae from Andaman and Nicobar. It comprises 15 species belonging to 8 genera of 3 subfamilies. Five species are being recorded first time from Andaman and 9 species from Nicobar respectively. The species are characterized and a list of species occurring in these Islands (33 no.) are also given.

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INSECTA : COLEOPTERA : STAPHYLINOIDEA : STAPHYLINIDAE

A. SAR

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

INTRODUCTION

The members of the family Staphylinidae are commonly known as “rove beetles” and one of the largest family of the superfamily Staphylinoidea belonging to the order Coleoptera. The species belonging to the family Staphylinidae are usually found in the habitat like wild bushes, on sandy river bed, under stone, on hot forest under bark, under bark of log, fallen decaying dead tree, damp vegetables, debries, damp leaves among fallen leaves, in paddy fields, debries associated with ants & termites under leaf litters, at light etc. The family Staphylinidae superfamily of Staphylinoidea include about 30,000 species from the world. Of which more than 2000 species so far have been recorded from India. The family Staphylinidae, divided into 14 subfamilies. The major workers who dealt of the group are Motschulsky (1858), Kraatz (1859), Fauvel (1895), Bernhauer (1915), Cameron (1930, 31, 32, '39).

Present study is based on 147 examples of Staphylinidae spreading over the subfamilies like Oxytelinae, Paederinae, Steninae and Staphylininae collected from different areas of Andaman and Nicobar Islands by various survey parties of Zoological Survey of India and other collections present in the National Zoological Collections. The selected synonyms, collection data of each species have also give. The distributional data of each species has also given from the published record as well as actual study of the specimens. Present study include a total of 19 species under 10 genera belonging to viz. *Lispinus subopocus* Kraatz. subfamilies. Of which 9 species are recorded for

the first time from Andaman & Nicobar Islands and the species *Lispinus subopacus* Kraatz is recorded for the first time from India.

SYSTEMATIC ACCOUNT :

LIST OF TAXA

(*denotes new records from Andaman & Nicobar IS. and **new records from India)

Family STAPHYLINIDAE

Subfamily (i) OXYTELINAE

Tribe PIESTINIA

Genus 1. *Lispinus* Erichson, 1840

1. *L. impressicollis* Motschulsky, 1857

**2. *L. subopacus* Kraatz 1878

*3. *L. iyeri* Bernhauer, 1914

*4. *L. fulvus* Motschulsky, 1857

5. *L. testaceus* Kraatz, 1859

Tribe ELUSIINI

Genus 2. *Elusis* Castelnau, 1835

6. *E. longiceps* Fauvel, 1878

Tribe LEPTOCHIRINI

Genus 3. *Priochirus* Sharp, 1887

Subgenus *Triacanthochirus* Bernhauer

*7. *T. apicalis* Eppelshein, 1895

8. *T. bipunctatus* Fauvel, 1895

*9. *T. pentagonalis* Bernhauer, 1914

*10. *T. tridens* Motschulsky, 1857

*11. *T. ceylanensis* Kraatz, 1902

Tribe OXYTELINI

Genus 4. *Bledius* Leach, 1819

12. (H) *dilutipennis* Motschulsky, 1857

Subfamily (ii) PAEDERINAE

Tribe PAEDERINI

Genus 5. *Paederus* Fabricius, 1775

*13. *P. fuscipes* Curtis, 1823-40

Genus 6. *Astenus* Stephens, 1832

14. *A. indicus* (Kraatz), 1859

Genus 7. *Charichirus*, Sharp, 1889

*15. *C. ceylonicus* Cameron, 1919

Subfamily (iii) STENINAE

Genus 8. *Stenus* Latreille, 1796

16. (*H*) *monomerus* Fauvel,

Subfamily (iv) STAPHYLININAE

Tribe XANTHOLININI

Genus 9. *Indoscitalinus* Heller., 1900

17. *I. anachoreta* Erichson, 1839-40

Tribe STAPHYLININI

Genus 10. *Philonthus* Curtis., 1825

18. *P. kemp*i Cameron, 1924

19. *P. notabilis* Kraatz, 1859

Key to the Subfamilies of the family Staphylinidae of Andaman and Nicobar Islands

1. First segment of maxillary Palpi very short ..
..... Steninae
- First segment of maxillary Palpi elongate ...2
2. Antennae inserted under thickened marginal border, tarsi variable Oxytelinae
- Antennae inserted on the front margin of the head, Tarsi usually 5-5-5 3
3. Abdomen with ventrite I often medially crenate Tibia with a few spinae Paederinae
- Abdomen with the sides bordered above tibia Usually spinae Staphylininae

Subfamily OXYTELINAE

Tribe I PIESTINI

Genus 1. *Lispinus* Erichson., 1840

1840. *Lispinus* Erichson, Gen. spec. Staph., : 828.

1930. *Lispinus* Cameron : *The Fauna of British India, Incl. Ceylon and Burma* (Coleoptera : Staphylinidae), 1 : 51.

Lispinus impressicollis Motschulsky, 1857

1857. *Lispinus impressicollis* Motschulsky, *Bull. Mosc.*, 55, p. 495.

1930. *Lispinus impressicollis* Cameron : *The Fauna of British India, including Ceylon and Burma* (Coleoptera : Staphylinidae), 1 : 60.

Diagnostic characters : Size 3.3 mm. Species pitchy black or pitchy brown in colour and very finely coriaceous.

Material : 21 exs., India : M. Andaman, Webi Port Blair, 10 ex., 8.iii.1975, G.K. Srivastava coll; M. Andaman, 4 km E. of Rangat, 4 ex., 5.iii.1975, G.K. Srivastava coll; Andaman, 3 km S.E. of Maya Bandar, 2 ex., 9.iii.1975, G.K. Srivastava coll; Great Nicobar Exp, Cambell Bay, 4 ex, 4.4.1966, Dr. A Daniel & Party. Andaman & Nicobar Survey, Pahalgaoon, 1 ex, 19.xi.1979, P.K. Maiti & Party coll, ex. "White Dhup Log"

Distribution : India : M. Andaman, Andaman, Gret Nicobar. *Elsewhere* : Throughout the Oriental Region as far as Japan, South-West Africa.

Lispinus subopacus Kraatz, 1878

1859. *Lispinus subopacus* Kraatz., *Arch. Naturg.*, 25(i) : 187.

1878. *Lispinus subopacus* Fauvel, *Ann. Mus. Civ. Gen.* : 206.

1930. *Lispinus subopacus* Cameron : *The Fauna of British India, incl. Ceylon and Burma* (Coleoptera : Staphylinidae), 1 : 62-63.

Diagnostic Character : Size 2.3 mm; Head and abdomen pitchy black; prothorax and elytra reddish brown in colour; elytra indistinctly sparingly punctured.

Material : 2 exs., India : Gt. Nicobar Is., Army Camp, 5 km W.N.W of Campbell Bay, 2 ex., 25.viii.1984.

Distribution : India : Gt. Nicobar Is. *Elsewhere* : Sri Lanka. Also New Guinea, Indonesia etc.

Remarks : In the present study this species is recorded for the first time from India and also first time from Gt. Nicobar Is.

***Lispinus iyeri* Bernhauer, 1914**

1914. *Lispinus iyeri* Bernhauer, W.Z.B., 64 : 82.

1930. *Lispinus iyeri* Cameron : *The Fauna of British India, incl. Ceylon and Burma* (Coleoptera : Staphylinidae), 1 : 63.

Diagnostic Character : Size 2.2 mm. Head and abdomen black prothorax and elytra chestnut brown or less reddish in colour; elytra finely and sparingly punctured.

Material : 3 exs., India : Gt. Nicobar Is, South Bay, 45 kms of N.S. Road, 3 exs., 14.viii.1984, coll. S.S. Saha & Party, ex. "under bark of log"

Distribution : India : Gt. Nicobar Is Other Indian States : Uttar Pradesh, Sikkim.

Remarks : In the present study this species is recorded for the first time from Great Nicobar Is.

***Lispinus fulvus* Motschulsky, 1857**

1857. *Lispinus fulvus* Motschulsky, *Bull. Mosc.* 30 (iv) : 495.

1930. *Lispinus fulvus* Cameron : *The Fauna of British India, incl. Ceylon and Burma* (Coleoptera : Staphylinidae), 1 : 63-64.

Diagnostic Character : Size 3 mm species reddish or yellowish reddish in colour and finely coriaceous.

Material : 4 exs., India : Gt. Nicobar Is., South Bay, 45 kms of N.S. Road, 4 exs., 14.viii.1984, ex. "under bark of log"

Distribution : India : Gt. Nicobar Is. **Elsewhere** : Singapore and the Philippines.

Remarks : In the present study this species is recorded for the first time from Gt. Nicobar Is.

***Lispinus testaceus* Kraatz, 1859**

1859. *Lispinus testaceus* Kraatz., *Arch. Naturg.* 25, I, : 188.

1878. *Lispinus subopacus* Fauvel., *Ann. Mus. Civ. Gen.*, : 206.

1930. *Lispinus testaceus* Cameron : *The Fauna of British India, including Ceylon and Burma* (Coleoptera : Staphylinidae), 1 : 64-65.

Diagnostic Character : Size 2.5 mm; species entirely testaceous and shiny.

Material : 6 exs., India. M. Andaman, 4 km E. of Rangot, 1 ex, 5.iii.1975, G.K. Srivastava coll; S.

Andaman, Bamboo flat, 1 ex., 2.ii.1975, G.K. Srivastava coll. Gt. Nicobar Is, South Bay, 45 kms of N.S. Road, 4 exs, 14.viii.1984, coll. S.S. Saha & Party, ex. "under bark of log"

Distribution : India : M. Andaman, S. Andaman, Gt. Nicobar Is. **Elsewhere** : Sri Lanka.

Subfamily OXYTELINAE**Tribe 2 ELEUSIINI****Genus 2. *Eleusis* Castelnau, 1835**

1835. *Eleusis castelnau*, *Elud Ent.*, 1 : 131.

1930. *Eleusis* Cameron : *The Fauna of British India, including Ceylon and Burma* (Coleoptera : Staphylinidae), 1 : 74.

***Eleusis longiceps* Fauvel, 1878**

1978. *Eleusis longiceps* Fauvel, *Ann. Mus. Civ. Gen.*, 12 : 208.

1930. *Eleusis longiceps* Cameron : *The Fauna of British India, including Ceylon and Burma* (Coleoptera : Staphylinidae), 1 : 88.

Diagnostic Character : Size 1.5 mm; species reddish-testaceous, shiny the head and middle of the lateral margin of the elytra more or less infusate.

Material : 16 exs., India : Andaman, Jangligat, Port Blair, 10 ex, 14.xii.1972, K.S. Pradhan coll; South Andaman, Corbhynscore, Port Blair, 3 ex., 1.iii.1975, G.K. Srivastava coll; Andaman, 2 km N.E. of Guest House, Kanoria Island, Nicobar, 1 ex, 23.iii.1970, Dr. B.K. Tikadar coll; S. Andaman, Ferrargonj, 1 ex, 16.iii.1975; S. Andaman, Himfraygonj, 1 ex, 17.xii.1972, K.S. Pradhan coll, "under stone"

Distribution : India : Andaman, S. Andaman Nicobar Is. **Elsewhere** : Sri Lanka.

Tribe 3 LEPTOCHIRINI**Genus 3. *Priochirus* Sharp., 1887**

1887. *Priochirus* Sharp, *Biol. Cent. Amer.*, Col., 1(2) : 740.

1930. *Priochirus* : Cameron : *The Fauna of British India, including Ceylon and Burma* (Coleoptera : Staphylinidae), 1 : 95.

Subgenus *Triacanthochirus* Bernhauer

1923. *Triacanthochirus* Bernhauer, *W.E.Z.*, II : 63.

1903. *Triacanthus* Bernhauer, *D.E.Z.*, : 136.

Priochirus* (*Triacanthochirus*) *Pentagonalis

Bernhauer, 1914

1914. *Priochirus* (*Triochirus*) *pentagonalis* Bernhauer, W.Z.B., 64 : 78.
 1920. *Triacanthus fletcheri* var. *analis* Cameron, E.M.M., 36 : 142.
 1930. *Priochirus* (*Triacanthochirus*) *pentagonalis* Cameron : *The Fauna of British India* Incl. Ceylon & Burma (Coleoptera : Staphylinidae), 1 : 98-99.

Diagnostic Character : Median frontal tooth small, its apex behind the level of the apices of the lateral teeth.

Material : 1 ex., India : Gt. Nicobar Is., South Bay, 45 kms. On N.S. Road. 1 ex, 6.vii.1984, S.S. Saha coll.

Distribution : India : Gt. Nicobar Is. Other India States: Kodaikanal; Anamalais (Fletcher). Nilgiri Hills. (H.L. Andrewes). *Elsewhere :* Chambaganoor (type) Iyerpadi.

Remarks : In the present study this species is recorded for the first time from Gt. Nicobar.

***Priochirus* (T) *ceylanensis* Fauvel, 1902**

1902. *Leptochius ceylanensis* Fauvel, Rev. d'Ent., 21 : 12.
 1930. *Priochirus* (*Triacanthochirus*) *ceylanensis* Cameron : *The Fauna of British India*, including Ceylon and Burma (Coleoptera : Staphylinidae), 1 : 99.

Diagnostic Character : The Median frontal tooth minute.

Material : 13 exs., India : Gt. Nicobar Is., pygmilion, South Coast, 4 exs., 18.vii.1984, S.S. Saha coll, ex. "On hot forest under bark" Gt. Noepar South Bay, 45 kms of N.S. Road, Gt. Nicobar Is., 3 exs., 18.viii.1984, S.S. Saha coll, ex. "under bark of log" Gt. Nicobar Is., Pulo Baha, W. Coast, 6 exs., 21.viii.1984, S.S. Saha coll, ex. "Fallen dead tree"

Distribution : India : Gt. Nicobar Is.

Remarks : In the present study this species is recorded for the first time from Gt. Nicobar Is.

***Priochirus* (T) *apicalis* Eppelshin, 1895**

1895. *Leptochirus apicalis* Eppelshin, W.E.Z., 14 : 68.
 1930. *Priochirus* (*Triacanthochirus*) *apicalis* Cameron : *The Fauna of British India*, including Ceylon and Burma (Coleoptera : Staphylinidae), 1 : 97.

Diagnostic Character : Median tooth cylindrical with rounded apex.

Material : 6 exs., India : Gt. Nicobar Is., South Bay, 45 kms. At N.S. Road, 6 exs., 18.VIII.1984, S.S. Saha coll, ex. "under bark"

Distribution : India : Gt. Nicobar Is., South Bay, other Indian States : Sikkim.

Remarks : In the present study this species is recorded for the first time from Gt. Nicobar Is.

***Priochirus* (T) *tridens* Motschulsky, 1857**

1857. *Leptochirus tridens* Motschulsky, Bull. Mosc., 30, ii, : 502.
 1930. *Priochirus* (*Triacanthochirus*) *tridens* Cameron; *The Fauna of British India*, including Ceylon and Burma (Coleoptera : Staphylinidae), 1 : 99.

Diagnostic Character : The median frontal tooth prominent, its apex extending beyond the levels of the apices of the lateral teeth.

Material : 26 exs., India : Gt. Nicobar Is., South Bay, 45 kms at N.S. Road, 20 exs., 18.viii.1984, S.S. Saha, coll. Gt. Nicobar Is., Army Camp. 5 km NE of Cambell Bay 5 exs., 25-29.viii.1984, S.S. Saha coll. Gt. Nicobar Is., Nr. Galathea, 40 km. N.S. Road., 1 ex, 30.viii.1984. S.S. Saha coll. Gt. Nicobar, Pulo Baha, W. Coast, 1 ex., 21.viii.1984, S.S. Saha coll, ex. "Fallen dead tree"

Distribution : India : Gt Nicobar Is. Other Indian States : Assam : Naga Hills earlier record. *Elsewhere :* Myanmar also in the Malay Peninsula, Java, Sumatra etc.

Remarks : In the present study this species is recorded for the first time from Gt. Nicobar Is.

***Priochirus* (T) *bipunctatus* Fauvel, 1895**

1895. *Leptochirus bipunctatus* Fauvel, Rev. d'Ent., 14 : 160.
 1930. *Priochirus* (*Triacanthochirus*) *bipunctatus* : Cameron, *The Fauna of British India*, including Ceylon and Burma (Coleoptera : Staphylinidae), 1 : 97-98.

Diagnostic Character : The median tooth narrowed before the apex, which is pointed.

Material : 34 exs., India : S. Andaman, China Tabu, 1 ex, 19.iii.1975, G.K. Srivastava coll. Ex. "under log", Great Nicobar Is., South Bay, 45 kms of N.S. Road, 32 ex., 14.viii.1984, S.S. Saha coll,

ex. "under bark of log" Andaman & Nicobar Is., Phalgaon 3 ex., 19.xi.1979 P.K. Maiti & Party coll, ex. "white Dhup log" Andaman & Nicobar Is., 36 kms of Cambell Bay, 1 ex., 10.xii.1978, B. Nandi & Party coll, ex. "white Dhup log"

Distribution : India : S. Andaman, Andaman & Nicobar Is., Great Nicobar Is., South Bay. Other Indian States : Arunachal Pradesh, Meghalaya and Sikkim. *Elsewhere* : Myanmar.

Remarks : In the present study this species is recorded for the first time from A & N Is.

Tribe OXYTELINI

Genus 4. *Bledius* Leach, 1819

1819. *Bledius* Leach, The entomologist's useful compendium.
 1857. *Bledius* (H) *dilutipennis* Motschulsky.
 1857. *Bledius dilutipennis* Motschulsky, *Bull. Soc. Nat. Mascou.*, **30**(4) : 507.
 1859. *Bledius dilutipennis* Kraatz, *Arch. Naturgesch.*, **25**(1) : 170.
 1930. *Bledius* (H) *dilutipennis*: Cameron, *The Fauna of British India*, including Ceylon and Burma (Coleoptera : Staphylinidae), **1** : 284-285.

Diagnostic Character : Size 2.5 to 2.75 mm, black, the elytra bright yellow, the base and suture narrowly infusate; head scarcely, the rest more shining.

Material : 4 exs., India : S. Andaman, China Tabu, 4 ex, 19.iii.1975, G.K. Srivastava coll.

Distribution : India : S. Andaman.

Subfamily PAEDERINAE

Tribe PAEDERINI

Genus 5. *Paederus* Fabricius, 1775

1775. *Paederus* Fabricius., *Syst. Ent.*, : 268.
 1931. *Paederus* : Cameron, *The Fauna of British India*, incl. Ceylon & Burma (Coleoptera : Staphylinidae), **2** : 33-63.

Paederus fuscipes Curtis 1823-40

- 1823-40. *Paederus fuscipes* Curtis, *Ent. Brit.*, **3** : 108.
 1839-40. *Paederus aestuans* Erichson, *Gen. Spec. Staph.*, : 655.
 1843. *Paederus angolensis* Erichson, *Arch. Naturgesch.*, **9**(1) : 222.
 1931. *Paederus fuscipes* : Cameron : *The Fauna of British India*, incl. Ceylon & Burma (Coleoptera : Staphylinidae), **2** : 40-41.

Diagonastic Character : Size 6.5-7 mm; head and last two abdominal segments black; thorax and first four visible segments red; elytra blue.

Material : 4 exs., India : M. Andaman, 1 km S. of Rangat, 4 ex., 4.iii.1975, G.K. Srivastava coll.

Distribution : India : M. Andaman, Uttar Pradesh, Andhra Pradesh, Bihar, Karnataka, Madhya Pradesh, West Bengal, Meghalaya and Tripura.

Remarks : In the present study this species is recorded for the first time from M. Andaman.

Genus 6. *Astenus* Stephens, 1832

Astenus indicus (Kraatz.)

1859. *Sunius indicus* Kraatz, *Arch. Naturg.*, **25**, I, : 148.
 1931. *Astenus indicus* Cameron : *The Fauna of British India*, including Ceylon and Burma (Coleoptera : Staphylinidae), **2** : 88.

Diagnostic Character : Size 3 mm; species yellowish red, narrow, elongate, parallel, elytra yellow, abdomen.

Material : 1 ex., India : C. Nicobar, Malaca Kakana Rd., 1 ex, 24.iv.1972, Dr. A.K. Mondal coll.

Distribution : India : Andaman and Nicobar Island. Other Indian States : West Bengal, Uttar Pradesh, Maharashtra, Sikkim. *Elsewhere* : Sri Lanka, Myanmar, widely distributed in the Oriental Regional, also in the Mediterranean, Canaries, East and West Africa.

Genus 7. *Charichirus*, Sharp 1889

Charichirus ceylonicus Cameron, 1919

1919. *Medon* (*Charichirus*) *ceylonicus* Cameron, *E.M.M.*, **55** : 228.
 1931. *Charichirus ceylonicus* Cameron : *The Fauna of British India* incl. Ceylon & Burma (Coleoptera : Staphylinidae) **2** : 168.

Diagnostic Character : Size 5.5 mm; species black, the elytra brown, slightly shining.

Material : 1 ex., India : Gt. Nicobar Is, Chemna Nullah, 27 kms, N.S. Rd, 1 ex, 2.viii.1984, S.S. Saha coll, ex. "At light"

Distribution : India : Gt. Nicobar Is. Other Indian States : West Bengal. *Elsewhere* : Sri Lanka

Remarks : In the present study this species is recorded for the first time from Gt. Nicobar Is.

Subfamily STENINAE

Genus 8. *Stenus* Latreille, 1796

1796. *Stenus* Latreille, *Prec. Car. Gen. Ins.*, : 77.

Stenus (Hypostenus) monomerus Fauvel, 1895

1895. *Stenus monomerus* Fauvel, *Rev. d'Ent.*, **14** : 214.

1930. *Stenus (Hypostenus) monomerus* Cameron : *The Fauna of British India*, including Ceylon and Burma (Coleoptera : Staphylinidae), **1** : 380.

Diagnostic Character : Size 3.3 mm; species black, shining, Antennae testaceous, the 1st joint and the club pitchy.

Material : 1 ex., India : M. Andaman, Webi, Port Blair, 1 ex, 8.iii.1975, G.K. Srivastava coll.

Distribution : India : M. Andaman.

Subfamily STAPHYLLININAE

Tribe I XANTHOLININI

Genus 9. *Indoscitalinus* Heller 1900

1900. *Indoscitalinus* Heller, *Abh. Mus. Dresd.*, **9** : 5, : 5.

Indoscitalinus anachoreta Erichson, 1839-40

1839-40. *Xantholinus anachoreta* Erichson, *Gen. Spec. Staph.*, : 316.

1867. *Xantholinus hongkongensis* Redtb., *Reise Novara*, **ii** : 28.

1932. *Indoscitalinus anachoreta* Cameron : *The Fauna of British India*, including Ceylon & Burma, (Coleoptera : Staphylinidae), **3** : 37.

Diagnostic Character : Size 10-12 mm; species elongate, black, shining, the elytra varying from brownish testaceous to pale yellow.

Material examined : 2 exs., India : S. Andaman : Rajatghat; Baratong, 2 ex., 22.iii.1964, B.S. Lamba coll.

Distribution : India : S. Andaman.

Subfamily STAPHYLININAE

Tribe STAPHYLININI

Genus 10. *Philonthus* Curtis, 1825

1825. *Philonthus* Curtis, *Brit. Ent.*, **13** : 610.

Philonthus kemp Cameron, 1924

1924. *Philonthus kemp* Cameron, *Rec. Ind. Mus.*, **26** : 118.

1932. *Philonthus kemp* Cameron : *The Fauna of British India*, including Ceylon and Burma, (Coleoptera : Staphylinidae) **3** : 89.

Diagnostic Character : Size 7.5-8.5 mm; species black, shining, elytra shining bronze-black.

Material : 1 ex., India : S. Andaman : Wrafters creak, Baratong, 1 ex, 12.iii.1964, B.S. Lamba coll.

Distribution : India : S. Andaman. Other Indian States : Meghalaya, Uttar Pradesh.

Philonthus notabilis Kraatz; 1859

1859. *Philonthus notabilis* Kraatz, *Arch. Naturg.*, **25**(i) : 79.

1918. *Quedius taprobanus* Cameron, *E.M.M.*, **54** : 171.

1932. *Philonthus notabilis* Cameron : *The Fauna of British India*, including Ceylon and Burma, (Coleoptera : Staphylinidae), **3** : 76.

Diagnostic Character : Size 8.75 mm; head and thorax black, shining, elytra less shining, pitchy black.

Material : 1 ex., India : S. Andaman : Rajatghat, Baratong, 1 ex, 22.iii.1964, B.S. Lamba coll. "ex. in dung"

Distribution : India : S. Andaman. Elsewhere : Sri Lanka, also in the rest of the oriental region.

SUMMARY

The present study deals with 147 examples comprising 19 species under 10 genera belonging to the subfamilies viz. Oxytelinae, Paederinae, Steninae, Staphylininae under the family Staphylinidae. Of which 9 species under 10 genera are recorded for the first time from A & N and the species *Lispinus subopacus* Kraatz is recorded for the first time from India.

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INSECTA : HYMENOPTERA : ACULEATA : SPHECIDAE

B.G. KUNDU, S.N. GHOSH AND R.N. TIWARI*

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

INTRODUCTION

The sphecid wasps constitute an advanced as well as important group of insects, which belong to the family Sphecidae in Aculeate Hymenoptera. They are mainly beneficial to man. They show complexities in their behaviour and are always being subjects for biological studies. The present paper includes the systematic account of the family Sphecidae from the Andaman and Nicobar Islands.

According to Goulet and Huber (1993), the family Sphecidae belongs to the superfamily Apoidea, which is based on the classification of Brothers (1975). But prior to this, Bohart and Menke (1976) placed this family under the superfamily Sphecoidea. The members of the family Sphecidae are commonly known as blue mud-dauber, black and yellow mud-dauber, digger or sand wasps. Some of them are also called as cicada killers or hunting wasps.

The majority of these sphecids are predatory on a great variety of terrestrial insects; but some are cleptoparasitic, *i.e.*, their larvae develop on the provisions in the nest of some other wasps. Because of their predatory and cleptoparasitic habits, it may be possible to exploit them for the control of insect pests (Bohart and Menke, 1976).

Bingham (1897) published his valuable work "*The Fauna of British India including Ceylon and Burma*" on wasps and bees. Besides this, Cameron (1902), Turner (1912), Kohl (1918), van der Vecht (1949), van Lith (1959, 1962, 1965), Roy and Kundu (1985), Krombein and van der Vecht (1987), Sudheendrakumar and Narendran (1989), Jonathan *et al.* (2000, 2003), Madhavikutty (2004),

Kundu *et al.* (2006) Gupta (2007) and Kundu and Kazmi (2010) have made their valuable contributions on Indian Sphecidae, but no one has exclusively studied on this group of insects from the Andaman and Nicobar Islands.

Bohart and Menke (1976) published a voluminous work on generic classification of the world Sphecidae. Very recent, Goulet and Huber (1993) edited and published another classification of Sphecidae, which is based on the classification of Brothers (1975) and gave the family status to most of the subfamilies. Prior to this, Krombein *et al.* (1979) also restored the subfamilies recognised by Bohart and Menke (1976), to family rank. However, the classification followed here is after Bohart and Menke (1976). It is considered an authenticated document on Sphecidae till to date throughout the world.

South-eastern part of India, especially the Andaman and Nicobar Islands, is very important from the view point of faunal diversity. An attempt has been made here to provide a consolidated account on the fauna of Sphecidae from the Andaman and Nicobar Islands, India. So 12 species/subspecies under 11 genera are recorded here from this region.

MATERIAL AND METHOD

Mostly the sphecid wasps occur in the agriculture fields, various vegetables and flower gardens, and crop fields etc. So they are being collected by sweeping with the help of insect nets. the collected material are killed in a killing jar using Benzene/Ethyl acetate. Afterwards, they are kept in the insect envelopes with proper labels mentioning

*5A, Parkside Road, Kolkata-700026.

locality, altitude, date and name of collector etc. Then all the collection are preserved dry with Para-dichlorobenzene and naphthalene adding carbolic acid as antifungal agent in a box properly in the field.

In the laboratory of the department, the specimens are set, pinned and mounted to display properly for easy handling under binocular microscope during the process of identification. Then the identified specimens are kept in insect boxes or cabinets with proper labels. Smaller specimens are generally preserved in alcohol permanently with proper labels after study. For detailed specific identification, the genital structures, mandibles and other mouth-parts are also dissected out and mounted on slides.

This taxonomic work of sphecids wasps of the Andaman and Nicobar Islands is based on the collection made by the authors and various scientists of the department from this region time to time. Besides this, the specimens lying in the National Zoological Collection of this department have also been incorporated. The entire material studied under this project, have been deposited in the collection of Zoological Survey of India.

SYSTEMATICS

The family Sphecidae is a moderately large family which is represented by nine subfamilies from the world. More than 1500 species of Sphecidae are known from the world. Of these, more than 450 species are known to occur in India. The present paper represents 12 species/subspecies belonging to 11 genera and 4 subgenera under 6 subfamilies from the Andaman and Nicobar Islands.

The keys to the subfamilies tribes, genera, subgenera are provided here for the identification of various taxa of this region, which is mainly based on the works of Bingham (1897) and Bohart and Menke (1976). The diagnostic characters of family, subfamilies are also incorporated. The species/subspecies, not available in the collection but known from the Andaman and Nicobar Islands, have been

reviewed from literature and also incorporated here in the systematic account.

TAXONOMIC TERMINOLOGY

The terms of morphological characters used in the text are mainly based on the works of Bingham (1897), Bohart and Menke (1976) and Krombein (1981-1987). The abbreviation used in the text are : M = Male; F = Female; coll. = The name(s) of the collector(s); ex. = Number of specimens/example(s); mm. = Millimetre, des. = The species is described or there is a descriptive note; syn. = The synonymy or taxonomic position of the species; key = A key is provided in the publication to identify the species; distr. = The place, from where the species/subspecies was recorded, is given; fig. = The species is illustrated in whole or in part.

SYSTEMATIC ACCOUNT

Family SPHECIDAE

1. Subfamily AMPULICINAE

1. Tribe Ampulicini

1. Genus *Ampulex* Jurine, 1807

1. *Ampulex compressa* (Fabricius, 1793)

2. Subfamily SPHECINAE

2. Tribe Sceliphronini

2. Genus *Chalybion* Dahlbom, 1843

1. Subgenus *Chalybion* s. str.

2. *Chalybion (Chalybion) bengalense* Dahlbom, 1845

3. Genus *Sceliphron* Klug, 1801

2. Subgenus *Sceliphron* s. str.

3. *Sceliphron (Sceliphron) madraspatanum* (Fabricius, 1793)

4. *Sceliphron (Sceliphron) madraspatanum* *andamanicum* Kohl, 1918

3. Tribe Sphecini

4. Genus *Sphex* Linnaeus, 1758

3. Subgenus *Sphex* s. str.

5. *Sphex (Sphex)* sp.

3. Subfamily LARRINAE
 4. Tribe **Larrini**
 5. Genus *Larra* Fabricius, 1793
 6. *Larra erratica* Bingham, 1897
 6. Genus *Liris* Fabricius, 1804
 4. Subgenus *Liris* (*Leptolarra*) Cameron, 1900
 7. *Liris* (*Leptolarra*) *insularis* (Saussure, 1867)
 7. Genus *Tachysphex* Kohl, 1883
 8. *Tachysphex novarae* (Saussure, 1867)
 4. Subfamily **Crabroninae**
 5. Tribe **Crabronini**
 8. Genus *Crabro* Fabricius, 1775
 9. *Crabro* sp.
 5. Subfamily NYSSONINAE
 6. Tribe **Bembicini**
 9. Genus *Bembix* Fabricius, 1775
 10. *Bembix fossoria* Smith, 1878
 7. Tribe **Stizini**
 10. Genus *Bembecinus* A. Costa, 1859
 11. *Bembecinus pusillus* (Handlirsch, 1892)
 6. Subfamily PHILANTHINAE
 8. Tribe **Cercerini**
 11. Genus *Cerceris* Latreille, 1802-03
 12. *Cerceris* sp.

Family SPHECIDAE

The family Sphecidae is recognised by the following characters : Pronotum essentially fixed with the mesothorax; its posterior margin in dorsal view nearly straight and usually separated from the scutum by a constriction that contributes to the formation of a raised collar; pronotal lobe well-separated from the tegula, so that the mesoscutum and mesopleuron are in contact with each other, but in some cases the pronotal lobe is very close to tegula or in narrow contact. Hind leg with a cleaning pecten or brush in a basal depression on the inner side of the basitarsus; this apparatus is opposed by the pectinate inner tibial spur. The setae simple and unbranched. Inner eye margin

not notched or emarginate, except for Trypoxylonini and Philanthini. Cerci on tenth tergum of male absent in higher sphecids, but are present in Dolichurini, some Sphecini, most Sceliphronini and Astatinae. The thorax with episternal sulcus on the mesopleuron.

Key to the subfamilies of family Sphecidae (After Bohart and Menke, 1976)

1. Gaster or abdomen with cylindrical petiole composed of sternum only, except in *Ammophila* with two sections; jugal lobe of hind wing large, with an anal vein SPHECINAE
 - Gaster variable, if petiolate and petiole composed of sternum only, then jugal lobe of hind wing very small 2
2. Middle tibia with two apical spurs or none....3
 - Middle tibia with only one apical spur 5
3. Claws with one inner tooth; notauli usually present and very long AMPULICINAE
 - Claws simple 4
4. Hind wing with jugal lobe less than half the length of anal area; mandible not notched nor strongly angulate externo-ventrally NYSSONINAE
 - Hind wing with jugal lobe usually much more than half the length of anal area, but if not, then mandible notched externo-ventrally ASTATINAE*
5. Middle coxae contiguous; jugal lobe of hind wing subequal to the length of anal area, and ocelli normal LAPHYRAGOGINAE*
 - Middle coxae variable but if contiguous, then hind wing jugal lobe one-half or less as long as anal area, or hind ocelli deformed 6
6. Gaster with petiole composed of sternum only PEMPHREDONINAE* (in part)
 - Gaster sessile or with petiole composed of both tergum and sternum 7
7. Gaster sessile, fore wing with two or few submarginal cells and either (a) stigma as large

- as single discoidal cell; or (b) stigma nearly equal in area to first discoidal cell, two submarginal cells present; mandible simple; inner eye margin not angulate PEMPHREDONINAE* (in part)
- Gaster variable, but if sessile, fore wing with three submarginal cells or if less, then stigma much smaller than first discoidal cell; or not agreeing as above 8
 - 8. Hind ocelli deformed or greatly reduced 9
 - Hind ocelli normal 10
 - 9. Jugal lobe of hind wing subequal to length of anal area, rarely two-third as long as anal area LARRINAE (Tribe Larrini)
 - Jugal lobe of hind wing at most a little more than half the length of anal area NYSSONINAE (in part)
 - 10. Scutal carina present, oblique; episternal-scrobal sulcus often present; metapleuron broad below, not tapering NYSSONINAE (Tribe Stizini)
 - Scutal carina absent 11
 - 11. Antennal sockets above fronto-clypeal suture by at least one-third of a socket diameter, fore wing with three submarginal cells; mandibular socket closed by a forward extension of the hypostoma PHILANTHINAE
 - Antennal sockets contiguous with fronto-clypeal suture, or if not contiguous, fore wing with fewer than three submarginal cells; mandibular socket usually open 12
 - 12. Middle coxae with a dorso-lateral carina or crest-like elevation. Fore wing usually with three submarginal cells, or with one cell which is not confluent with first discoidal cell, or with none LARRINAE
 - Middle coxae without a dorso-lateral carina; fore wing with one submarginal cell or this cell is fused with first discoidal cell CRABRONINAE

1. Subfamily AMPULICINAE

The subfamily Ampulicinae is mostly primitive group of insects in the family Sphecidae. These beautiful insects prey upon cockroaches. So the members of this subfamily are commonly known as “cockroach wasps” They occur in the tropic of Old and New World.

Diagnostic characters : Inner orbits entire; ocelli normal; antennae inserted low on face, sockets contiguous with fronto-clypeal suture, male with 13 and female with 12 segments. Clypeus transverse or strongly nasiform; mandible without a notch on externo-ventral margin; mandibular socket open except in *Ampulex*. Pronotal lobe close to or touching tegula. Notauli long and deep. Propodeum moderately long with U-shaped to nearly triangular enclosure. Middle tibia with two apical spurs. Claws with a single tooth or bifid. Fore wing with two or three submarginal cells and two recurrent veins, first recurrent received by submarginal I or II, second recurrent received by submarginal II or III. Gaster or abdomen sessile or with a petiole, composed of sternum and tergum; no pygidial plate. Male genitalia : Volsella with movable digitus and cuspis; aedeagus with teeth on ventral edge; creci present, except in Ampulicini.

This subfamily is represented by two tribes, viz., Ampulicini and Dolichurini in India. Only the tribe Ampulicini is reported here from the Andaman and Nicobar Islands. A key to both Indian tribes is given below for ready reference.

Key to the tribes of Ampulicinae

1. Antennal sockets with an overhanging frontal lobe; metasternum Y-shaped. Gastral petiole inserted between and on same level as hind coxae **Ampulicini**
- Antennal sockets not covered or both overlaid by a single median platform-like lobe; metasternum not Y-shaped. Gastral petiole inserted above and somewhat after hind coxae.

*Not recorded here from the Andaman and Nicobar Islands.

(not recorded here from the Andaman and Nicobar Islands) **Dolichurini**

1. Tribe **Ampulicini**

The tribe Ampulicini represents majority of the species under the subfamily Ampulicinae. All of them belong to the genus *Ampulex* Jurine, 1807 under this tribe. The members of this tribe are small to large in size (5-32 mm long). They are metallic green to blue in colour. The genus *Ampulex* has been reported here from the Andaman and Nicobar Islands.

1. Genus *Ampulex* Jurine

1807. *Ampulex* Jurine, *Nouv. Méth. Class. Hym. Dipt.*, Geneva, 1 : 132.

Type-species : *Sphex compressa* Fabricius, 1793.

This is a moderately large genus comprising most of the species of the subfamily Ampulicinae. This genus is represented by about 23 species and subspecies in India. Of these, only the type-species *Ampulex compressa* (Fabricius, 1793) is the sole representative in the Andaman and Nicobar Islands, which is detailed below.

1. *Ampulex compressa* (Fabricius)

1793. *Sphex compressa* Fabricius, *Ent. Syst.*, 2 : 206.

1807. *Ampulex compressa* (Fabricius) : Jurine, *Nouv. Méth. Class. Hym. Dipt.*, Geneva : 1 : 134.

2003. *Ampulex compressa* (Fabricius) : Jonathan and Kundu, *Zool. Surv. India, Fauna of Sikkim, State Fauna Series*, 9 (Part-4) : 423.

2006. *Ampulex compressa* (Fabricius) : Kundu *et al.*, *Zool. Surv. India, Fauna of Arunachal Pradesh, State Fauna Series*, 13 (Part-2) : 404.

Distribution : India : Andaman and Nicobar Is., Arunachal Pradesh, Sikkim, Meghalaya, Assam, West Bengal, Orissa, Bihar, Maharashtra and throughout India.

Elsewhere : Myanmar, Sri Lanka, China, Africa, Australia, Chagos Archipelago, East Indies, Hawaii, Mauritius, New Caledonia, St. Helena, Seychelles, Midway, Réunion.

Remarks : This species is easily distinguished by having head, thorax and abdomen or gaster more or less with close to sparse punctures; body

deep metallic blue, sometimes green; middle and hind femora red; the antennae filiform, long; fore wing with three submarginal cells, the 1st and 3rd subequal and 2nd submarginal cell small, nearly square.

Jonathan and Kundu (2003) recorded this species and mentioned in its distribution "Andaman and Nicobar Islands" alongwith other localities.

2. Subfamily SPHECINAE

The members of this subfamily are commonly called as "digger wasps" or "sand wasps" viz., the genera *Sphex*, *Ammophila* etc., but some are popularly known as "yellow and black mud-daubers" such as, the genus *Sceliphron*. But due to their distinct and cylindrical petiole, they are collectively called as "thread waisted wasps" They are generally found in fields, forests and also in human habitats (Bohart and Menke, 1976).

Diagnostic characters : Inner orbits entire, converging, diverging, or parallel; ocelli normal. Antennae in male 13 and in female 12-segmented. Mandible without notch on externo-ventral margin. Pronotal lobe broadly separated from tegula. Middle tibia usually with two apical spurs; middle coxal cavities and coxae usually approximate, middle coxae without dorso-lateral carinae; precoxal lobe present; hind femur simple apically; claws with one to five teeth, or simple; arolium usually large. Propodeum usually long with or without U-shaped enclosure. Fore wing with three submarginal cells except in *Ammophila*. Gaster abdomen with cylindrical petiole composed of sternum only, unless it has two sections. Jugal lobe of hind wing large containing an anal vein.

This subfamily is divided into three tribes, namely, Sceliphronini, Sphecini and Ammophilini. A key to the tribes is given below.

Key to the tribes of Sphecinae

1. Tarsi with plantulae and or claws of some legs with one basal tooth on inner margin
..... **Sceliphronini**

- Tarsi without plantulae; claw simple or with one or more basal teeth on inner margin 2
- 2. Claw with two or more teeth; second recurrent vein usually received by submarginal cell III, but if not then claw with at least three teeth or apico-ventral setae of hind tarsomere V very broad, separated at base by not more than one and half times of setal widths; tarsi without plantulae **Sphecini**
- Claw usually simple or with one tooth, if with two teeth then apico-ventral setae of hind tarsomere V narrow, separated by three or more times of setal widths; second recurrent vein usually received by submarginal cell II; tarsi sometimes with plantulae. (Not recorded here from the Andaman and Nicobar Islands) **Ammophilini**

2. Tribe Sceliphronini

The tribe Sceliphronini, the slender wasps, is represented by three genera, viz., *Chalybion* Dahlbom, 1843; *Sceliphron* Klug, 1801 and *Chlorion* Latreille, 1802 in India. Of these, the former two genera are found in the Andaman and Nicobar Islands. A key to the genera is given below.

Key to the genera of Sceliphronini

1. Propodeal dorsum at most with a median, longitudinal groove. (Mandible simple or with a subapical tooth on inner margin; third anal vein of hind wing broadly separated from wing margin; body usually metallic blue or black and yellow) **Chalybion** Dahlbom
- Propodeum with U-shaped dorsal enclosure, defined posteriorly by a semicircular sulcus or furrow 2
2. Both recurrent veins received by second submarginal cell; spiracular groove absent; body usually with yellow areas; female without fore tarsal rake **Sceliphron** Klug
- Second recurrent vein received by third submarginal cell or interstitial between II and III; spiracular groove present; body often with

metallic blue or green; female with a fore tarsal rake. (Antennal sockets contiguous with fronto-clypeal suture in female, separated by less than the diameter of socket in male). [Not recorded here from the Andaman and Nicobar Islands] **Chlorion** Latreille

2. Genus *Chalybion* Dahlbom

The members of the genus *Chalybion* make their nests in pre-existing cavities, commonly in abandoned nests of mud-daubers, but also in holes in wood, bamboo and plant stems, and crevices of walls. They are in general metallic blue in colour, ranging from 11-32 mm long body size (Bohart and Menke, 1976).

This genus is divided into two subgenera, viz., *Chalybion* Dahlbom, 1843 and *Hemichalybion* Kohl, 1918. Here only the typical subgenus *Chalybion* occurs in the Andaman and Nicobar Islands, which is detailed below.

1. Subgenus *Chalybion* (*Chalybion*) s. str.

1843. *Chalybion* Dahlbom. *Hym. Europaea*, fasc. 1, 1 : 21.
Type-species : *Chalybion caeruleum* (= *Sphex caeruleus* Linnaeus, 1763).
1976. *Chalybion* (*Chalybion*) Dahlbom : Bohart and Menke.
Univ. Calif. Press : 38, 98.

The subgenus *Chalybion* (*Chalybion*) is represented by three species, viz., *bengalense* Dahlbom, 1845; *spinolae* (Lepeletier, 1845) and *malignum* (Kohl, 1906) in India. Of these, only *bengalense* Dahlbom has been recorded from the Andaman and Nicobar Islands.

2. *Chalybion* (*Chalybion*) *bengalense* Dahlbom

1845. *Chalybion bengalensis* Dahlbom, *Hym. Europaea*, fasc. 3, 1 : 433.
1897. *Sceliphron violaceum* (Fabricius, 1793) : Bingham, *Fauna Brit. India*, *Hym.*, 1 : 240, F., M., syn., des., distr.
1976. *Chalybion* (*Chalybion*) *bengalense* Dahlbom : Bohart and Menke, *Univ. Calif. Press* : 102.
2003. *Chalybion* (*Chalybion*) *bengalense* Dahlbom : Jonathan and Kundu, *Zool. Surv. India, Fauna of Sikkim, State Fauna Series*, 9 (Part-4) : 424.

Distribution : India : Andaman and Nicobar Islands, Sikkim, Himachal Pradesh, Meghalaya,

Jammu and Kashmir, Tripura, Uttar Pradesh, Bihar, Orissa, Goa, West Bengal, Karnataka, Tamil Nadu.

Elsewhere : Sri Lanka, Myanmar, Japan, China, Mozambique, Seychelles, Socotra, Mauritius, Malaysia, N.E. Australia, Johnston, Gilberts, Philippines, Marianas, Solomons, Hawaii, Phoenix Is.

Remarks : This species can be recognised by having body shiny, deep blue with silvery white pubescence; apical segment of antennae and tarsi black; mesoscutum punctate; petiole and abdomen or gaster polished, smooth and shining.

While reporting this species from Sikkim, Jonathan and Kundu (2003) mentioned "Andaman and Nicobar Islands" as one of its localities.

3. Genus *Sceliphron* Klug

The members of the genus *Sceliphron* are small to large in size, varying 11-36 mm in length. They are mostly black in colour with conspicuous yellow marked legs and very long petiole. The wings vary from clear to yellowish. They are usually found in almost all temperate and tropical areas.

This genus has been divided into two subgenera, viz., *Sceliphron* s. str. and *Prosceliphron* van der Vecht. These can be distinguished by the following key. Of these, only the subgenus *Sceliphron* is reported here from the Andaman and Nicobar Islands.

Key to the subgenera of *Sceliphron*

1. 8th tergite without cerci in male; hypostomal carina long, ending near the base of mandible *Sceliphron* Klug
- 8th tergite with cerci in male; hypostomal carina evanescent, extending about half the length to the base of mandible (Not recorded here from Andaman and Nicobar Islands)
..... *Prosceliphron* van der Vecht

2. Subgenus *Sceliphron* (*Sceliphron*) s. str.

1801. *Sceliphron* Klug, *Neue Schrift. Ges. Naturf. Freunde Berlin*, 3 : 561.

Type-species : *Sphex spirifex* Linnaeus, 1758.

1976. *Sceliphron* (*Sceliphron*) Klug : Bohart and Menke, *Univ. Calif. Press* : 39, 105.

About nine species/subspecies under this subgenus are known to occur in India. Of these, only one species, viz., *madraspatanum* (Fabricius, 1793) and one subspecies, *madraspatanum andamanicum* Kohl, 1918 are recorded here from the Andaman and Nicobar Islands. No description or material of *S. (S.) madraspatanum andamanicum* Kohl, 1918 was available for study. Therefore, a key to the species/subspecies could not be provided here.

3. *Sceliphron* (*Sceliphron*) *madraspatanum* (Fabricius)

1793. *Sphex madraspatanus* Fabricius, *Ent. Syst.*, 2 : 204.
1897. *Sceliphron madraspatanum* (Fabricius) : Bingham, *Fauna Brit. India, Hym.*, 1 : 237, F., M., des., syns.
1976. *Sceliphron* (*Sceliphron*) *madraspatanum* (Fabricius) : Bohart and Menke, *Univ. Calif. Press* : 106, syns.
2003. *Sceliphron* (*Sceliphron*) *madraspatanum* (Fabricius) : Jonathan and Kundu, *Zool. Surv. India, Fauna of Sikkim, State Fauna Series*, 9 (Part-4) : 425.

Material examined : India : Andaman and Nicobar Islands. : S. Andaman, Port Blair, 1 ex., 29.ii.1964, coll. B.S. Lamba; Wright Myo, Mannarghat, 1 ex., 24.iii.1964, coll. B.S. Lamba.

Distribution : India : Andaman and Nicobar Is., Arunachal Pradesh, Sikkim, Meghalaya, West Bengal, Bihar, Orissa, Himachal Pradesh, Uttar Pradesh, Gujarat, Maharashtra, Madhya Pradesh and throughout India.

Elsewhere : Sri Lanka, Myanmar, Maldives, Malaysia, Indonesia, Vietnam.

Remarks : This is one of the common and widely distributed species in India and adjoining countries. This species is readily distinguished by having head finely and closely punctured; mesonotum and median segment finely and transversely striate; apical two-thirds of femora and tibiae of hind legs black and their bases with yellow bands; petiole of gaster marked with yellow colour.

4. *Sceliphron (Sceliphron) madraspatanum andamanicum* (Kohl)

1918. *Sceliphron madraspatanum andamanicum* Kohl, Ann. Naturhist. Hofmus. Wien, **32** : 1-171.

1976. *Sceliphron (Sceliphron) madraspatanum andamanicum* Kohl : Bohart and Menke, Univ. Calif. Press : 106.

Distribution : India : Andaman and Nicobar Islands.

Remarks : Bohart and Menke (1976) recorded this subspecies and mentioned its distribution as "Andaman and Nicobar Islands" only.

3. Tribe Sphecini

The tribe Sphecini includes large and robust wasps. Most of them are ground nesting. They are mostly colourful, especially *Sphex*.

This tribe is represented by three genera, viz., *Sphex* Linnaeus, 1758; *Isodontia* Patton, 1881 and *Prionyx* van der Linden, 1827 from India. Of these, here only the genus *Sphex (Sphex)* Linnaeus has been recorded from the Andaman and Nicobar Islands.

4. Genus *Sphex* Linnaeus

The members of the genus *Sphex* are moderate to very large colourful wasps, varying 11-47 mm in length. They are basically black in colour, but sometimes the gaster and legs may be partly or fully red in colour.

The genus *Sphex* is divided into two subgenera, viz., *Sphex* s. str. and *Fernaldina* Bohart and Menke, 1976. All species and subspecies reported from India, are represented under the subgenus *Sphex (Sphex)*. But the *Sphex (Fernaldina)* has been reported from Holartic region.

3. Subgenus *Sphex (Sphex)* s. str.

1758. *Sphex* Linnaeus, Syst. Nat. (10th ed.), **1** : 569.

Type-species : *Sphex flavipennis* Fabricius, 1793.

1976. *Sphex (Sphex)* Linnaeus : Bohart and Menke, Univ. Calif. Press : 39, 114.

Ten species/subspecies, viz., *argentatus* Fabricius, 1793; *diabolicus* Smith, 1858; *obscurus* (Fabricius, 1804); *fumicatus* Christ, 1791; *praedator luteipennis* Mocsáry, 1883; *praedator*

melanopoda Strand, 1915; *pruinus* Germar, 1817; ? *gisteli* Strand, 1917; *sericeus fabricii* Dahlbom, 1843 and *subtruncatus* Dahlbom, 1843 are the representatives of this subgenus from India. Here the material received from the Andaman and Nicobar Islands, is identified upto generic level.

5. *Sphex (Sphex)* sp.

Material examined : India : Andaman and Nicobar Islands : S. Andaman, Havelock, 1 ex., 14.ii.2000, coll. R.N. Tiwari and party.

Distribution : India : Andaman and Nicobar Islands.

3. Subfamily LARRINAE

The members of the subfamily Larrinae are mostly fossorial and commonly known as "digger wasps". They are very small to large (2-30 mm) in size, often dark in colour. They prey upon the adults of spiders, Coleoptera, Diptera, Hemiptera, Hymenoptera, Orthoptera and also larvae of Lepidoptera.

Diagnostic characters : Inner orbits usually converging above, parallel, rarely converging below; hind ocelli usually normal. Antenna inserted low on face except near middle in some genera, sockets contiguous with fronto-clypeal suture or separated. Female with 12 and male with 13 antennal segments. Clypeus transverse except about as high as broad in some genera. Palpal formula 6-4 except 5-3 in some *Tachytes*. Pronotal lobe separated from tegula. Mesopleuron usually with an episternal sulcus. Metapleuron consisting only of upper area, definitive pleuron tapering ventrad. Middle tibia with one apical spur; middle coxae usually separated, each with a dorso-lateral carina or crest-like elevation; claws simple except toothed in some females of Larrini. Propodeum short to long, dorsal enclosure present or absent. Fore wing usually with 3 submarginal cells but sometimes none. Hind wing with jugal lobe varying from a long as anal area to very small or absent. Gaster usually sessile, but sometimes pedunculate or petiolate; tergum I and occasionally II with

lateral carina : male with 7 visible terga; pygidial plate present or absent. Volsella in male simple without digitus, rarely absent; cerci absent.

This subfamily is represented by four tribes, viz., Larrini, Palarini, Miscophini and Trypoxylonini in India. Only the tribe Larrini is represented in the Andaman and Nicobar Islands, which is detailed below.

4. Tribe **Larrini**

Larrini is considered as the largest tribe under the subfamily Larrinae. The members of this tribe are usually medium in size and mostly dark in colour.

In India, the tribe Larrini is represented by about ten genera. Of these, 3 genera, viz., *Larra* Fabricius, 1793; **Liris* Fabricius, 1804 and *Tachysphex* Kohl, 1883 have been recorded from the Andaman and Nicobar Islands. These can be distinguished by the following key.

Key to the genera of Larrini

1. Frons below median ocellus with a transverse swelling extending between the eyes and joining a linear swelling along inner orbit to form an M or inverted U-shaped swelling 2
- Frons variable and without swelling as above *Tachysphex* Kohl
2. *Female* : last tarsomere evenly arcuate in lateral view, sides diverging most of way to apex, ventral surface without hair; claws without an inner tooth; pronotal collar flat or slightly arcuate in front view; pygidial plate glabrous and shiny, no transverse row of setae apically. *Male* : propodeum densely punctate; apical half of outer surface of fore tibia usually with one or more erect bristles *Larra* Fabricius
- *Female* : last tarsomere angled in lateral view, sides parallel on apical half; ventral surface usually with dense hair; claw prehensile, sometimes with an inner tooth; pronotal collar wedge-shaped in front view; pygidial plate extensively setose and usually with a transverse row of apical setae. *Male* : propodeum dull and

impunctate or if shiny, then at most with sparse minute punctures; outer surface of fore tibia without bristles *Liris* Fabricius

5. Genus **Larra** Fabricius

1793. *Larra* Fabricius, *Ent. Syst.*, 2 : 220.

Type-species : *Larra ichneumoniformis* Fabricius, 1793.

The genus *Larra* is represented by more than 10 species in India. They are small to large, varying 6-25 mm long, black wasps which have a partially or totally red gaster. Of these, only one species *L. erratica* Bingham, 1897 has been recorded from the Andaman and Nicobar Islands.

6. *Larra erratica* Bingham

1897. *Larra erratica* Bingham, *Fauna Brit. India, Hym.*, 1 : 199, F., M.

1976. *Larra erratica* Bingham : Bohart and Menke, *Univ. Calif. Press* : 238.

2000. *Larra erratica* Bingham : Jonathan *et al.*, *Zool. Surv. India, Fauna of Meghalaya, State Fauna Series*, 4 (Part-7) : 190.

Distribution : India : Andaman and Nicobar Islands, Meghalaya, Andhra Pradesh, Rajasthan.

Elsewhere : Sri Lanka, Myanmar.

Remarks : This species is mainly distinguished by having dorsal propodeum densely punctate, punctures running into transverse striations and the posterior femora red.

Jonathan *et al.* (2000) recorded its distribution as "Andaman Islands" alongwith other localities.

6. Genus **Liris** Fabricius

Liris is a large cosmopolitan genus which is recognised by more than 260 species in the world fauna. They are mostly dull black, small to large (5-30 mm in size) wasps. the genus *Liris* is divided into three subgenera, viz., *Liris* Fabricius, 1804; *Motes* Kohl, 1892 and *Leptolarra* Cameron, 1900 (Bahart and Menke, 1976). Only the subgenus *Leptolarra* under this genus is recorded here from the Andaman and Nicobar Islands, which is mentioned below.

4. Subgenus *Liris* (*Leptolarra*) Cameron

1900. *Leptolarra* Cameron, *Ann. Mag. Nat. Hist.*, (7) 5 : 29.
Type-species : *Leptolarra reticulata* Cameron. 1900.
1976. *Liris* (*Leptolarra*) Cameron : Bohart and Menke, *Univ. Calif. Press* : 43, 243, syn.

The subgenus *Leptolarra* includes the majority of the species/subspecies of the genus *Liris*. According to Bohart and Menke (1976), these species/subspecies belonged either to this subgenus or other unknown subgenus.

About 42 species/subspecies under this subgenus are known to occur in India. Out of these only one species, viz., *insularis* under the subgenus *Liris* (*Leptolarra*) is recorded here from the Andaman and Nicobar Islands.

7. *Liris* (*Leptolarra*) *insularis* (Saussure)

1867. *Larrada insularis* Saussure, *Novara-Reise, Hym.* : 1-138, fig.
1976. *Liris* (*Leptolarra*) *insularis* (Saussure) : Bohart and Menke, *Univ. Calif. Press* : 246.

Distribution : India : Andaman and Nicobar Islands (Nicobar Is.).

Remarks : Bohart and Menke (1976) listed this species in their revisionary work on world Sphecidae under the genus *Liris* (*Leptolarra*) which was transferred from the genus *Larrada* and mentioned its locality as "Nicobar Islands"

7. Genus *Tachysphex* Kohl

1883. *Tachysphex* Kohl, *Deut. Ent. Ztschr.*, 27 : 166.
Type-species : *Tachysphex filicornis* Kohl, 1883.

This is moderately large genus. In India, this genus is represented by more than 20 species/subspecies. The genus *Tachysphex* is represented here by a single species, *T. novarae* (Saussure, 1867) from the Andaman and Nicobar Islands.

8. *Tachysphex novarae* (Saussure)

1867. *Tachytes novarae* Saussure, *Novara-Reise, Hym.* : 1-138, fig.
1976. *Tachysphex novarae* (Saussure) : Bohart and Menke, *Univ. Calif. Press* : 275.

Distribution : India : Andaman and Nicobar Islands (Nicobar Is.).

Remarks : Bohart and Menke (1976) placed the species *novarae* under the genus *Tachysphex* which was transferred from the genus *Tachytes* and mentioned its distribution as "Nicobar Islands" only.

4. Subfamily CRABRONINAE

The subfamily Crabroninae includes a great variety of forms. They are commonly known as "silver mouth or mustache wasps", due to presence of a transverse silvery clypeus which together with the vertical pale stripes on the scapes, forms an inverted pi-mark (π). They prey upon the most orders of insects, but Dipterans are favourite.

Diagnostic characters : Eyes moderately separated, converging below, ocelli normal. Antennal sockets close to fronto-clypeal suture; male with 11-13 and female with 12 antennal segments. Mandible with externo-ventral notch. Pronotal lobe and tegula separated. Notauli short and indistinct. Middle tibia with one apical spur, sometimes none in male, rarely none in females; middle coxae slightly to broadly separated, without dorso-lateral carina; hind femoral apex sometimes thickened and truncate; claws simple; fore tarsus with or without a rake. Propodeum short, dorsal enclosure sometimes present; propodeal sternite absent. Fore wing usually with one submarginal cell, which may be fused with first discoidal cell, third discoidal cell absent. Jugal lobe of hind wing small, shorter to longer than submedian cell; second anal vein and subcosta absent. Gaster sessile or pedunculate, tergite I with lateral carina; male with 7 visible tergites; pygidial plate always present in females and in some males. Volsella simple and cerci absent.

This subfamily is represented by two tribes, viz., Oxybelini and Crabronini in India. Only the tribe Crabronini is known to occur in the Andaman and Nicobar Islands. However, a key to the tribes is given below.

Key to the tribes of Crabroninae

1. Submarginal and discoidal cells fused. (Not recorded here from the Andaman and Nicobar Islands) **Oxybelini**

- Submarginal and discoidal cells separate, not fused **Crabronini**

5. Tribe **Crabronini**

The tribe Crabronini is a large group of wasps in the subfamily Crabroninae. They are small to moderate in size (2-15 mm long). Their thorax and legs are mostly stout, body generally elongated and gaster pedunculate.

This tribe is represented by about 12 genera in India. Of these, only one genus, viz., *Crabro* Fabricius, 1775 has been reported here from the Andaman and Nicobar Islands, which is given below.

8. Genus **Crabro** Fabricius

1775. *Crabro* Fabricius, *Syst. Ent.* : 373.

Type-species : *Vespa cribraria* Linnaeus, 1758.

Bingham (1897) recorded 18 species under the genus *Crabro* in his "Fauna of British India" Most of these species are known to occur in India. Subsequently, Bohart and Menke (1976) transferred all these species from *Crabro* to another different genera. But they (*op. cit.*) recorded another four species under this genus from India which were described by different scientists after Bingham's (1897) publication. Here the material received from the Andaman and Nicobar Islands, is identified upto generic level due to less number of example as well as lack of literature.

9. **Crabro** sp.

Material examined : India : Andaman and Nicobar Islands : S. Andaman, Port Blair, 1 ex., 26.ii.2000, coll. R.N. Tiwari and party.

Distribution : India : Andaman and Nicobar Islands.

5. Subfamily NYSSONINAE

This is moderately a large subfamily of the family Sphecidae. More than 1400 species are known to occur under this subfamily. They are commonly known as "sand wasps" Most of the species/subspecies nest in the ground and also

prefer sandy habitats. They are found in the tribes Bembicini, Stizini etc.

In this subfamily, most of the species/subspecies prey upon the variety of other insects, from grasshoppers to flies. Some members, especially in the tribe Gorytini, are called as "cicada-killers" which are approximately 40-42 mm in length. Some wasps are also well-known as "cleptoparasites" found in the tribes Nyssonini, Stizini etc.

Diagnostic characters : Eyes parallel or converging below, rarely above. Mandible not notched nor toothed. Scutum without complete notauli. Middle tibia with two apical spurs; claws simple. Propodeal sternite absent. Fore wing with two or three submarginal cells, of which second cell usually receives at least one recurrent vein; three discoidal cells present. Jugal lobe of hind wing usually small, rarely absent, at most half as long as anal area. Gaster usually sessile, when pedunculate, made up of both tergite and sternite. Male genitalia usually with volsella differentiated into cuspis and digitus.

This subfamily is represented by 5 tribes, viz., Alyssonini, Nyssonini, Gorytini, Stizini and Bembicini in India. Of these, only two tribes, Stizini and Bembicini are known to occur in the Andaman and Nicobar Islands. A key to both the above tribes is given below for ready reference.

Key to the tribes of Nyssoninae

1. Hind ocelli always slightly deformed, often scar-like, omaulus absent; labrum exserted and with exposed area at least as long as broad; middle tibia with one apical spur (rarely none in male *Bembix*) **Bembicini**
- Hind ocelli rarely deformed and if so, Omaulus present; labrum, if exserted, the exposed area broader than long; middle tibia with two apical spur (except a few *Stizoides*) **Stizini**

6. Tribe **Bembicini**

The tribe Bembicini is very much interesting group of insects in the subfamily Nyssoninae. It consists of medium to large stout wasps. They are in general black, elaborately marked with white or

yellow bands. Most of them are commonly known as "sand wasps", such as, the genera *Bembix*, *Microbembex* etc.

Bohart and Menke (1976) noted that some members of this tribe are the best fliers. Because they can fly very fast in a straight line. Some females may sting, if they are caught and handled carelessly. But they are not at all dangerous.

This tribe is represented by more than 15 genera. Of these, only the genus *Bembix* Fabricius, 1775 is known to occur in India. The same genus is recorded here from the Andaman and Nicobar Islands, which is detailed below.

9. Genus *Bembix* Fabricius

1775. *Bembix* Fabricius, *Syst. Ent.*, : 23.

Type-species : *Apis rostrata* Linnaeus, 1758.

1775. *Bembyx* Fabricius, *Syst. Ent.*, : 361.

1776. *Bembex* Fabricius, *Genera insect.*, : 122.

1976. *Bembix* Fabricius : Bohart and Menke, *Univ. Calif. Press* : 54, 543, syns.

According to Pate (1937), the genus *Bembix* is the etymologically correct spelling. Subsequently, Bohart and Menke (1976) accepted Pate's (1937) view and placed *Bembyx* Fabricius, 1775, *Bembex* Fabricius, 1776, *Apobembex* Pate, 1937 and *Epibembex* Pate, 1937 as junior synonyms under the genus *Bembix* Fabricius, 1775.

The genus *Bembix* is widely distributed. It is the largest genus in the subfamily Nyssoninae. Most of the members of this genus are well-known as "sandy wasps" because they build their nests in sandy or hard soil. Some of them are the best fliers.

More than 26 species/subspecies are known to occur in India under this genus. Of these, only one species. *B. fossoria* Smith, 1878 has been recorded here from the Andaman and Nicobar Islands.

10. *Bembix fossoria* Smith

1878. *Bembex fossoria* Smith, *J. Asiat. Soc. Bengal*, **47** (2) : 168, F.

1897. *Bembex fossoria* Smith : Bingham, *Fauna Brit. India, Hym.*, **1** : 290, M., F., fig.

1976. *Bembix fossoria* Smith : Bohart and Menke, *Univ. Calif. Press* : 546, syn.

Material examined : India : Andaman and Nicobar Islands : S. Andaman, Port Blair, 1 ex., 19.ii.1964, coll. B.S. Lamba; Wright Myo, Mannarghat, 1 ex., 24.iii.1964, coll. B.S. Lamba.

Distribution : India : Andaman and Nicobar Islands, Jammu and Kashmir.

Elsewhere : Myanmar.

Remarks : This species can be easily recognised by having the mesonotum without U-shaped mark, but anteriorly with a broad longitudinal depression; presence of submarginal bisinuate lacteous yellow band on the abdomen; the first ventral segment with 2-6 faint longitudinal carinate and the 2nd ventral segment with a small depression on each side of the medial line; wings hyaline, tegulae black.

The habits of this group of insects are very much interesting. They make their nest in sandy banks. Especially this species, *B. fossoria* Smith, 1878 gregariously digging their own tunnels with the help of their powerful ciliated anterior legs in the manner of dog digging (Bingham, 1897).

7. Tribe Stizini

The members of the tribe Stizini are medium to large size stout wasps (the genus *Stizus*, up to 35 mm long). They are rarely all black, or sometimes red and black or yellow and black in colour. Some of them are called as "Sand wasps", (the genus *Bembecinus*) and some are "cleptoparasites" (the genus *Stezoides*).

The tribe Stizini is represented by three genera, viz., *Stizus* Latreille, 1802-1803, *Stizoides* Guérin, 1844 and *Bembecinus* A. Costa, 1859 in India. Of these, only the genus *Bembecinus* is reported here from the Andaman and Nicobar Islands, which is detailed below.

10. Genus *Bembecinus* A. Costa

1859. *Bembecinus* A. Costa, *Fauna Regn. Nap.* : 4.

Type-species : *Bembecinus meridionalis* A. Costa, 1859.

1976. *Bembecinus* A. Costa : Bohart and Menke, *Univ. Calif. Press* : 53, 529.

Bembecinus is a cosmopolitan genus. It is the second largest genus in the subfamily Nyssoninae. The species/subspecies under this genus are medium in size wasps. They generally nest in hard dirty soil, or sometimes in sandy habitations.

About six species, viz., *reversus* (Smith, 1856), *prismaticus* (Smith, 1858), *proximus* (Handlirsch, 1892), *pusillus* (Handlirsch, 1892), *lateralis* (Bingham, 1897) and *veniperdus* (Lohrmann, 1942) are known to occur in India. Of these, only the species, *B. pusillus* (Handlirsch, 1892) is known from the Andaman and Nicobar Islands, which is discussed below.

11. *Bembecinus pusillus* (Handlirsch)

1892. *Stizus pusillus* Handlirsch, *Stizungsab. Akad. Wiss. Wien*, **101** : 43.

1976. *Bembecinus pusillus* (Handlirsch) : Bohart and Menke, *Univ. Calif. Press* : 532.

Distribution : India : Andaman and Nicobar Islands.

Elsewhere : Indonesia, Malacca.

Remarks : Bingham (1897) noted that Handlirsch (1892) described several closely allied forms under the genus *Stizus*, which are more or less resembling *Stizus prismaticus* Smith, 1858. One of these, the species *S. pusillus* Handl., 1892 is described from the Andaman Islands. Subsequently, Bohart and Menke (1976) also accepted and listed *pusillus* (Handl., 1892) as a valid species under the genus *Bembecinus*.

This species, *B. pusillus* (Handl., 1892) is recognised by having slightly (7-8 mm) smaller in size; the clypeus in male yellow, but in female marked with a large black spot; body more pubescent and the clypeus more densely pilose; antennae black, scape beneath yellow; 3rd gastral segment with a small yellow spot in the middle.

6. Subfamily PHILANTHINAE

This is one of the largest subfamilies of Sphecidae. Most of the wasps of this subfamily are generally medium in size. They are colourfully ornamented with yellow or red bands or spots. They are commonly found on flowers and a

considerable amount of pollen is found on their body, especially the tribe Cercerini. Almost all the species are ground nesting, and the provisions are Hymenoptera or Coleoptera. (Bohart and Menke, 1976).

Diagnostic characters : Eyes widely separated, inner orbit emarginate or entire, converging above, especially the tribe Cercerini. Antennal sockets separated from fronto-clypeal suture; male with 13 and female with 12 antennal segments. Mandible without externo-ventral notch. Notauli usually distinct; omaulus, sternaulus and acetabular carina absent. Middle tibia with one apical spur; claws simple. Propodeum short to moderately long, dorsal enclosure present, without propodeal sternite. Fore wing with three submarginal cells, II and III each usually receiving one recurrent vein; jugal lobe of hind wing small to large; second anal vein and subcosta absent. Gaster sessile, pedunculate, or occasionally petiolate, petiole clearly composed of tergite and sternite; male with 7 exposed terga; pygidial plate usually present. Volsella simple or with digitus and cuspis; cerci usually absent.

This subfamily is divided into six tribes. Of these two tribes, viz., Philanthini and Cercerini are known to occur in India. These can be distinguished by the following key. But only the tribe Cercerini is known to occur in the Andaman and Nicobar Islands.

Key to the Tribes of Philanthinae

1. Apex of hind femur simple; episternal sulcus present and usually reaching ventral area of mesopleuron; volsella with a digitus and cuspis. (Inner orbit of eye sharply angled or notched, but sometimes weak in some males of genus *Philanthus* whose eyes converge strongly towards vertex). (Not recorded here from the Andaman and Nicobar Islands) **Philanthini**
- Apex of hind femur somewhat truncate, flattened area sometimes kidney-shaped or forming an apico-ventral process; episternal sulcus absent or very short; volsella simple or divided into a digital cuspis. (Mesopleuron with abroad, deep scrobal sulcus) **Cercerini**

8. Tribe *Cercerini*

The members of the tribe *Cercerini* are very colourful. They have coarsely sculptured body. They are moderately small to large (approx. 7-30 mm) in size. The tribe *Cercerini* is represented by two genera, viz., *Cerceris* Latreille, 1802-03 and *Eucerceris* Cresson, 1856 in world fauna. Only the genus *Cerceris* Latreille is known to occur in India as well as in the Andaman and Nicobar Islands.

11. Genus *Cerceris* Latreille

1802-03. *Cerceris* Latreille, *Hist. Nat. Crust. Ins.*, 3 : 367.

Type-species : *Sphex rybyensis* Linnaeus, 1771 (= *Philanthus ornatus* Fabricius, 1790).

This is a largest sphecid genus which contains a huge number of species/subspecies in relation to other genera. More than 48 species under this genus have been reported from India. Here the material received from the Andaman and Nicobar Islands is identified upto generic level, which is given below.

12. *Cerceris* sp.

Material examined : India : Andaman and Nicobar Islands : S. Andaman, Chidiya Tapu, 1 ex., 19.ii.2000, coll. R.N. Tiwari and party.

Distribution : India : Andaman and Nicobar Islands.

SUMMARY

The present paper deals with the Sphecidae fauna of the Andaman and Nicobar Islands. The members of the family Sphecidae are commonly

known as blue mud-dauber, black and yellow mud-dauber, digger or sand or hunting wasps. They are mainly beneficial to man.

The majority of the members of this subfamily are predatory on a great variety of terrestrial insects, but some are cleptoparasitic. They show complexities in their behaviour and are always being subjects for biological studies.

The family Sphecidae is represented by more than 450 species/subspecies in India. Here only 12 species/subspecies belonging to 11 genera under 6 subfamilies have been reported from the Andaman and Nicobar Islands. The keys to the subfamilies, tribes, genera, subgenera are provided for the identification of various taxa of the family Sphecidae.

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INSECTA : HYMENOPTERA : CHALCIDOIDEA : ENCYRTIDAE : ENCYRTINAE

SARFRAZUL ISLAM KAZMI

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

E-mail: kazmisi@rediffmail.com

INTRODUCTION

The family Encyrtidae comprises two subfamilies Encyrtinae and Tetracneminae are important group of parasitic hymenoptera. The family comprises mostly small to median sized chalcids less than 2.5 mm in length. Encyrtids exhibit enormous number of morphological/taxonomical characters: maxillary and labial palps 4 and 3 segmented respectively; pronotum transverse in dorsal view of thorax; mesoscutum with posterior margin almost straight, and at most complete or incomplete curved nodular line; axillae almost always transverse and together; marginal, postmarginal and stigmal veins of forewing short; marginal vein sometime punctiform or several time longer than stigmal vein; linea calva present; mid tibial spur robust. This group of insects parasitized a wide range of insect orders—Lepidoptera, Neuroptera, Homoptera, Hemiptera, Diptera and Acarina. While diversity of Indian Encyrtidae is 143 genera and 502 species under two subfamilies Encyrtinae and Tetracneminae. Under subfamily Encyrtinae 13 genera and 16 species recorded from Andaman & Nicobar Islands. The major contribution of Indian Encyrtidae mostly made by Mani, 1939, 1941; Agarwal, 1965; Shafee *et.al.*, 1975; Hayat and Subba Rao, 1982; Hayat *et.al.*, 1975; Hayat, 1985, 1986; Mani, 1989; Noyes and Hayat, 1984, 1994; Huang and Noyes, 1994; Hayat, 2002, 2003, 2006; Hayat and Kazmi, 1999; Kazmi, 2006, 2008; Kazmi and Hayat, 1995, 1998, 2009; Anis and Hayat, 1998, 2002; Singh and Hayat, 2005.

ABBREVIATION USED IN THE TEXT

BMNH : The Natural History Museum, London.

BPBM : Bernice P. Bishop Museum, Honolulu, Hawaii, U.S.A.

FRI : Forest Research Institute. Dehra Dun, India.

HDEO : Hope Department of Entomology, University Museum, Oxford, England.

NMV : Naturhistorisches Museum, Vienna, Austria.

NPCI : National Pusa Collection, Division of Entomology, Indian Agricultural Research Institute, New Delhi, India.

QMB : Queensland Museum, Brisbane, Australia.

USNM : United States National Museum of Natural History, Washington DC.

ZDAMU : Department of Zoology, Aligarh Muslim University, Aligarh, India.

ZIASP : Zoological Institute, Academy of Sciences, St. Petersburg, Russia.

ZSI : Zoological Survey of India, Kolkata, India.

F : Female.

M : Male.

Diagnosis of the subfamily Encyrtinae :
Mandibles usually broad at apex or if with two or three sharp teeth, then one tooth strongly receding and mandibles curved and sickle shaped; paratergites absent even if hypopygium is prominent and extends to or beyond apex of gaster

and third valvulae absent or fused with second valvifers; third valvula free, articulated with second valvifer, rarely absent or fused with second valvifer; forewing with linea calva with differentiated margirs, and provided with one or more thick, modified spine-like setae arranged in a line along its distal margin, forming the filum spinosum.

CLASSIFICATION

Only Indian genera are shown against each tribe and under each tribe bold letter genera are represented from Andaman & Nicobar Islands.

Subfamily ENCYRTINAE Walker, 1837

Tribe ENCYRTINI Walker, 1837—
Anagyrodes, *Carabunia*, ***Encyrtus***,
Eugahania, ***Neocladia***,
Paracladella, *Prionomastix*.

Tribe AMIRINI Girault, 1913—*Amira*

Tribe BOTHRIOTHORACINI Howard,
1895—*Amicencyrtus*, *Bothriothorax*,
Brachyplatycerus, *Cerchysiella*,
Cowperia, *Gentakola*, *Hemencyrtus*,
Hemileucoceras, *Ixodiphagus*,
Maniscocephalus, *Pentacladocerus*,
Pentelicus, *Rhytidothorax*,
Tachinaephagus, *Trjapitzinellus*.

Tribe COPIDOSOMATINI Hoffer, 1955—
Ageniaspis, *Coelopencyrtus*, *Ethoris*,
Copidosoma, *Copidosomopsis*,
Nathismusia, ***Paratetracnemoidea***.

Tribe APHYCINI Hoffer, 1954—
Acerophagus, *Aphycus*, *Astymachus*,
Copidosomyia, *Homalotyloidea*,
Homalotylus, *Indaphucus*,
Isodromus, *Mashhoodiella*,
Prochiloneurus.

Tribe HABROLEPIDINI Hoffer, 1955—
Adelencyrtus, *Caenohomalopoda*,
Coccidencyrtus, *Comperiella*,
Epitetracnemus, *Plagiomerus*,
Xenostyx Islands.

Tribe CERAPTEROCERINI Hoffer, 1955—
Anicetus, *Bolangeria*,
Cerapteroceroides, *Cerapterocerus*,
Diversinervus, *Lakshaphagus*.

Tribe ECTROMATINI Ashmead, 1900—
Achalcerinys, *Cheiloneurella*,
Cheiloneuromyia, ***Cheiloneurus***,
Coagerus, *Ectroma*, *Mahencyrtus*,
Pasulinia, ***Zaomma***.

Tribe CERCOBELINI Hoffer, 1953—
Cercobelus.

Tribe TRECHNITINI Hoffer, 1955—
Blastothrix, *Cerchysius*,
Psyllaephagus, *Trechnites*.

Tribe DISCODINI Hoffer, 1954—
Aloencyrtus, *Agarwalencyrtus*,
Avetianella, *Bôthriophryne*,
Coccidoctonus, *Comperia*,
Diaphorencyrtus, *Epiblatticida*,
Erencyrtus, *Exoristobia*,
Forcipestricis, *Haligra*,
Helegonatopus, *Hesperencyrtus*,
Lamennaisia, *Metaphycus*,
Microterys, *Neastymachus*,
Ooencyrtus, *Parablatticida*,
Paraphaenodiscus,
Parechthrodryinus, *Philosindia*,
Psyllaphycus, ***Saucrencyrtus***,
Syrphophagus, *Tachardiaephagus*,
Tassonia, *Teleterebratus*,
Trichomasthus, *Tyndarichus*.

Tribe ARRHENOPHAGINI Ashmead,
1900—*Arrhenophagus*.

Tribe THOMSONISCINI Hoffer, 1956—
Thomsonisca.

Tribe: PROTYNDARICHOIDINI Hayat,
2006 – *Protyndarichoides*.

Tribe MAYRIDIINI Hoffer, 1955—
Kataka, *Mayridia*, *Neperpolia*.

Tribe PROLEURO CERINI Trjapitzin,
1973b—*Proleurocerus*.

Tribe PROLEURO CEROIDIINI Hayat,
2006—*Proleuroceroides*.

Subfamily ENCARTINAE

Encyrtus aurantii (Geoffroy)

1785. *Cynips aurantii* Geoffroy, 386 Paris.
 1876. *Comys lecaniorum* Mayr, 740-741, F. ? Syntypes : Austria (NMV). Synonymy by Graham, 1994 : 126.
 1919. *Encyrtus barbatus* Timberlake, 209, F.M. Holotype F : USA, Hawaii (BPBM). Synonymy with *lecaniorum* by Tachikawa 1963 : 88. Synonymy by Graham, 1994 : 126.
 1919. *Eucomys lecaniorum* (Mayr) : Gahan, 1919 : 522, Coimbatore rec.
 1965. *Encyrtus ceroplastis* Agarwal, 58-60, F. M. Holotype F : India, Aligarh (ZDAMU). Synonymy with *lecaniorum* by Hayat, 1979 : 318. Synonymy by Graham, 1994 : 126.
 1994. *Encyrtus aurantii* (Geoffroy) : Graham, 125-126.

Diagnosis : Body variously coloured but not completely yellow; antenna and legs, including hind basitarsus not completely pale yellow; forewing distinctly infusate from proximal end of marginal vein to apex; malar space with a longitudinal ridge, and with several long and coarse black bristles; frons separated from scrobes by a curved transverse ridge or carina which extends almost to lower corners of eyes; scutellum with a tuft of black bristles in posterior half.

Hosts : *Coccus viridis*; *Chloropulvinaria* sp. on *Casuarina equisetifolia*, *Lantana camara* and *Citrus* sp.; *C. psidii*; *Lecanium* sp.; *Parasaissetia nigra*; *Saissetia coffea*; *S. privigna*; *Ceroplastes actiniformis* on sandalwood; indet coccids on *Azadirachta indica* and *Calotropis gigantea*.

Distribution : India : Andaman & Nicobar Islands, Assam, Uttar Pradesh, Rajasthan, Karnataka, Podicherry, Kerala, Tamil Nadu, Uttarakhand, Haryana.

Neocladia trifasciata Singh & Agarwal

1993. *Neocladia trifasciata* Singh & Agarwal, 124, 125-129, F. M. Holotype F : India, Andaman Nicobar Islands, Port Blair (FRI).

Diagnosis : Forewing with three infuscated bands, a narrow band behind distal third of submarginal vein; a broader band across middle of wing; a third infuscate band distad of venation

connected to the middle band by a transverse band; hind tibia clearly less than 2X as long as broad.

Hosts : Unknown.

Distribution : India : Andaman & Nicobar Islands., Karnataka, Kerala.

Paratetracnemoidea insulana Hayat & Singh

2002. *Paratetracnemoidea insulana* Hayat & Singh, 165-167, F. Holotype F : India, Car Nicobar, Mallaika (FRI).

Diagnosis : Body dark metallic, frontovertex intense bluish green with a violet on vertex; pronotum in posterior half finely reticulate, with the cells mostly transversely drawn-out; mesoscutum with raised reticulations, which become slightly longitudinally drawn-out in distal fourth, bronzy violet and faintly bluish green; scutellum with longitudinal reticulations, dull black, with margins polished and smooth; antennal radicle dark brown, with violet shine; scape yellow-brown with brownish infuscation along dorsal margin; pedicel and flagellum dark brown; wings hyaline; forewing with faint infuscation at base, and with almost indistinct infuscation on disc beyond venation; setae on frontovertex and face, white; on malar space behind sculcus, pale brown; on mesoscutum and sides of propodeum white; and axillae and scutellum golden brown.

Hosts : Unknown.

Distribution : India : Andaman & Nicobar Islands.

Prochiloneurus testaceus (Agarwal)

1965. *Acrysopophagus testaceus* Agrawal, 66, 68-69, F. Holotype F : India, Aligarh (ZDAMU).
 1975. *Prochiloneurus hayati* Shafee, Alam & Agrawal, 49, 53-55, F. Holotype F : India, Nabha (ZDAMU). Synonymy by Hayat, 1999 : 391.
 1975. *Prochiloneurus testaceus* (Agrawal) : Shafee, Alam & Agrawal, 49, 53, F, key, Guntur and Aligarh rec.

Diagnosis : Mesothoracic dorsum with at least part of mesoscutum, axillae and scutellum yellow; all funicle segments whitish to pale yellow, except F1 which may be partly brown; scutellum with a sub-apical brush of short, dark bristles, usually arranged in two rows; forewing relatively broad,

less than 3X as long as broad, and with the apical hyaline area with uniformly brown setae.

Hosts : *Coccus viridis*; *Nipaecoccus* sp.; *Nipaecoccus viridis*; *Rastrococcus iceryoides*.

Distribution : India : Uttar Pradesh, Andaman & Nicobar Islands., Maharashtra, Tamil Nadu, Punjab, Andhra Pradesh.

***Adelencyrtus moderatus* (Howard)**

1897. *Encyrtus moderatus* Howard, 152, F. Lectotype F [designated by Noyes, 1979 : 144] : West Indies, Grenada (BMNH).

1961. *Adelencyrtus femoralis* Compere & Annecke, 53-54, F, M. Holotype F : India, New Delhi (USNM). Synonymy by Noyes, 1979 : 144.

1975. *Adelencyrtus mysorensis* Hayat, Alam & Agrawal, 77, 82, F. Holotype F : India, Gulbarga (BMNH). Synonymy Hayat, 1981 : 14-15.

1979. *Adelencyrtus moderatus* (Howard) : Noyes, 144, tax.

Diagnosis : Forewing hyaline, or with a very faint infuscation across wing in about distal half of venation; legs excluding coxae, marked with brown to blackish at least on one leg; femora and tibiae of mid legs pallid; hind femur brown to dark brown; hind tibia pallid; scutellum in major part with elongate-reticulate sculpture in middle and polygonal reticulation at base anteriorly and antero-laterally and towards apex and lineolate-reticulate on sides; ovipositor about 1.5X as long as mid tibia; second valvifer about 3X as long as a third valvula.

Hosts : *Duplachionaspis* sp., *Lepidonaspis* sp.

Distribution : India : Andaman & Nicobar Islands, Uttar Pradesh, Assam, Delhi, West Bengal, Pondicherry, Uttarakhand, Orrisa, Karnataka.

***Adelencyrtus bimaculatus* Alam**

1972. *Adelencyrtus bimaculatus* Alam, 135, 136-137, F, M. Holotype F : India, Uttar Pradesh (ZDAMU).

Diagnosis : Forewing infuscation begins from distal fourth of sub-marginal vein; proximal margin of infuscation nearly straight; mid femur completely testaceous to pale yellow, with a faint brownish patch in apical third; mid tibia pallid with a brownish patch in basal third.

Hosts : *Aonidiella orientalis*; indet diaspids.

Distribution : India : Uttar Pradesh, Rajasthan, Andaman & Nicobar Islands., Karnataka, Jharkhand.

***Coccidencyrtus clavatus* (Hayat, Alam & Agarwal)**

1975. *Adelencyrtus clavatus* Hayat, Alam & Agarwal, 77, 83, F. Holotype F : India, Andhra Pradesh, Chikaluripeta (BMNH).

1987. *Coccidencyrtus exiguous* Noyes & Hui, 167, F.M. Holotype F : China, Guangzhou, Baiyin (Acad. Sci. Beijing). Synonymy by Hayat, 1999 : 365.

1999. *Coccidencyrtus clavatus* (Hayat, Alam & Agarwal) : Hayat, 1999 : 365.

Diagnosis : Mesoscutum with shallow, polygonal reticulations; scutellum in at least anterior half with lineolate reticulate sculpture; clava at least as long as funicle and pedicel combined; scutellar pits located in anterior third of scutellum and latter with 3 + 3 setae; legs including coxae, dark brown, with following parts whitish: base and apex of fore femur, base and apex of fore tibia, mid femur and mid tibia and hind tibia completely; fore wing about 3X as long as broad.

Hosts : *Lepidosaphes* sp. or *Unaspis atricolor* on *Tamarindus indica* (Hayat et al.)

Distribution : India : Andaman & Nicobar Islands, Andhra Pradesh.

***Diversinervus cervantesi* (Girault)**

1933. *Cheiloneurus cervantesi* Girault, [4] F. Syntypes, F : Australia, Nambour, Brimblecombe (QMB).

1986. *Phasmencyrtus indicus* Kaul & Agarwal, 32-34, F. Holotype F : India, Andaman & Nicobar Islands., (ZDAMU). Synonymy by Hayat, 1989 : 279.

1983. *Diversinervus cervantesi* (Girault) : Rosen & Alon, 336-362, F, M, des., key, boil., distrib.

Diagnosis : Brachypterous species; mesoscutum without a tuft of bristles.

Hosts : Unknown.

Distribution : India : Andaman & Nicobar Islands.

***Cheiloneurus bangalorensis* (Subba Rao)**

1957. *Chrysopophagus bangalorensis* Subba Rao, 382-383, F, M. Holotype F: India, Bangalore (NPCI).

1957. *Ectromatopsis indica* Subba Rao, 384-385, F, M. Holotype F : India, Bangalore (NPCI). Synonymy by Hayat, 1972 : 212.
1994. *Cheiloneurus angustifrons* Fatma & Shafee, 31. F. Holotype F : India, Aligarh (ZDAMU). Synonymy by Anis & Hayat, 2002 : 144.
1975. *Cheiloneurus elegans* (Dalman): Saraswat & Mukerjee, 49-51, F, Karnataka. Misidentification.
1972. *Cheiloneurus bangalorensis* (Subba Rao) : Hayat, 212, F, M. tax. Aligarh rec.

Diagnosis : Frontovortex and pronotum yellow brown; sides and posterior third of mesoscutum dark; tegula yellow-brown, in distal half brown; axillae yellow brown, scutellum yellow, becoming yellow-brown in posterior third; metanotum and propodeum dark brown; pleura yellow brown; gaster dark brown; mandible with one pointed tooth and two blunt teeth; mesoscutum with longitudinally-lineolate reticulations rest with fine, irregular reticulate sculpture; scutellum with reticulate sculpture, cells elongate.

Hosts : *Atonina graminis*, *Atonina* sp.

Distribution : India : Andaman & Nicobar Islands, Uttar Pradesh, Andhra Pradesh, Rajasthan, Delhi, Kerala, Assam, Karnataka, Tamil Nadu, Uttranchal, West Bengal.

***Cheiloneurus quadricolor* (Girault)**

1915. *Cristatithorax quadricolor* Girault, 157. F, Holotype F : Australia (QMB).
1971. *Cheiloneurus yasumatsui* Trjapitzin, 123, F. Holotype F : Afganistan, Baglan (ZIASP).
1994. *Cheiloneurus brevipennis* Fatima & Shafee, 28, 29-30, F. Holotype F : India, Aligarh (ZDAMU). As synonym of *yasumatsui* by Anis & Hayat, 2002 : 148.
1981. *Cheiloneurus quadricolor* (Girault) : Hayat & Subba Rao, 110, catlg.

Diagnosis : Funicle segment F6 and basal segment of clava brown to dark brown, rest of flagellum pale yellow to brownish yellow; mesoscutum not completely dark brown; forewing normally developed reaching at least to apex of gaster; forewing infuscate to apex, linea calva begin from junction of marginal and stigmal vein and apex posteriorly or wing reduced (Brachypterous form).

Hosts : Unknown.

Distribution : India : Andaman & Nicobar Islands, Uttar Pradesh, Andhra Pradesh, Delhi, Himachal Pradesh, Rajasthan, Maharashtra, Karnataka, Kerala, Tamil Nadu, Uttranchal.

***Cheiloneurus saissetiae* Noyes & Chua**

1977. *Cheiloneurus saissetia* Noyes & Chua, 541-542, F, M. Holotype F : Malaysia, Selangur (BMNH).
1986. *Cheiloneurus insulus* Kaul & Agarwal, 13, F. Holotype F : Andaman & Nicobar Islands., Port Blair (ZDAMU). Synonymy by Anis & Hayat, 2002 : 158.

Diagnosis : Body completely black, shiny; frontovortex and mesoscutum with greenish lustre; axillae with bronzy violet lustre; scutellum and sides of propodeum greenish; gaster with violet and brownish green luster; funicle dark brown to nearly black; scape with a wedge shaped white or yellow median area on inner surface; mandible with two pointed teeth and a dorsal truncation; mesoscutum largely with scaly sculpture in posterior fourth with shallow reticulate sculpture; scutellum with raised reticulate sculpture, on sides with cells elongated and apex with transversely elongate-reticulate sculpture; gaster subequal in length to thorax.

Hosts : Indet. Coccids on wild bushes (Kaul & Agarwal, 1986). (*Parasaissetia nigra* in Malaysia).

Distribution : India : Andaman & Nicobar Islands.

***Cheiloneuromyia javensis* Girault**

1916. *Cheiloneuromyia javensis* Girault, 480-481, F. Holotype F : Indonesia, Java, Salatiga (USNM).

Diagnosis : Inner margins of eyes clearly converging below anterior ocellus; mesopleuron not enlarged posteriorly; clava with apex rounded, suture more or less parallel; if truncate then either truncate surface shorter than adjacent surface or marginal vein at least twice as long as stigmal vein.

Hosts : Unknown from India (*Coccus viridis* in Java, Girault, 1919; *Chloropulvinaria psidii* in Bangladesh, Bhuiya *et al*, 1997).

Distribution : India : Andaman & Nicobar Islands.

***Zaomma lambinus* (Walker), 1838**

1838. *Encyrtus lambinus* Walker, 422, F. Lectotype F [designated by Graham, 1969: 271] : England. (BMNH). [As synonymy of *Apterencyrtus microphagus* by Graham, 1969 : 270].
1876. *Chiloneurus microphagus* Mayr, 745, 746, F. ? Syntypes (NMV). Synonymy with *lambinus*, implied by Gordh & Trjapitzin, 1979 : 37.
1921. *Chiloneurinus microphagus* (Mayr) : Mercet, 646.
1975. *Apterencyrtus microphagus* (Mayr) : Hayat, Alam & Agarwal, 57-60, F, M, Shoranur rec.
1979. *Zaomma lambinus* (Walker) : Gordh & Trjapitzin, 35, 37, tax.

Diagnosis : Forewing hyaline, marginal vein at most 2X as long as stigmal vein and parastigma not down curved ; mesoscutum without such a bundle or lines of setae, and normally convex, without a transverse depression in posterior third; scutellum with a group of coarse, long, dark seta arranged in a more or less compact bundle or tuft.

Hosts : *Chrysomphalus aonidum*; *Pseudaulacaspis pentagona*.

Distribution : India : Andaman & Nicobar Islands, Uttar Pradesh, Kerala.

***Saucerencyrtus insulanus* Hayat & Singh**

2002. *Saucerencyrtus insulanus* Hayat & Singh, 163-164, F. Holotype F : India, Andaman & Nicobar Islands, Sipighat (FRI).

Diagnosis : Head with frontovertex slightly convex, gradually rounded and merging with face, and slightly less than twice as wide as long; frontovertex very narrow, slightly less than 1/6 of head width; scrobes distinct, inverted U-shaped, with rounded side and above; toruli less than their own length from mouth margin; mandibles with two small teeth and a truncation; funicle segments all longer than broad; clava with untruncated apex; mesoscutum with notaular lines absent; scutellum nearly as long as mesoscutum and nearly as long as broad, with rounded apex; forewing with infuscated areas with scale like setae, hyaline areas largely with normal setae; marginal vein not clearly separated from submarginal vein, but

appears about as long as stigmal vein; postmarginal vein short; gaster slightly shorter than thorax, sub-triangular, cercal plates situated in about basal 2/7; ovipositor not exerted.

Hosts : Unknown.

Distribution : India : Andaman & Nicobar Islands.

***Ooencyrtus iucens* Huang & Noyes**

1994. *Ooencyrtus iucens* Huang & Noyes, 11, 22-23, F. Holotype F: Brunei, Bukit Sulang near Lamunin (BMNH). [Also from Port Blair, Karnataka (Mudigere), Malaysia and Philippines].

Diagnosis : All coxae and femora dark, concolorous with mesopleuron; scutellum wholly bright green- blue, with moderately deep punctuate sculpture over most of its surface and only its extreme posterior margin smooth; antennae with flagellum usually with funicle testaceous- yellow and clava brownish; F6 longer than F1, F1-3 transverse; clava with outer suture oblique and apex obliquely truncate and with sensory area about half as long as clava; frontovertex about 1/5 head width.

Hosts : *Achaea janata* (Lepidoptera : Noctuidae) (Huang & Noyes, 1994).

Distribution : India : Andaman & Nicobar Islands, Karnataka.

***Tassonia calunica* Hayat**

2003. *Tassonia calunica* Hayat, 233, F. Holotype F : India, Calicut (NPCI). [Also from Andaman & Nicobar Islands.].

Diagnosis : Frontovertex relatively broader, more than 2/5 of head width, malar space less than 0.5X of eyes length; scutellum with slightly polygonal reticulation in middle 3/5 and finely lineolate- reticulate on sides; antenna with strongly transverse F1-3; F1 anelliiform, smaller than F2; forewing proximad of linea calva with 3 lines of setae; third valvula less than 0.5X of second valvifer; flagellum completely dark brown.

Hosts : Unknown.

Distribution : India : Andaman & Nicobar Islands, Kerala.

SUMMARY

A total of 16 species of encyrtinae under 13 genera have been reported occurring in various parts of Andaman & Nicobar Islands. Hosts and distributional range are mentioned against each species with some important diagnostic characters.

This group of insects parasitized a wide range of insect orders—Lepidoptera, Neuroptera, Homoptera, Hemiptera, Diptera and Acarina.

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INSECTA : HYMENOPTERA : CHALCIDOIDEA : ENCYRTIDAE : TETRACNEMINAE

SARFRAZUL ISLAM KAZMI

Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053

E-mail: kazmisi@rediffmail.com

INTRODUCTION

The family Encyrtidae comprises two subfamilies Encyrtinae and Tetracneminae are second largest among chalcidoidea whose members are used in the biological control of insect pests. It is well known fact that success of any classical biological control programme depends largely on the correct identification of parasitoid species, its host and biological relationship of parasitoid, wheather it is a primary parasitoid or hyperparasitoid. These two subfamilies are mostly primary internal parasitoids and hyper-parasitoids of coccoidea (Homoptera), Lepidoptera, Diptera, Coleoptera and also attack on aphids and psyllids.

There are several publications on the Indian Encyrtidae mostly made by Mani, 1939, 1941; Agarwal, 1965; Shafee *et. al.*, 1975; Hayat, 1985, 1986. Hayat and Subba Rao, 1982; Hayat *et. al.*, 1975; In recent year several new genera and species of Encyrtidae described from various Indian states by Mani, 1989; Noyes and Hayat, 1984, 1994; Huang and Noyes, 1994; Hayat, 2002, 2003, 2006; Hayat and Kazmi, 1999; Kazmi, 2006, 2008; Kazmi and Hayat, 1995, 1998, 2009; Anis and Hayat, 1998, 2002; Singh and Hayat, 2005. Out of 143 genera and 502 species of Encyrtidae from Indian region, 18 genera and 25 species are represented from Andaman & Nicobar Islands and under this subfamily only 05 genera and 09 species are represented.

ABBREVIATION USED IN THE TEXT

BMNH : The Natural History Museum, London.

FRI : Forest Research Institute. Dehra Dun, India.

MNHN : Museum National d'Histoire Naturella, Paris.

NPCI : National Pusa Collection, Division of Entomology, Indian Agricultural Research Institute, New Delhi, India.

QMB : Queensland Museum, Brisbane, Australia.

USNM : United States National Museum of Natural History, Washington DC.

ZDAMU : Department of Zoology, Aligarh Muslim University, Aligarh, India.

ZSI : Zoological Survey of India, Kolkata, India.

F : Female.

M : Male.

Diagnosis of the subfamily Tetracneminae : Mandibles sharply bidentate with two teeth equal or upper tooth longer or if tridentate, then teeth sharp with middle tooth longer; paratergites present, each paratergite connected to outer plate of the ovipositor by a thin and delicate extension; hypopygium prominent, extending to or beyond apex of gaster; third valvula fused with the second valvifer, or the junction between the two membranous; rarely the third valvula free; fore wing with the linea calva with undifferentiated margins, and filum spinosum always absent.

CLASSIFICATION

Only Indian genera are shown against each tribe and under each tribe bold letter genera are represented from Andaman & Nicobar Islands.

Subfamily TETRACNEMINAE Howard, 1892

Tribe TETRACNEMINI Howard, 1892—

Adektitopus, *Charitopus*, *Clausenia*,
Eotopus, *Manicnemus*,
Neocharitopus, *Paraclausenia*,
Ruanderoma, *Sakencyrtus*,
Tetracnemoidea, *Tetracnemus*.

Tribe NEODUSMETIINI Hayat, 2006—
Neodusmentia.

Tribe AENASIINI Kerrich, 1967—
Aenasius, *Blepyrus*, *Cladiscodes*,
Manmohanencyrtus,
Metaphaenodiscus, *Neoplatycerus*.

Tribe ANAGYRINI Hoffer, 1953—
Alamella, *Anagyrus*,
Anomalencyrtus, *Anomalencyrtus*,
Anomalicornia, *Apoleptomastix*,
Callipteroma, *Cryptanusia*,
Dusmetia, *Gyranusoidea*,
Hamusencyrtus, *Leptomastidea*,
Leptomastix, *Mashhoodia*,
Monstranusia, *Paranathrix*,
Praleurocerus, *Rhopus*,
Yasumatsuola.

Tribe PAURIDIINI De Santis, 1964—
Coccidoxenoides.

Tribe ERICYDNINI Hoffer, 1955—
Ericydnus.

Subfamily TETRACNEMINAE

Aenasius advena Compere

1937. *Aenasius advena* Compere, 388, F. M. Holotype F: USA, Hawaii, Oahu (USNM).

1975. *Pseudanasius clavus* Hayat, Alam & Agarwal, 23-24 F[gynandromorphy], M. Holotype F : India, Shencottah (BMNH). Synonymy by Hayat, 1981 : 17.

Diagnosis : Frontoververtex relatively broad, about 1/5 of head width, with thimble-like punctures descending between eyes and facial impression; postmarginal vein not longer than stigmal vein.

Hosts : *Ferrisia virgata*.

Distribution : India : Andaman & Nicobar Islands, Delhi, Goa, Gujarat, Karnataka, Kerala,

Madhya Pradesh, Maharashtra, Tamil Nadu, Punjab, Uttarakhand, Uttar Pradesh.

Manmohanencyrtus hayati Singh

1995. *Manmohanencyrtus hayati* Singh, 163-165, F. Holotype F : India, Andaman & Nicobar Islands., Wandoor National Park (FRI).

Diagnosis : Mesoscutum with a median, flat, sculptured and setose area separated from lateral metallic, smooth areas; pedicel subtriangular, not broader than F1; forewing with anterior margin incised at apex of costal cell; postmarginal vein at least as long as the curved stigmal vein; mandible with three acute teeth, with middle tooth longer; third valvula long and free.

Hosts : Unknown.

Distribution : India : Andaman & Nicobar Islands.

Neodusmentia sangwani (Subba Rao)

1957. *Dusmentia sangwani* Subba Rao, 385-386, F. M. Holotype F : India, Bangalore (NPCI).

1957. *Dusmentia indica* Burks, 125, F. M. Holotype F : India, near New Delhi (USNM). Synonymy by Narayanan, Subba Rao & Ramachandra Rao, 1960 : 175.

1964. *Neodusmentia sangwani* (Subba Rao) : Kerrich, 76.

Diagnosis : Frontoververtex 2X as broad as length of scape; mandible with two teeth; propodeum medially not more than 1/5 as long as scutellum; visible part of mesoscutum at least 3X as broad as long.

Hosts : *Atonina* sp. on grass, on *Cynodon* sp., on *Eragrostes ciliaris*; *Atonina indica*.

Distribution : India : Andaman & Nicobar Islands, Assam, Andhra Pradesh, Delhi, Kerala, Karnataka, Rajasthan, Pondicherry, Tamil Nadu, Uttar Pradesh

Anagyrus gracilis (Hayat)

1970a. *Doliphoceras gracilis* Hayat, 114-115, F. Holotype F : India, Aligarh (ZSI).

1985. *Doliphoceras biharensis* Shamim & Shafee, 35-36, F. Holotype F : India, Ranchi, Mesra (ZDAMU). Synonymy by Hayat, 1989 : 280.

1994. *Anagyrus gracilis* (Hayat) : Noyes & Hayat, 75, 95-96, F. M. des., key.

Diagnosis : Body elongate and moderately dorsoventrally flattened; body dark brown; antenna dark brown; legs including fore coxae yellow; mid and hind coxae and hind femora dark brown; wings hyaline; scape slightly broader and flattened, flagellum filiform; marginal and postmarginal veins of forewing together at least about one-half longer than stigmal vein; gaster longer than head and thorax combined.

Hosts : *Coccidohystrix insolita* on *Solanum*.

Distribution : India : Andaman & Nicobar Islands, Andhra Pradesh, Assam, Delhi, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Maharashtra, Tamil Nadu, Rajasthan, Uttar Pradesh.

***Anagyrus subflaviceps* (Girault)**

1915. *Epidinocarsis subflaviceps* Girault, 143, F. Holotype F : Australia, Cairns (Gordonvale) (QMB).
 1979a. *Anagyrus longiventris* Hayat, 170-171, F, M. Holotype F : India, Aligarh (BMNH). Synonymy by Noyes & Hayat, 1994 : 102.
 1999. *Anagyrus agarwali* Fatima, 49, F. Holotype F : India, Aligarh (ZDAMU). Synonymy by Hayat, 2003 : 190.
 1984. *Anagyrus subflaviceps* (Girault) : Noyes & Hayat, 230, tax.

Diagnosis : Body generally orange, head and dorsum of thorax often extensively darken; body elongate with frontovertex about half as wide as head; scape broad and flattened with a broad dark brown band; flagellum almost entire dark brown, but normally with F2 white to yellow; ovipositor about twice length of mid tibia.

Hosts : Unknown.

Distribution : India : Andaman & Nicobar Islands, Andhra Pradesh, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Tamil Nadu, Rajasthan, Uttar Pradesh.

***Anagyrus mirzai* Agarwal & Alam**

1959. *Anagyrus mirzai* Agarwal & Alam, 392, F, M. Holotype F : India, Aligarh (ZDAMU).
 1965. *Anagyrus mirzai* Agarwal, 43, 46-48. Redescription of *mirzai* as a new species.
 1970. *Anagyrus delhiensis* Subba Rao & Rai, 86, F. Holotype F : India, Delhi (NPCI). As a synonym of *mirzai*

Agarwal by Hayat, 1979b: 315-316. Synonymy by Noyes & Hayat, 1994: 124.

1975. *Anagyrus gunturiensis* Shafee, Alam & Agarwal, 11, 15, F. Holotype F : India, Guntur (ZDAMU, lost). As synonym of *mirzai* Agarwal by Hayat, 1979b: 315-316. Synonymy by Noyes & Hayat, 1994: 124.
 1984. *Gyranusoidea mirzai* (Agarwal): Noyes & Hayat, 280, tax.

Diagnosis : Body robust, not dorsoventrally flattened and relatively short and squat; body generally orange; lower part of face and genae dark brown; antennal funicle uniformly testaceous- brown; frontovertex narrower than eye; forewing with postmarginal vein a little longer than stigmal vein; marginal vein about as long as, or a little longer than stigmal vein.

Hosts : *Ferrisia virgata*; *Icerya formicarum* on *Psidium guajava*; *Nipaecoccus viridis*, same host on wild plant; *Nipaecoccus* sp. on *Casuarina equisetifolia*, *Tamarindus indica*, *Morus alba*; *Planococcus citri* on *Citrus medica*; *Rastrococcus iceryoides* on *Citrus*.

Distribution : India : Andaman & Nicobar Islands, Andhra Pradesh, Karnataka, Haryana, Himachal Pradesh, Orissa, Kerala, Maharashtra, Punjab, Tamil Nadu, Uttar Pradesh.

***Anagyrus dactylopii* (Howard)**

1898. *Aphycus dactylopii* Howard, 242, F. Holotype F : Hong Kong (USNM).
 1965. *Anagyrus scutomaculatus* Agarwal, 44, 49, F. Holotype F : India, Aligarh (ZDAMU). Synonymy by Noyes & Hayat, 1994 : 179.
 1965. *Anagyrus citri* Agarwal, 44, 48, F. Holotype F : India, Aligarh (ZDAMU). Synonymy by Noyes & Hayat, 1994 : 179.
 1924. *Anagyrus dactylopii* (Howard) : Timberlake, 224.
 1970. *Anagyrus amoenus* Compere : Subba Rao & Rai, 86, 87, F, Delhi. Misidentification.
 1970. *Anagyrus kivuensis* Compere : Subba Rao & Rai, 86, 91, F, Delhi. Misidentification.
 1977. *Anagyrus bohemani* Westwood : Verma, 20, Chandigarh rec. Misidentification.

Diagnosis : Body stout, not elongate and not dorsoventrally flattened; head orange, almost always with lower parts of face and occiput marked with dark brown; scape dark brown with

a narrow sub-apical white band; F1 brown rest are white; thorax mostly orange; legs yellow; wings hyaline; gaster dark brown; very fine reticulate sculpture on head, mesoscutum and scutellum; forewing about 2X as long as broad; marginal and postmarginal veins of forewing combined shorter than stigmal vein; gaster about as long as thorax.

Hosts : *Planococcus citri* on *Citrus medica*; *Pseudococcus* sp. on *Citrus aurantifolia*; *Rastrococcus capparidae*; *Ferrisia virgata* on *Acacia* sp. *Maconellicoccus hirsutus* on *Anona squamosa* and grapes.

Distribution : India : Andaman & Nicobar Islands, Andhra Pradesh, Bihar, Goa, Delhi, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Orissa, Punjab, Tamil Nadu, Uttrakhand, Uttar Pradesh.

***Anagyrus umairi* Noyes & Hayat**

1994. *Anagyrus umairi* Noyes & Hayat, 76, 116-117, F. Holotype F : India, Coimbatore (BMNH) [Also from Indonesia].

Diagnosis : Body elongate and dorsoventrally flattened; head dusky yellow, a dark brown spot between each torulus and eye margin; scape largely whitish, its apex brown and a median dark brown band which is interrupted on dorsal margin of scape; basal half of pedicel dark brown, its apex whitish; F1 dark brown, F2 and F3 whitish; F4-6 and clava testaceous brown; dorsum of thorax dusky yellow laterally, medially brown; sides and venter of thorax yellowish; propodeum mostly dark brown with sides yellowish; wings hyaline; legs pale yellow; gaster brown, last tergite yellowish.

Hosts : Unknown.

Distribution : India : Andaman & Nicobar Islands, Tamil Nadu.

***Leptomastix nigrocincta* Risbec**

1959. *Leptomastix nigrocincta* Risbec, 27, F. Lectotype F [designated by Noyes & Prinsloo, 1998] : Madagascar (MNH).

1994. *Leptomastix lyciae* Noyes & Hayat, 275-278, F, M. Holotype F : India, Delhi (BMNH). Synonymy by Anga & Noyes, 1999 : 109.

Diagnosis : Head yellow with dark brown or blackish spot extending from each eye to foramen; mandible orange; scape concolorous with head but dorsal margin dark brown; pedicel orange brown; flagellum dark brown; mesoscutum and scutellum orange; wing hyaline, linea calva interrupted by not more than two line of setae; gaster about as long as thorax.

Hosts : *Coccidohystrix insolita*, same species on *Solanum melongena*, tomato.

Distribution : India : Andaman & Nicobar Islands, Uttar Pradesh, Madhya Pradesh, Andhra Pradesh, Delhi, Karnataka, Kerala, Tamil Nadu.

SUMMARY

A total of 09 species of Tetracneminae under 05 genera have been reported occurring in various parts of Andaman & Nicobar Islands. Hosts and distributional range are mentioned against each species with some important diagnostic characters. They are mostly primary internal parasitoids and hyper-parasitoids of coccoidea (Homoptera), Lepidoptera, Diptera, Coleoptera and also attack on aphids and psyllids.

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BRACHYURAN CRABS (CRUSTACEA)

M.K. DEV ROY AND N.C. NANDI

Zoological Survey of India, Crustacea Section,
27 Jawaharlal Nehru Road, Kolkata-700016

INTRODUCTION

Andaman and Nicobar islands of the Indian Union have attracted the attention of scientists, particularly naturalists, social anthropologists and biologists since the 19th century. At present several institutes and organizations are engaged in studying the natural and human resources of these islands. The two groups of islands are arranged in a string of about 348 islands of various sizes formed by a submerged mountain range in the Bay of Bengal. These islands lie in between 6°45' N to 13°30' N latitudes and 90°20' E to 93°56' E longitudes with an area of 6340.4 km². The topography of the islands is unique and comparable to that of the famous Galapagos Islands of the Pacific Ocean, which offers diversified habitats for harbouring a rich variety of brachyuran crabs, which exceeds approximately half the brachyuran fauna of the Indian waters. In recent years, there is a drastic change in brachyuran taxonomy because of many revisionary works by eminent carcinologists affecting changes in the nomenclature and status of many taxa (Serène and Soh, 1970; Crane, 1975; Serène, 1984; Ng, 1987, 1993; Holthuis and Manning, 1990; Castro, 2000, 2005 and 2007; Castro *et al.*, 2003; Davie, 2002; Ng, Guinot and Davie, 2008). In the present communication an attempt is made to indicate the taxonomic researches on crabs as well as their diversity, distribution and zonation in these islands. Two species viz., *Drachiella lapillulus* (Alcock, 1896) and *Alox ornatum* (Ihle, 1840) have been recorded for the first time from Indian waters while, *Philyra*

sagittifera (Fabricius, 1798) and *Philyra scabriuscula* (Fabricius, 1798) are reported herein as new records from Andaman and Nicobar Islands respectively.

Investigation on brachyuran crabs was initiated by Heller (1862) who recorded three species of crabs including one freshwater species, viz., *Carpilodes granulatus* (= *Liomera tristis*) *Macrophthalmus bicarinatus* (= *Macrophthalmus* (*Macrophthalmus*) *bicarinatus*), and the freshwater crab, *Thelphusa wüllerstorffii* (= *Spiralothelphusa wüllerstorffii*) from these islands based on collections made during 'Novara' expedition. After a short gap, Heller (1865) further added 47 species of crabs belonging to 35 genera and 8 families viz., Calappidae, Portunidae, Xanthidae, Trapeziidae, Parathelphusidae, Ocypodidae, Gecarcinidae and Grapsidae from Nicobars. In 1868, Frauenfeld published a list of crabs occurring in the Nicobar Islands. These were the same as those reported earlier by Heller (*op. cit.*) in the crustacean fauna of 'Novara' expedition. Francis Day, an army officer and ichthyologist visited these islands in 1869 and collected a few crab specimens (from Nicobars) along with fishes. Later on, those were worked out and reported by Henderson (1893). Wood-Mason (1873a, b) described the land crab (*Hylaeocarcinus humei*) from the Nicobar Islands. However, serious studies on this group began with the commissioning of the Marine Survey vessel "A.I.M.S. Investigator" of the Marine Survey of India (1881) which took active

*Retired Scientist 'F', Zoological Survey of India, Kolkata.

interest in exploring the marine fauna of the Indian subcontinent. Launching of the RIMS 'Investigator' was a milestone in the history of marine research in India. During the cruises of Royal Indian Marine Survey Steamer 'Investigator', many species of brachyuran crabs of both shallow as well as deep water were collected and studied (Wood-Mason, 1888a, b; Wood-Mason and Alcock, 1891; Alcock, 1893, 1894; Alcock and Anderson, 1895a, b, 1899; Anderson, 1897). Alcock (1895-1901) in his 'Materials for a Carcinological Fauna of India' recorded and described 3 species of hymenosomatids, 38 species of portunids, 12 species of ocypodids, 4 species of gecarcinids, 21 species of grapsids, 89 species of xanthids, 15 species of goneplacids, 4 species of pinnotherids and one species of myctyrid crab from the Andaman and Nicobar Islands. In 1904, Doflein collected 14 species from Nicobar group of Islands, especially from the Great Nicobar and Sombbrero Channel during 'Valdivia' expedition. In 1906, Henderson described a new species of gall crab from corals of Andaman islands. Later, De Man (1908) reported *Sesarma thelxinoë* (= *Geosesarma thelxinoë* De Man) while Kemp (1919) recorded *Macrophthalmus pacificus* Dana (= *M. bicarinatus* Heller) and *Dotilla wichmanni* De Man from these islands. Chopra (1930, 1931 and 1933) described two new species viz., *Lissocarcinus ornatus* and *Raninoides hendersoni* from the same region. Sankarankutty (1961, 1962a, 1962b) recorded 91 species and 3 varieties belonging to 54 genera and 10 families, of which, 17 species and a variety were recorded for the first time from these islands. Sastry (1977, 1981) recorded the eumedonid crab, *Echinoeueus pentagonus* (Milne Edwards) for the first time from Andaman waters. Deb (1985a, b, c; 1987; 1989a, b; 1992) described several new species from these islands. The brachyuran fauna of Andaman and Nicobar islands were further dealt with by Pretzmann (1984), Das and Dev Roy (1989), Rao *et al.* (1990), Dev Roy and Das

(2000), Dev Roy and Nandi (2001, 2005) and Kariathil *et al.* (2002) and several species were reported as new records as a result of these investigations. Recently, Rao and Sastry (2007) recorded 28 species belonging to six families namely, Portunidae, Grapsidae, Ocypodidae, Xanthidae, Calappidae and Dorippidae from Button Island National Parks (North, Middle and South Button Islands, South Andamans). Tikadar *et al.* (1986) and Bakus (1994) published a list of crab species occurring in these islands. The list of Bakus (*op. cit.*) was the same as those reported by Tikadar *et al.* (*op. cit.*). Deb and Rao (1993) published a list of brachyuran crabs known upto from these islands. Later, Venkataraman *et al.* (2004) listed the brachyuran crabs from coral reefs of Andaman and Nicobar islands. Recently, Dev Roy (2008) has published an annotated checklist of brachyuran crabs of India wherein 54 and 176 species have been recorded from mangrove and coral reef ecosystems respectively of these islands. Premkumar and Daniel (1971) reported on the crabs of economic value of Great Nicobar while Dev Roy and Nandi (1991) dealt with the taxonomy of commercial crabs of Andaman Islands.

MATERIALS AND METHODS

Data for the present paper were gathered from several faunistic surveys conducted by the senior author during his tenure at Andaman and Nicobar Regional Station, Zoological Survey of India, Port Blair (1977-1986) and collections made during his personal visits to these islands in 1987 and 1988. The senior author upon subsequent posting in Crustacea Section of Zoological Survey of India, Kolkata since 1997 had the opportunity to examine a large number of specimens housed in National Zoological Collections of Zoological Survey of India. All these data has been incorporated in the present communication. In many of the old collections, details of the locality were not recorded except Andamans or Nicobars; all such species have been dealt as such. In addition, various

publications on brachyuran crabs of these islands have been consulted and collated. While listing these species, synonyms of only those species recorded under different names from these islands have been referred. Geographical distribution of each species has been shown after the species name in bold letters (in abbreviated form).

The collected specimens were identified based on senior author's expertise and also following standard literature (Alcock, 1895-1901, Sakai, 1965, 1976; Serène, 1984; Dev Roy and Das, 2000 and other revisionary works) as well as by comparing

with identified collections present in National Zoological Collection.

RESULTS AND DISCUSSION

Species List

The occurrence and distribution of brachyuran species in different islands and ecosystems are presented in Table 1 along with their geographical distribution in Bay of Bengal, Arabian Sea, Indian Ocean and Indo-Pacific region. There are 521 species (excluding two freshwater species) belonging to 246 genera and 56 families in these islands (Table 1).

Table-1 : List of brachyuran species recorded from Andaman and Nicobar Islands along with distribution

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Infraorder BRACHYURA Linnaeus, 1758					
	Section PODOTREMATA Guinot, 1977					
	Superfamily CYCLODORIPPOIDEA Ortmann, 1892					
	Family CYCLODORIPPIDAE Ortmann, 1892					
	Subfamily CYCLODORIPPINAE Ortmann, 1892					
	Genus <i>Tymolus</i> Stimpson, 1858					
1.	<i>T. glaucommus</i> (Alcock, 1894) BB Syn. <i>Cymonomops glaucommus</i> Alcock	+			+	
2.	<i>T. uncifer</i> (Ortmann, 1892) IP	+				+
	Family CYMONOMIDAE Bouvier, 1898					
	Genus <i>Cymonomus</i> A. Milne Edwards, 1880					
3.	<i>C. andamanicus</i> Alcock, 1905 IP	+				+
	Superfamily DROMIDOIDEA De Haan, 1833					
	Family DROMIIDAE De Haan, 1833					
	Subfamily DROMIINAE De Haan, 1833					
	Genus <i>Conchoecetes</i> Stimpson, 1858					
4.	<i>C. andamanicus</i> Alcock, 1899 IP	+			+	
5	<i>C. artificiosus</i> (Fabricius, 1798) IP	+		+	+	
	Genus <i>Cryptodromia</i> Stimpson, 1858					
6.	<i>C. bullifera</i> Alcock, 1899 BB	+				
7.	<i>C. fallax</i> (Lamarck, 1818) IP Syn.. <i>Cryptodromia canaliculata</i> Stimpson	+				+
8.	<i>C. pileifera</i> (Alcock, 1899) IP Syn. <i>Cryptodromia tuberculata pileifera</i> Alcock	+				+
9.	<i>C. tuberculata</i> Stimpson, 1858 IP	+			+	
	Genus <i>Dromidiopsis</i> Borradaile, 1903					
10.	<i>D. cranioides</i> (De Man, 1888) IP Syn. <i>Dromia cranioides</i> De Man	+	-	-	+	-

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Andaman	Nicobar	Man-grove	Coral	Others
11.	<i>D. dromia</i> (Linnaeus, 1758) IP Syn. <i>Dromia dormia</i> Linnaeus	+			-	+
	Genus <i>Lauridromia</i> McLay, 1993					
12.	<i>L. dehaani</i> Rathbun, 1923 IP Syn. <i>Dromia dehaani</i> / <i>Dromia rumphii</i> Fabricius	+	+		+	-
	Genus <i>Lewindromia</i> Guinot and Tavares, 2003					
13.	<i>L. unidentata</i> (Rüppell, 1830) IP Syn. <i>Dromia unidentata</i> Rüppell	+			+	
	Genus <i>Petalomera</i> Stimpson, 1858					
14.	<i>P. granulata</i> Stimpson, 1858 IP Syn. <i>Petalomera granulata indica</i> Alcock	+	+		+	
	Subfamily SPHAERODROMIINAE Guinot & Tavares, 2003					
	Genus <i>Sphaerodromia</i> Alcock, 1899					
15.	<i>S. nux</i> Alcock, 1899 BB	+				+
	Family DYNOMENIDAE Ortmann, 1892					
	Genus <i>Acanthodromia</i> A. Milne Edwards, 1880					
16.	<i>A. margarita</i> (Alcock, 1899) IP Syn. <i>Dynomene margarita</i> Alcock	+			+	
	Superfamily HOMOLODROMIOIDEA Alcock, 1899					
	Family HOMOLODROMIIDAE Alcock, 1899					
	Genus <i>Dicranodromia</i> A. Milne Edwards, 1880					
17.	<i>D. baffini</i> (Alcock and Anderson, 1899) IP Syn. <i>Arachnodromia baffini</i> Alcock and Anderson	+			+	
	Superfamily HOMOLOIDEA De Haan, 1839					
	Family HOMOLIDAE De Haan, 1839					
	Genus <i>Homola</i> Leach, 1815					
18.	<i>H. orientalis</i> Henderson, 1888 IP Syn. <i>Homola andamanica</i> Alcock	+			+	
	Genus <i>Homolax</i> Alcock, 1899					
19.	<i>H. megalops</i> (Alcock, 1894) BB Syn. <i>Homola megalops</i> Alcock	+			+	
	Genus <i>Lamoha</i> Ng, 1998					
20.	<i>L. longipes</i> (Alcock and Anderson, 1899) AS Syn. <i>Hypsophrys longipes</i> Alcock and Anderson	+	+			+
	Genus <i>Latreillopsis</i> Henderson, 1888					
21.	<i>L. bispinosa</i> Henderson, 1888 IP	+			+	
	Genus <i>Paromolopsis</i> Wood-Mason, 1891					
22.	<i>P. boasi</i> Wood-Mason, 1891 IP	+			+	

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Family LATREILLIDAE Alcock, 1899					
	Genus <i>Latreilla</i> Roux, 1830					
23.	<i>L. pennifera</i> Alcock, 1900 BB	+				+
	Superfamily RANINOIDEA De Haan, 1839					
	Family RANINIDAE De Haan, 1839					
	Subfamily LYREIDINAE Guinot, 1993					
	Genus <i>Lysirude</i> Goeke, 1985					
24.	<i>L. channeri</i> (Wood-Mason, 1885) BB Syn. <i>Lyreidus channeri</i> Wood-Mason <i>Lyreidus gracilis</i> Wood-Mason	+			+	
	Subfamily NOTOPODINAE Serène and Umali, 1972					
	Genus <i>Notopus</i> De Haan, 1841					
25.	<i>N. dorsipes</i> (Linnaeus 1758) IP	+			+	
	Subfamily RANINOIDINAE Lorenthey and Beurlen, 1929					
	Genus <i>Raninoides</i> H. Milne Edwards, 1837					
26.	<i>R. hendersoni</i> Chopra, 1933 BB	+				+
27.	<i>R. personatus</i> Henderson, 1888 IP	+				+
	Section EUBRACHYURA Saint Laurent, 1980					
	Subsection HETEROTREMATA Guinot, 1977					
	Superfamily AETHROIDEA Dana, 1851					
	Family AETHRIDAE Dana, 1851					
	Genus <i>Aethra</i> Leach, 1816					
28.	<i>A. scruposa</i> (Linnaeus, 1764) IP Syn. <i>Oethra scruposa</i> Linnaeus	+			+	
	Genus <i>Drachiella</i> Guinot in Serène and Soh, 1976					
29.	**D. lapillulus (Alcock, 1896) BB	+	-	-	-	+
	Superfamily CALAPPOIDEA De Haan, 1833					
	Family CALAPPIDAE De Haan, 1833.					
	Genus <i>Calappa</i> Weber, 1795					
30.	<i>C. calappa</i> (Linnaeus, 1758) IP Syn. <i>Calappa fornicata</i> Fabricius	+				+
31.	<i>C. gallus</i> (Herbst, 1803) CP	+				+
32.	<i>C. hepatica</i> (Linnaeus, 1758) IP . Syn. <i>Calappa spinosissima</i> Edwards <i>Calappa tuberculata</i> Fabricius	+	+		+	
33.	<i>C. japonica</i> (Ortmann, 1892) IP Syn. <i>Calappa exanthematosa</i> Alcock and Anderson	+				+
34.	<i>C. lophos</i> (Herbst, 1782) IP	+				+

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
35.	<i>C. philargius</i> (Linnaeus, 1758) IP	+	-	-	+	-
	Genus <i>Cycloes</i> De Haan, 1837					
36.	<i>C. granulosa</i> De Haan, 1837 IP Syn. <i>Cryptosoma granulorum</i> (De Haan)	+		-	-	+
	Genus <i>Mursia</i> Desmarest, 1823					
37.	<i>M. bicristimana</i> Alcock and Anderson, 1894 BB	+	+		-	+
	Family MATUTIDAE De Haan, 1833					
	Genus <i>Ashtoret</i> Galil and Clark, 1994					
38.	<i>A. lunaris</i> (Forskål, 1775) IP Syn. <i>Matuta banksii</i> Leach	+	+	+	+	
	Genus <i>Matuta</i> Weber, 1795					
39.	<i>M. planipes</i> Fabricius, 1798 IP Syn. <i>Matuta lunaris</i> (Herbst)	+		+	+	
40.	<i>M. victor</i> (Fabricius, 1781) IP	+	+	-	-	+
	Superfamily CANCROIDEA Latreille, 1803					
	Family ATELECYCLIDAE Ortmann, 1893					
	Genus <i>Trichopeltarion</i> A. Milne Edwards, 1880					
41.	<i>T. ovale</i> Anderson, 1896 IP	+	-	-	-	+
	Superfamily CARPILIOIDEA Ortmann, 1893					
	Family CARPILIDAE Ortmann, 1893					
	Genus <i>Carpilius</i> Desmarest, 1823					
42.	<i>C. maculatus</i> (Linnaeus, 1758) IP	+	+	+	+	-
43.	<i>C. convexus</i> (Forskål, 1775) IP	+	+	+	+	-
	Superfamily DAIROIDEA Serène, 1965					
	Family DACRYOPILUMNIDAE Serène, 1984					
	Genus <i>Dacryopilumnus</i> Nobili, 1906					
44.	<i>D. rathbunae</i> Balss, 1932 IO	+	-	-	-	+
	Superfamily DORIPPOIDEA MacLeay, 1838					
	Family DORIPPIDAE MacLeay, 1838					
	Subfamily DORIPPINAE MacLeay, 1838					
	Genus <i>Dorippe</i> Weber, 1795					
45.	<i>D. quadridens</i> (Fabricius, 1793) IP Syn. <i>Dorippe dorsipes</i> (Linnaeus)	+	-		+	-
	Genus <i>Dorripoides</i> MacLeay, 1838					
46.	<i>D. facchino</i> (Herbst, 1785) IP Syn. <i>Dorippe facchino</i> (Herbst)	+	-	-	+	-
	Genus <i>Neodorippe</i> Serène and Romimohtarto, 1969					
47.	<i>N. callida</i> (Fabricius, 1798) IP Syn. <i>Dorippe astuta</i> Fabricius	+	-		+	-

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Family ETHUSIDAE Guinot, 1977					
	Genus <i>Ethusa</i> Roux, 1830					
48.	<i>E. indica</i> Alcock, 1894 IP	+	+		+	
49.	<i>E. pygmaea</i> Alcock, 1894 IP	+			+	
50.	<i>E. sexdentata</i> (Stimpson, 1858) IP Syn. <i>Ethusa andamanica</i> Alcock	+	+			+
	Genus <i>Ethusina</i> Smith, 1884					
51.	<i>E. desciscens</i> Alcock, 1896 IP Syn. <i>Ethusa (Ethusina) desciscens</i> Alcock	+			+	
	Superfamily ERIPHIOIDEA MacLeay, 1838					
	Family ERIPHIIDAE MacLeay, 1838					
	Subfamily ERIPHIIINAE MacLeay, 1838					
	Genus <i>Eriphia</i> Latreille, 1817					
52.	<i>E. scabricula</i> Dana, 1852 IP	+				+
53.	<i>E. sebana</i> (Shaw and Nodder, 1803) IP Syn. <i>Eriphia laevimana</i> Latreille <i>Eriphia laevimanus</i> Guérin	+	+	+	+	
54.	<i>E. smithi</i> MacLeay, 1838 IP	+			+	
	Family MENIPPIDAE Ortmann, 1893					
	Genus <i>Menippe</i> De Haan, 1833					
55.	<i>Menippe rumphii</i> (Fabricius, 1798) IP Syn. <i>Menippe Bellangeri</i> Milne Edwards	+	+			+
	Genus <i>Myomenippe</i> Hilgendorf, 1879					
56.	<i>M. hardwicki</i> (Gray, 1831) IP	+				+
	Family OZIIDAE Dana, 1851					
	Genus <i>Baptozius</i> Alcock, 1898					
57.	<i>B. vinosus</i> (H. Milne Edwards, 1834) IP	+		+	+	
	Genus <i>Epixanthus</i> Heller, 1861					
58.	<i>E. dentatus</i> (White, 1847) IP	+	+	+	+	
59.	<i>E. frontalis</i> (H. Milne Edwards, 1834) IP	+	+	+	+	
	Genus <i>Lydia</i> Gistel, 1848					
60.	<i>L. annulipes</i> (H. Milne Edwards, 1834) IP	+		+	+	
	Genus <i>Ozius</i> H. Milne Edwards, 1834					
61.	<i>O. rugulosus</i> Stimpson, 1858 IP	+	+			+
62.	<i>O. tuberculosus</i> H. Milne Edwards, 1834 IP		+		+	
63.	<i>O. perlatus</i> Stimpson, 1860 IP	+				+

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Superfamily GONEPLACOIDEA MacLeay, 1838					
	Family ACIDOPSIDAE Števíć, 2005					
	Genus <i>Parapilumnus</i> Kossmann, 1877					
64.	<i>P. indicus</i> Deb, 1987 BB	+			-	+
	Family CHASMOCARCINIDAE Serène, 1964					
	Subfamily CHASMOCARCININAE Serène, 1964					
	Genus <i>Camatopsis</i> Alcock, 1899					
65.	<i>Camatopsis rubida</i> Alcock and Anderson, 1899 IP	+			+	
	Genus <i>Hephthopelta</i> Alcock, 1899					
66.	<i>H. lugubris</i> Alcock, 1899 BB	+			+	
	Family EURYPLACIDAE Stimpson, 1871					
	Genus <i>Eucrate</i> Roux, 1830					
67.	<i>E. crenata</i> De Haan, 1835 IP	+			+	
68.	<i>E. sexdentata</i> Haswell, 1882 IP	+				+
	Family GONEPLACIDAE MacLeay, 1838					
	Subfamily GONEPLACINAE MacLeay, 1838					
	Genus <i>Carcinoplax</i> H. Milne Edwards, 1852					
69.	<i>C. longimana</i> (De Haan, 1835) IP	+			+	
70.	<i>C. longipes</i> (Wood-Mason, 1891) IP	+	+		+	
	Genus <i>Notonyx</i> A. Milne Edwards, 1873					
71.	<i>N. vitreus</i> Alcock, 1900 BB	+			+	
	Genus <i>Psophticus</i> Wood-Mason, 1890					
72.	<i>P. stridulans</i> Wood-Mason, 1892 IP	+	+		+	
73.	<i>P. insignis</i> Alcock, 1900 IP	+				+
	Family MATHILDELLIDAE Karasawa and Kato, 2003					
	Genus <i>Platypilumnus</i> Alcock, 1894					
74.	<i>P. gracilipes</i> Alcock, 1894 IP	+				+
	Family SCALOPIDIIDAE Števíć, 2005					
75.	<i>S. spinosipes</i> Stimpson, 1858 IP	+				+
	Superfamily LEUCOSIOIDEA Samouelle, 1819					
	Family IPHICULIDAE Alcock, 1896					
	Genus <i>Iphiculus</i> Adams and White, 1848					
76.	<i>I. spongiosus</i> Adams and White, 1848 IP	+				+
	Genus <i>Pariphiculus</i> Alcock, 1896					
77.	<i>P. coronatus</i> (Alcock and Anderson, 1894) BB		+			+

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Family LEUCOSIIDAE Samouelle, 1819					
	Sub family EBALIINAE Stimpson, 1871					
	Genus <i>Alox</i> Tan and Ng, 1995					
78.	<i>A. patella</i> (Alcock, 1896) BB Syn. <i>Tlos patella</i> Alcock	+				+
79.	**A. ornatum (Ihle, 1840) IP	+	-	-	-	+
	Genus <i>Arcania</i> Leach, 1817					
80.	<i>A. gracilipes</i> Bell, 1855 IO	+				+
81.	<i>A. gracilis</i> Henderson, 1893 IP Syn. <i>Arcania quinquespinosa</i> Alcock and Anderson		+		+	
82.	<i>A. novemspinosa</i> Adams and White, 1848 IP	+				+
83.	<i>A. septemspinosa</i> (Fabricius, 1793) IP	+				+
84.	<i>A. tuberculata</i> Bell, 1855 IO	+			+	
85.	<i>A. undecimspinosa</i> De Haan, 1841 IP	+			+	
	Genus <i>Dolos</i> Tan and Richer de Forges, 1993					
86.	<i>D. petraeus</i> (A. Milne Edwards, 1874) BB Syn. <i>Tlos petraeus</i> Edwards	+	+			+
	Genus <i>Ebalia</i> Leach, 1817					
87.	<i>E. diadumena</i> Alcock, 1896 BB	+				+
88.	<i>E. glans</i> (Alcock, 1896) BB Syn. <i>Randallia glans</i> Alcock	+				+
89.	<i>E. wood-masoni</i> Alcock, 1896 BB	+	-			+
	Genus <i>Ebaliopsis</i> Ihle, 1918					
90.	<i>E. erosa</i> (A. Milne Edwards, 1873) IO Syn. <i>Ebalia erosa</i> (Edwards)	+			+	
	Genus <i>Heterolithadia</i> Alcock, 1896					
91.	<i>H. fallax</i> (Henderson, 1893) IO	+				+
	Genus <i>Ihleus</i> Ovaere, 1989					
92.	<i>O. lanatus</i> (Alcock, 1896) IP Syn. <i>Randallia lanata</i> Alcock	+	+		+	
	Genus <i>Ixa</i> Leach, 1815					
93.	<i>I. cylindrus</i> (Fabricius, 1793) IP	+	+			+
	Genus <i>Myra</i> Leach, 1817					
94.	<i>M. affinis</i> Bell, 1855 IP	+				+
95.	<i>M. brevimana</i> Alcock, 1896 IP	+				+
96.	<i>M. eudactylus</i> (Bell, 1855) IP Syn. <i>Myrodes eudactylus</i> Bell	+				+
97.	<i>M. fugax</i> (Fabricius, 1798) IP Syn. <i>Myra pentacantha</i> Alcock	+	+		+	

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Genus <i>Myrine</i> Galil, 2001					
98.	<i>M. kessleri</i> (Paulson, 1875) IO Syn. <i>Myra darnleyensis</i> Haswell	+	-	-	-	+
	Genus <i>Nursilia</i> Bell, 1855					
99.	<i>N. dentata</i> Bell, 1855 IO	+	-	-	+	-
100.	<i>N. lar</i> (Fabricius, 1793) IP Syn. <i>Nursilia hardwickii</i> Edwards	+	-	-	-	+
101.	<i>N. tonsor</i> Alcock, 1896 IP	+	-		-	+
	Genus <i>Oreotlos</i> Ihle, 1918					
102.	<i>O. latus</i> (Borradaile, 1903) IO Syn. <i>Tlos latus</i> Borradaile	+		-	+	-
	Genus <i>Philyra</i> Leach, 1817					
103.	<i>P. globus</i> (Fabricius, 1787) IP Syn. <i>Philyra globulosa</i> Edwards	+	-	-	-	+
104.	<i>P. platycheir</i> De Haan, 1841 IP	+	-	-	-	+
105.	* <i>Philyra sagittifera</i> (Fabricius, 1798) IO Syn. <i>Ebalia sagittifera</i> Alcock	+	-	-	-	+
106.	* <i>Philyra scabriuscula</i> (Fabricius, 1798) IO	-	+	-	-	+
	Genus <i>Pseudophilyra</i> Miers, 1879					
107.	<i>P. pusilla</i> Henderson, 1893 IO	+		-	-	+
108.	<i>P. tridentata</i> Miers, 1879 IP	+		-	-	+
109.	<i>P. wood-masoni</i> Alcock, 1896 BB	+	-	-		+
	Genus <i>Tanaöa</i> Galil, 2003					
110.	<i>T. pustulosa</i> (Wood-Mason, in Wood-Mason and Alcock, 1891) IP Syn. <i>Randallia pustulosa</i> Wood-Mason	+	+	-	-	+
	Genus <i>Urashima</i> Galil, 2003					
111.	<i>U. lamellidentata</i> (Wood-Mason, 1892) BB Syn. <i>Randallia lamellidentata</i> Wood-Mason	+	-		-	+
	Subfamily LEUCOSIINAE Samouelle, 1819					
	Genus <i>Coleusia</i> Galil, 2006					
112.	<i>C. biannulata</i> (Tyndale-Biscoe and George, 1962) IO Syn. <i>Leucosia longifrons neocaledonia</i> Alcock	+	-	-	-	+
113.	<i>C. urania</i> (Herbst, 1801) IP Syn. <i>Leucosia urania</i> Herbst	+	-	-	-	+
	Genus <i>Euclosia</i> Galil, 2003					
114.	<i>E. unidentata</i> (De Haan, 1841) IP Syn. <i>Leucosia unidentata</i> De Haan	+			-	+

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Genus <i>Leucosia</i> Weber, 1795					
115.	<i>L. anatum</i> (Herbst, 1783) IP Syn. <i>Leucosia longifrons</i> De Haan	+				+
116.	<i>L. corallicola</i> Alcock, 1896 BB	+				+
117.	<i>L. craniolaris</i> (Linnaeus, 1758) IP Syn. <i>Leucosia pallida</i> Bell <i>Leucosia perlata</i> De Haan	+			+	
118.	<i>L. haswelli</i> Miers, 1886 IP	+				+
119.	<i>L. whitmeei</i> Miers, 1875 IP	+				+
	Genus <i>Seulocia</i> Galil, 2005					
120.	<i>S. marmorea</i> (Bell, 1855) IP Syn. <i>Leucosia marmorea</i> Bell	+				+
121.	<i>S. pubescens</i> (Miers, 1877) IP Syn. <i>Leucosia pubescens</i> Miers	+	+		+	
122.	<i>S. rhomboidalis</i> (De Haan, 1841) IP Syn. <i>Leucosia rhomboidalis</i> De Haan	+	+		+	
123.	<i>S. vittata</i> (Stimpson, 1858) IP Syn. <i>Leucosia vittata</i> Stimpson	+				+
	Genus <i>Tokyo</i> Galil, 2003					
124.	<i>T. eburnea</i> (Alcock, 1896) IP Syn. <i>Randallia eburnea</i> Alcock	+				+
	Genus <i>Urnalana</i> Galil, 2006					
125.	<i>U. cumingii</i> (Bell, 1855) IP Syn. <i>Leucosia cumingii</i> Bell		+			+
126.	<i>U. margaritata</i> (A. Milne Edwards, 1873) IP Syn. <i>Leucosia margaritata</i> Edwards	+				+
127.	<i>U. whitei</i> (Bell, 1855) IP Syn. <i>Leucosia whitei</i> Bell	+				+
	Superfamily MAJOIDEA Samouelle, 1819					
	Family EPIALTIDAE MacLeay, 1838					
	Subfamily EPIALTINAE MacLeay, 1838					
	Genus <i>Huenia</i> De Haan, 1839					
128.	<i>H. heraldica</i> (De Haan, 1837) IP Syn. <i>Huenia proteus</i> De Haan	+				+
	Genus <i>Menaethius</i> H. Milne Edwards, 1834					
129.	<i>M. monoceros</i> (Latreille, 1825) IP	+	+	-	+	
	Genus <i>Simocarcinus</i> Miers, 1879					
130.	<i>S. pyramidatus</i> (Heller, 1861) IO		+			+

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Genus <i>Xenocarcinus</i> White, 1847					
131.	<i>X. tuberculatus</i> White, 1847 IP	+				+
	Subfamily PISINAE Dana, 1851					
	Genus <i>Austrolibinia</i> Griffin, 1966					
132.	<i>A. andamanica</i> (Alcock, 1895) BB Syn. <i>Chlorilibinia andamanica</i> Alcock	+				+
	Genus <i>Doclea</i> Leach, 1815					
133.	<i>D. alcocki</i> Laurie, 1906 IO		+		+	
134.	<i>D. armata</i> De Haan, 1839 IP Syn. <i>Doclea tetraptera</i> Walker	+				+
135.	<i>D. ovis</i> (Fabricius, 1787) IP		+		+	-
136.	<i>D. rissonii</i> Leach, 1815 IP Syn. <i>Doclea gracilipes</i> Stimpson	+				+
	Genus <i>Hyastenus</i> White, 1847					
137.	<i>H. aries</i> (Latreille, 1825) IP	+				+
138.	<i>H. colvarius</i> Alcock, 1895 IO	+				+
139.	<i>H. diacanthus</i> (De Haan, 1839) IP	+				+
140.	<i>H. hilgendorfi</i> De Man, 1888 IP		+			+
141.	<i>H. pleione</i> (Herbst, 1803) IO	+				+
142.	<i>H. sebae</i> White, 1847 IP Syn. <i>Hyastenus oryx</i> A. Milne Edwards	+				+
	Genus <i>Nasutocarcinus</i> Tavares, 1991					
143.	<i>N. cuneus</i> (Wood-Mason, 1891) IP Syn. <i>Oxypleurodon cuneus</i> Wood-Mason <i>Sphenocarcinus cuneus</i> (Wood-Mason)	+				+
	Genus <i>Naxioides</i> A. Milne Edwards, 1865					
144.	<i>N. cerastes</i> (Ortmann, 1894) IP Syn. <i>Naxia cerastes</i> Ortmann	+				+
145.	<i>N. hirtus</i> (A. Milne Edwards, 1865) IP Syn. <i>Naxia hirta</i> Edwards	+			+	
146.	<i>N. investigatoris</i> (Alcock, 1895) BB Syn. <i>Naxia investigatoris</i> Alcock <i>Egeria investigatoris</i> Alcock	+				+
147.	<i>N. taurus</i> (Pocock, 1890) IP Syn. <i>Naxia taurus</i> Pocock	+				+
	Genus <i>Phalangipes</i> Latreille, 1828					
148.	<i>P. hystrix</i> (Miers, 1886) IP Syn. <i>Naxia hystrix</i> Miers	+	+		+	-

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
149.	<i>P. indicus</i> (Leach, 1815) IO Syn. <i>Egeria arachnoids</i> (Rumphius)	+				+
	Genus <i>Rochinia</i> A. Milne Edwards, 1875					
150.	<i>R. beauchampi</i> (Alcock and Anderson, 1894) BB Syn. <i>Anamathia beauchampi</i> Alcock and Anderson <i>Scyramathia beauchampi</i> (Alcock and Anderson)	+				+
151.	<i>R. globulifera</i> (Wood-Mason and Alcock, 1891) BB Syn. <i>Pugettia globulifera</i> , Wood-Mason <i>Scyramathia globulifera</i> Wood-Mason	+	+			+
152.	<i>R. pulchra</i> (Miers, 1886) IP Syn. <i>Scyramathia pulchra</i> , Alcock <i>Anamathia liverorii</i> Wood-Mason	+				+
153.	<i>R. riversandersoni</i> (Alcock, 1895) IP Syn. <i>Scyramathia rivers-andersoni</i> (Alcock)		+			+
	Genus <i>Tylocarcinus</i> Miers, 1879					
154.	<i>T. styx</i> (Herbst, 1803) IP	+			+	
	Subfamily TYCHINAE Dana, 1851					
	Genus <i>Criocarcinus</i> H. Milne Edwards, 1834					
155.	<i>C. superciliosus</i> (Herbst, 1803) IP Syn. <i>Cariocarcinus superciliosus</i> (Herbst)	+				+
	Family HYMENOSOMATIDAE MacLeay, 1838					
	Genus <i>Elamena</i> H. Milne Edwards, 1837					
156.	<i>E. sindensis</i> Alcock, 1900 IO	+			+	
157.	<i>E. truncata</i> (Stimpson, 1858) IP	+	+		+	
	Genus <i>Neorhynchoplax</i> Sakai, 1938					
158.	<i>N. wood-masoni</i> (Alcock, 1900) BB Syn. <i>Hymenicus wood-masoni</i> Alcock	+			+	
	Genus <i>Trigonoplax</i> H. Milne Edwards, 1853					
159.	<i>T. unguiformis</i> (De Haan, 1839) IP Syn. <i>Elamena (Trigonoplax) unguiformis</i> De Haan	+			+	
	Family INACHIDAE MacLeay, 1838					
	Genus <i>Achaeus</i> Leach, 1817					
160.	<i>A. brevirostris</i> (Haswell, 1879) IP Syn. <i>Achaeus affinis</i> Miers	+				+
161.	<i>A. cadelli</i> Alcock, 1895 IP	+				+
162.	<i>A. lacertosus</i> Stimpson, 1857 IP	+				+
163.	<i>A. fissifrons</i> (Haswell, 1879) IP Syn. <i>Achaeus tenuicollis</i> Miers	+				+
	Genus <i>Camposcia</i> Latreille, 1829					
164.	<i>C. retusa</i> Latreille, 1829 IP	+				+

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Genus <i>Cyrtomaia</i> Miers, 1886					
165.	<i>Cyrtomaia goodridgei</i> McArdle, 1900 IP	+	-	-	-	+
166.	<i>Cyrtomaia suhmi</i> Miers, 1884 IP	+	+	-	-	+
	Genus <i>Oncinopus</i> De Haan, 1839					
167.	<i>O. aranea</i> De Haan, 1839 IP	+	-			+
	Genus <i>Paratymolus</i> Miers, 1879					
168.	<i>P. hastatus</i> Alcock, 1895 BB	+	-	-	+	-
	Genus <i>Physachaeus</i> Alcock, 1899					
169.	<i>P. ctenurus</i> Alcock, 1895 BB	+	+	-	-	+
170.	<i>P. tonsor</i> Alcock, 1895 BB	+		-	-	+
	Genus <i>Platymaia</i> Miers, 1886					
171.	<i>P. alcocki</i> Rathbun, 1916 IP	+		-	-	+
172.	<i>P. wyvillethomsoni</i> Miers, 1886 BB	+	+	-	-	+
	Genus <i>Pleistacantha</i> Miers, 1879					
173.	<i>P. moseleyi</i> (Miers, 1886) IP	-	+	-	-	+
174.	<i>P. oryx</i> Ortmann, 1893 IP	+	-	-	-	+
175.	<i>P. pungens</i> (Wood-Mason, 1891) IO Syn. <i>Echinoplax pungens</i> Wood-Mason	+	-	-	-	+
176.	<i>P. rubida</i> (Alcock, 1895) BB Syn. <i>Echinoplax rubida</i> Alcock	+	-	-	-	+
	Genus <i>Sunipea</i> Griffin and Tranter, 1986					
177.	<i>S. indicus</i> (Alcock, 1895) IP Syn. <i>Apocremnus indicus</i> Alcock	+	-	-	-	+
	Family MAJIDAE Samouelle, 1819					
	Subfamily MAJINAE Samouelle, 1819					
	Genus <i>Cyclax</i> Dana, 1851					
178.	<i>C. suborbicularis</i> (Stimpson, 1858) IP	+	-	-	-	+
	Genus <i>Entomonys</i> Miers, 1884					
179.	<i>E. spinosus</i> Miers, 1884 IP Syn. <i>Macrocoeloma nummifer</i> Alcock	+	-	-	-	+
	Genus <i>Maja</i> Lamarck, 1801					
180.	<i>M. gibba</i> (Alcock, 1895) IP Syn. <i>Maia gibba</i> Alcock	+	-	-	-	+
	Genus <i>Prismatopus</i> Ward, 1933					
181.	<i>P. aculeatus</i> (H. Milne Edwards, 1834) IP Syn. <i>Paramithrax aculeatus</i> (Edwards)	+	-	-	-	+
182.	<i>P. longispinus</i> (De Haan, 1839) IP Syn. <i>Paramithrax longispinus</i> (De Haan)	+	-	-	-	+
	Genus <i>Pseudomicippe</i> Heller, 1861					
183.	<i>P. tenuipes</i> A. Milne Edwards, 1865 IO	+	-	-	+	-

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Andaman	Nicobar	Man-grove	Coral	Others
	Genus <i>Schizophrys</i> White, 1848					
184.	<i>S. aspera</i> (H. Milne Edwards, 1834) IP	+			+	
185.	<i>S. dama</i> (Herbst, 1804) IO	+				+
	Subfamily MITHRACINAE MacLeay, 1838					
	Genus <i>Cyphocarcinus</i> A. Milne Edwards, 1868					
186.	<i>C. minutus</i> A. Milne Edwards, 1868 IO	+				+
	Genus <i>Micippa</i> Leach, 1817					
187.	<i>M. margaritifera</i> Henderson, 1893 IP	+				+
188.	<i>M. parca</i> Alcock, 1895 BB	+				+
189.	<i>M. platipes</i> Rüppell, 1830 IP Syn. <i>Micippe hirtipes</i> Rüppell		+			+
190.	<i>M. philyra</i> (Herbst, 1803) IP	+				+
191.	<i>M. thalia</i> (Herbst, 1803) IP	+			-	+
	Genus <i>Tiarinia</i> Dana, 1852					
192.	<i>T. cornigera</i> (Latreille, 1825) IP Syn. <i>Tiarinia verrucosa</i> Heller	+	+			+
	Superfamily PALICOIDEA Bouvier, 1898					
	Family PALICIDAE Bouvier, 1898					
	Genus <i>Neopalicus</i> Moosa and Serène, 1981					
193.	<i>N. jukesii</i> (White, 1847) IP Syn. <i>Palicus jukesii</i> (White)	+				+
	Genus <i>Palicoides</i> Moosa and Serène, 1981					
194.	<i>P. whitei</i> (Miers, 1884) IP Syn. <i>Palicus whitei</i> (Miers)	+				+
	Genus <i>Pseudopalicus</i> Moosa and Serène, 1981					
195.	<i>P. investigatoris</i> (Alcock, 1900) BB Syn. <i>Palicus investigatoris</i> Alcock	+				+
	Genus <i>Rectopalicus</i> Castro, 2000					
196.	<i>R. wood-masoni</i> (Alcock, 1900) BB Syn. <i>Palicus wood-masoni</i> Alcock	+				+
	Superfamily PARTHENOPOIDEA MacLeay, 1838					
	Family PARTHENOPIDAE MacLeay, 1838					
	Subfamily DALDORFIINAE Ng and Rodriguez, 1986					
	Genus <i>Daldorfia</i> Rathbun, 1904					
197.	<i>D. horrida</i> (Linnaeus, 1758) IP Syn. <i>Parthenope horrida</i> Fabricius	+				+
	Genus <i>Thyrolambrus</i> Rathbun, 1894					
198.	<i>T. efflorescens</i> (Alcock, 1895) BB Syn. <i>Parthenope (Parthenomerus) efflorescens</i> Alcock <i>Parthenope efflorescens</i> Alcock	+				+

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Subfamily PARTHENOPINAE MacLeay, 1838					
	Genus <i>Aulacolambrus</i> Paul'son, 1875					
199.	<i>A. curvispinus</i> (Miers, 1879) IP Syn. <i>Lambrus</i> (<i>Aulacolambrus</i>) <i>curvispinis</i> Miers	+	-			+
200.	<i>A. diacanthus</i> (De Haan, 1837) IP Syn. <i>Lambrus</i> (<i>Aulacolambrus</i>) <i>sculptus</i> A. Milne Edwards	+				+
201.	<i>A. hoplonotus</i> (Adams and White, 1848) IP Syn. <i>Lambrus</i> (<i>Aulacolambrus</i>) <i>hoplonotus</i> Adams and White	+			+	
	Genus <i>Cryptopodia</i> H. Milne Edwards, 1834					
202.	<i>C. fornicata</i> Fabricius, 1781 IP	+				+
	Genus <i>Enoplolambrus</i> A. Milne Edwards, 1878					
203.	<i>E. carenatus</i> (H. Milne Edwards, 1834) IP Syn. <i>Lambrus holdsworthii</i> Miers	+				+
	Genus <i>Lambrachaeus</i> , Alcock, 1895					
204.	<i>L. ramifer</i> Alcock, 1895 IP	+				+
	Genus <i>Parthenope</i> Weber, 1795					
205.	<i>P. carinatus</i> (H. Milne Edwards, 1834) IP Syn. <i>Lambrus</i> (<i>Aulacolambrus</i>) <i>whitei</i> A.M. Edwards	+				+
206.	<i>P. longimanus</i> (Linnaeus, 1764) IP Syn. <i>Lambrus longimanus</i> Leach	+	-		+	-
	Genus <i>Pseudolambrus</i> Paul'son, 1875					
207.	<i>P. beaumontii</i> (Alcock, 1895) IP Syn. <i>Lambrus</i> (<i>Parthenolambrus</i>) <i>beaumontii</i> Alcock	+				+
208.	<i>P. calappoides</i> (Adams and White, 1848) IP Syn. <i>Lambrus</i> (<i>Parthenolambrus</i>) <i>calappoides</i> Adams and White	+	-			+
209.	<i>P. harpax</i> (Adams and White, 1848) IP Syn. <i>Lambrus</i> (<i>Parthenolambrus</i>) <i>harpax</i> Adams and White	+			-	+
210.	<i>P. tarpeius</i> (Adams and White, 1848) IP Syn. <i>Lambrus</i> (<i>Parthenolambrus</i>) <i>tarpeius</i> Adams and White	+	-			+
	Genus <i>Rhinolambrus</i> A. Milne Edwards, 1878					
211.	<i>R. contrarius</i> (Herbst, 1796) IP Syn. <i>Lambrus contrarius</i> Herbst	+	-		-	+
212.	<i>R. cybelis</i> (Alcock, 1895) BB Syn. <i>Lambrus</i> (<i>Rhinolambrus</i>) <i>cybelis</i> Alcock	+				+

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
213.	<i>R. lamelliger</i> (White, 1847) IP Syn. <i>Lambrus</i> (<i>Rhinolambrus</i>) <i>gracilis</i> Dana	+				+
214.	<i>R. pelagicus</i> (Rüppell, 1830) IP Syn. <i>Lambrus</i> (<i>Rhinolambrus</i>) <i>pelagicus</i> Rüppell	+				+
215.	<i>R. turriger</i> (White, 1847) IP Syn. <i>Lambrus</i> (<i>Rhinolambrus</i>) <i>turriger</i> Adams and White	+				+
	Superfamily PILUMNOIDEA Samouelle, 1819					
	Family GALENIDAE Alcock, 1898					
	Subfamily PARAPANOPINAE Števcic, 2005					
	Genus <i>Parapanope</i> De Man, 1895					
216.	<i>Parapanope euagora</i> De Man, 1895 IP Syn. <i>Hoploxanthus hextii</i> Alcock <i>Parapanope hextii</i> (Alcock)		+			+
	Family PILUMNIDAE Samouelle, 1819					
	Subfamily EUMEDONINAE Dana, 1854					
	Genus <i>Ceratocarcinus</i> White, 1847					
217.	<i>C. longimanus</i> Adams and White, 1848 IP Genus <i>Echinoecus</i> Rathbun, 1894	+				+
218.	<i>E. pentagonus</i> (A. Milne Edwards, 1879) IP Genus <i>Eumedonus</i> H. Milne Edwards, 1834		+			+
219.	<i>E. zebra</i> Alcock, 1895 IP Genus <i>Harrovia</i> Adams and White, 1848	+				+
220.	<i>H. albolineata</i> Adams and White, 1848 IP	+			+	
221.	<i>H. elegans</i> De Man, 1887 IP Subfamily PILUMNINAE Samouelle, 1819	+				+
	Genus <i>Actumnus</i> Dana, 1851					
222.	<i>A. asper</i> (Rüppell, 1830) IP	+				+
223.	<i>A. dorsipes</i> (Stimpson, 1858) IP Syn. <i>Pilumnus dorsipes</i> Stimpson	+				+
224.	<i>A. fissifrons</i> Alcock, 1898 BB	+				+
225.	<i>A. obesus</i> Dana, 1852 IP	+				+
226.	<i>A. setifer</i> (De Haan, 1835) IP Syn. <i>Actumnus tomentosus</i> Dana	+	+			+
227.	<i>A. squamosus</i> (De Haan, 1835) IP Genus <i>Bathypilumnus</i> Ng and Tan, 1984	+				+
228.	<i>B. sinensis</i> (Gordon, 1931) IP Genus <i>Benthopanope</i> Davie, 1989	+				+
229.	<i>B. indica</i> (De Man, 1888) IP Syn. <i>Pilumnopeus indicus</i> (De Man)	+				+

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Genus <i>Eurycarcinus</i> A. Milne Edwards, 1867					
230.	<i>E. natalensis</i> (Krauss, 1843) IO Syn. <i>Eurycarcinus grandidierii</i> (Edwards)	-	+	-	+	-
231.	<i>E. orientalis</i> A. Milne Edwards, 1867 IO	+		-	-	+
	Genus <i>Glabropilumnus</i> Balss, 1932					
232.	<i>G. granulimanus</i> Miers IP	+	-	-	-	+
	Genus <i>Heteropanope</i> Stimpson, 1858					
233.	<i>H. glabra</i> Stimpson, 1858 IP Syn. <i>Eurycarcinus maculatus</i> (Milne Edwards)	+	-	-	+	
	Genus <i>Heteropilumnus</i> De Man, 1895					
234.	<i>H. ciliatus</i> (Stimpson, 1858) IP	+	-	-	-	+
235.	<i>H. setosus</i> (A. Milne Edwards, 1873) IP	+	-	-	-	+
	Genus <i>Latopilumnus</i> Türkay and Schuhmacher, 1985					
236.	<i>L. guinotae</i> (Deb, 1987) BB Syn. <i>Parapilumnus guinotae</i> Deb	+	-	-	-	+
	Genus <i>Myopilumnus</i> Deb, 1992					
237.	<i>M. andamanicus</i> Deb, 1992 BB	+		+	+	-
	Genus <i>Nanopilumnus</i> Takeda, 1974					
238.	<i>N. barbatus</i> (A. Milne Edwards, 1873) IP	+	-		-	+
239.	<i>N. heterodon</i> (Sakai, 1974) IP Syn. <i>Pilumnus heterodon</i> Sakai	+	+	-	+	-
	Genus <i>Pilumnus</i> Leach, 1815					
240.	<i>P. caerulescens</i> A. Milne Edwards, 1873 IP	+	-	-	-	+
241.	<i>P. cursor</i> A. Milne Edwards, 1873 IP	+	-	+	+	-
242.	<i>P. dorsipes</i> Stimpson, 1858 IP	+	-	-	-	+
243.	<i>P. indicus</i> (Deb, 1987) BB Syn. <i>Parapilumnus indicus</i> Deb	+	-	-	-	+
244.	<i>P. investigatoris</i> Deb, 1987 BB	+	-	-	-	+
245.	<i>P. kempfi</i> Deb, 1987 AS	+	-	-	+	-
246.	<i>P. labyrinthicus</i> Miers, 1884 IO	+	-	-	+	-
247.	<i>P. longicornis</i> Hilgendorf, 1878 IP	+	+	-	+	-
248.	<i>P. minutus</i> De Haan, 1835 IP Syn. <i>Pilumnus hirsutus</i> Stimpson	+	+	-	+	-
249.	<i>P. rotundus</i> Borradaile, 1902 IO	+	-	-	+	-
250.	<i>P. scabriusculus</i> Adams and White, 1848 IP	+	-	-	+	-
251.	<i>P. sluiteri</i> De Man, 1892 IP	+	-	-	-	+
252.	<i>P. vespertilio</i> (Fabricius, 1793). IP	+	+	+	+	-

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Genus <i>Viaderiana</i> Ward, 1942					
253.	<i>V. beaumontii</i> (Alcock, 1900) BB Syn. <i>Heteropilumnus beaumontii</i> Alcock <i>Litochira beaumontii</i> Alcock	+			+	
254.	<i>V. quadrispinosa</i> (Zehntner, 1894) IP Syn. <i>Heteropilumnus quadrispinosa</i> Zehntner <i>Litochira quadrispinosa</i> Zehntner	+			+	
	Subfamily RHIZOPINAE Stimpson, 1858					
	Genus <i>Ceratoplax</i> Stimpson, 1858					
255.	<i>C. ciliata</i> Stimpson, 1858 IP	+			+	
	Genus <i>Pseudolitochira</i> Ward, 1942					
256.	<i>P. integra</i> (Miers, 1884) IP Syn. <i>Heteropilumnus integra</i> (Miers)	+				+
	Genus <i>Typhlocarcinus</i> Stimpson, 1858					
257.	<i>T. nudus</i> Stimpson, 1858 IP	+	+		+	
	Subfamily XENOPHTHALMODINAE Števcic, 2005					
	Genus <i>Xenopthalmodes</i> Richters, 1880					
258.	<i>X. moebii</i> Richters, 1880 IO	+			+	
	Superfamily PORTUNOIDEA Rafinesque, 1815					
	Family PORTUNIDAE Rafinesque, 1815					
	Subfamily CAPHYRINAE Paul'son, 1875					
	Genus <i>Lissocarcinus</i> Adams and White, 1848					
259.	<i>L. laevis</i> Miers, 1886 IP	+				+
260.	<i>L. ornatus</i> Chopra, 1931 BB	+				+
261.	<i>L. polybioides</i> Adams and White, 1848 IP	+				+
	Subfamily CARUPINAE Paul'son, 1875					
	Genus <i>Carupa</i> Dana, 1851					
262.	<i>C. tenuipes</i> Dana, 1851 IP Syn. <i>Carupa laeviuscula</i> Heller	+				+
	Genus <i>Libystes</i> A. Milne Edwards, 1867					
263.	<i>L. alphonsi</i> Alcock, 1900 BB	+			+	
264.	<i>L. edwardsi</i> Alcock, 1900 IP	+			+	
	Subfamily PODOPHTHALMNAE Dana, 1851					
	Genus <i>Podophthalmus</i> Lamarck, 1801					
265.	<i>P. nacreus</i> Alcock, 1899 IP	+				+
	Subfamily POLYBIINAE Ortmann, 1893					
	Genus <i>Benthochascon</i> Alcock and Anderson, 1899					
266.	<i>B. hemingi</i> Alcock and Anderson, 1899 IP	+	+			+
	Genus <i>Parathranites</i> Miers, 1886					
267.	<i>P. orientalis</i> (Miers, 1886) IP	+				+

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Subfamily PORTUNINAE Rafnesque, 1815					
	Genus <i>Lupocyclus</i> Adams and White, 1848					
268.	<i>L. rotundatus</i> Adams and White, 1848 IP	+				+
269.	<i>L. philippinensis</i> Semper, 1880 IP Syn. <i>Lupocyclus strigosus</i> Alcock	+				+
	Genus <i>Portunus</i> Weber, 1795					
	Subgenus <i>Achelous</i> De Haan, 1833					
270.	<i>P. (A.) granulatus</i> (H. Milne Edwards, 1834) IP Syn. <i>Neptunus (Achelous) granulatus</i> (Edwards)	+	+		+	
271.	<i>P. (A.) orbicularis</i> (Richters, 1880) IP Syn. <i>Neptunus (Achelous) orbicularis</i> Richters	+				+
272.	<i>P. (A.) tuberculatus</i> (Stimpson, 1860) IP	+			-	+
	Subgenus <i>Lupocycloporus</i> Alcock, 1899					
273.	<i>P. (L.) gracilimanus</i> (Stimpson, 1858) IP Syn. <i>Neptunus (Lupocycloporus) whitei</i> A. Milne Edwards <i>Neptunus (Lupocycloporus) gracilimanus</i> (Stimpson)	+				+
274.	<i>Portunus (L.) minutus</i> (Shen, 1937) IP	+			+	
	Subgenus <i>Monomia</i> Gistel, 1848					
275.	<i>P. (M.) argentatus argentatus</i> (A. Milne Edwards, 1861) IP Syn. <i>Neptunus (Amphitrite) argentatus</i> (White)	+				+
276.	<i>P. (M.) argentatus glareous</i> (White, 1847) IP Syn. <i>Neptunus (Amphitrite) argentatus</i> var. <i>glareosus</i> Alcock	+				+
	Subgenus <i>Portunus</i> Weber, 1795					
277.	<i>P. (P.) pelagicus</i> (Linnaeus, 1758) IP Syn. <i>Neptunus pelagicus</i> Linnaeus	+		+	+	
278.	<i>P. (P.) sanguinolentus</i> (Herbst, 1803) IP Syn. <i>Neptunus sanguinolentus</i> (Herbst)	+	+	+	+	
	Subgenus <i>Xiphonectes</i> A. Milne Edwards, 1873					
279.	<i>P. (X.) andersoni</i> (De Man, 1887) IO	+				+
280.	<i>P. (X.) brocki</i> (De Man, 1887) IP Syn. <i>Neptunus (Hellenus) brockii</i> De Man	+				+
281.	<i>P. (X.) gracilimanus</i> (Stimpson, 1858) IP	+				+
282.	<i>P. (X.) hastatoides</i> (Fabricius, 1798) IP Syn. <i>Neptunus (Hellenus) hastatoides</i> (Fabricius)	+				+
283.	<i>P. (X.) longispinosus longispinosus</i> (Dana, 1852) IP Syn. <i>Neptunus (Hellenus) longispinosus</i> (Dana)	+				+

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Andaman	Nicobar	Man-grove	Coral	Others
284.	<i>P. (X.) pulchricristatus</i> (Gordon, 1931) IP	+				+
285.	<i>P. (X.) spinipes</i> (Miers, 1886) IP Syn. <i>Neptunus (Hellenus) spinipes</i> Miers	+				+
286.	<i>P. (X.) stephensoni</i> Moosa, 1981 IP Syn. <i>Portunus emarginatus</i> Stephenson and Campbell	+			+	
287.	<i>P. (X.) tenuipes</i> (De Haan, 1835) IP Syn. <i>Neptunus (Hellenus) tenuipes</i> De Haan	+				+
288.	<i>P. (X.) tuberculosus</i> (A. Milne Edwards, 1861) IP Syn. <i>Neptunus (Hellenus) tuberculosus</i> A. Milne Edwards	+				+
	Genus <i>Scylla</i> De Haan, 1833					
289.	<i>S. serrata</i> (Forskål, 1775) IP	+	+	+	+	
	Subfamily THALAMITINAE Paul'son, 1875					
	Genus <i>Charybdis</i> De Haan, 1833					
	Subgenus <i>Charybdis</i> De Haan, 1833					
290.	<i>C. (C.) affinis</i> Dana, 1852 IP	+				+
291.	<i>C. (C.) feriata</i> (Linnaeus, 1758) IP Syn. <i>Charybdis cruciata</i> (Herbst)	+	+		+	
292.	<i>C. (C.) hellerii</i> (A. Milne Edwards, 1867) IP Syn. <i>Charybdis (Goniosoma) merguiensis</i> De Man <i>Charybdis merguiensis</i> De Man	+		+		
293.	<i>C. (C.) miles</i> (De Haan, 1835) IP	+				+
294.	<i>C. (C.) natator</i> (Herbst, 1794) IP	+				+
295.	<i>C. (C.) orientalis</i> Dana, 1852 IP Syn. <i>Goniosoma orientali</i> Dana	+	+	+		
296.	<i>C. (C.) rostrata</i> (A. Milne Edwards, 1861) BB	+				+
	Subgenus <i>Goniohellenus</i> Alcock, 1898					
297.	<i>C. (G.) truncata</i> (Fabricius, 1798) IP	+	+		+	
	Genus <i>Thalamita</i> Latreille, 1829					
298.	<i>T. admete</i> (Herbst, 1801) IP	+	+	+	+	
299.	<i>T. chaptalii</i> (Audouin and Savignyi, 1826) IP	+			+	
300.	<i>T. coeruleipes</i> Homborn and Jacquinot, 1846 IP		+			+
301.	<i>T. crenata</i> (Latreille, 1829) IP	+	+	+	+	
302.	<i>T. danaë</i> Stimpson, 1858 IP	+			-	+
303.	<i>T. exetastica</i> Alcock, 1899 BB	+				
304.	<i>T. gracilipes</i> (A. Milne Edwards, 1873) IP Syn. <i>Thalamonyx gracilipes</i> A. Milne Edwards	+				+
305.	<i>T. integra</i> Dana, 1852 IP	+			+	
306.	<i>T. oculatea</i> Alcock, 1899 IP	+				+

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
307.	<i>T. picta</i> Stimpson, 1858 IP	+				+
308.	<i>T. prymna</i> (Herbst, 1803) IP	+	+	+	+	
309.	<i>T. quadrilobata</i> Miers, 1884 IP	+				+
310.	<i>T. sexlobata</i> Miers, 1886 IP	+				+
311.	<i>T. spinimana</i> Dana, 1852 IP	+				+
312.	<i>T. stimpsoni</i> A. Milne Edwards, 1861 IP	+	+		+	
313.	<i>T. wood-masoni</i> Alcock, 1899 IO	+				+
	Genus <i>Thalamitoides</i> A. Milne Edwards, 1869					
314.	<i>T. tridens tridens</i> A. Milne Edwards, 1869 BB Syn. <i>Thalamita tridens</i> (Edwards) <i>Neothalamita triangularis</i> Deb	+				+
	Superfamily PSEUDOZIOIDEA Alcock, 1898					
	Family PSEUDOZIIDAE Alcock, 1898					
	Genus <i>Pseudozius</i> Dana, 1851					
315.	<i>P. caystrus</i> (Adams and White, 1849) IP	+		-		+
	Superfamily RETROPLUMOIDEA Gill, 1894					
	Family RETROPLUMIDAE Gill, 1894					
	Genus <i>Bathyluma</i> Saint Laurent, 1989					
316.	<i>Bathyluma chuni</i> (Doflein, 1904) BB Syn. <i>Retropluma chuni</i> Doflein	+				+
	Genus <i>Retropluma</i> Gill, 1894					
317.	<i>Retropluma notopus</i> (Alcock and Anderson, 1894) BB Syn. <i>Archaeoplax notopus</i> Alcock and Anderson <i>Ptenoplax notopus</i> Alcock and Anderson	+				+
	Superfamily TRAPEZIOIDEA Miers, 1886					
	Family DOMECIIDAE Ortmann, 1893					
	Genus <i>Domecia</i> Eydoux and Souleyet, 1842					
318.	<i>D. glabra</i> Alcock, 1899 IP	+			+	-
319.	<i>D. hispida</i> Eydoux and Souleyet, 1842 CP	+			+	
	Genus <i>Jonesius</i> Sankarankutty, 1962					
320.	<i>J. triunguiculatus</i> (Borradaile, 1902) IP Syn. <i>Maldivia triunguiculata</i> (Borradaile) <i>Jonesia minuta</i> Sankarankutty	+			+	-
	Family TETRALIDAE Castro, Ng and Ahyong, 2004					
	Genus <i>Tetralia</i> Dana, 1851					
321.	<i>T. cavimana</i> Heller, 1861 IP	+				+
322.	<i>T. glaberrima</i> (Herbst, 1790) IP	+	+	-	+	-

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Family TRAPEZIIDAE Miers, 1886					
	Subfamily CALOCARCININAE Števčić, 2005					
	Genus <i>Sphenomerides</i> Rathbun, 1897					
323.	<i>S. trapezoides</i> (Wood-Mason and Alcock, 1891) IP	+				+
	Subfamily QUADRELLINAE Števčić, 2005					
	Genus <i>Quadrella</i> Dana, 1851					
324.	<i>Q. coronata</i> Dana, 1852 IP	+				+
325.	<i>Q. maculosa</i> Alcock, 1898 IO	+				+
326.	<i>Q. reticulata</i> Alcock, 1898 IP	+			+	
	Subfamily TRAPEZIINAE Miers, 1886					
	Genus <i>Trapezia</i> Latreille, 1825					
327.	<i>T. areolata</i> Dana, 1852 IP Syn. <i>Trapezia areolata</i> Dana <i>Trapezia ferruginea areolata</i> Dana	+	+		+	
328.	<i>T. bidentata</i> (Forskål, 1775) IP Syn. <i>Trapezia ferruginea</i> Latreille	+	+		+	
329.	<i>T. cymodoce</i> (Herbst, 1801) IP Syn. <i>Trapezia coerulea</i> Rüppell	+	+		+	
330.	<i>T. digitalis</i> Latreille, 1828 CP	+			+	
331.	<i>T. guttata</i> Rüppell, 1830 IP	+			+	
332.	<i>T. intermedia</i> Miers, 1886 IP Syn. <i>Trapezia ferruginea intermedia</i> Miers	+			+	
333.	<i>T. rufopunctata</i> (Herbst, 1799) IP Syn. <i>Trapezia maculata</i> (MacLeay)	+				+
	Superfamily XANTHOIDEA MacLeay, 1838					
	Family PSEUDORHOMBILIDAE Alcock, 1900					
	Genus <i>Pseudorhombila</i> H. Milne Edwards, 1837					
334.	<i>P. spinipes</i> Alcock, 1900 BB	+				+
	Family XANTHIDAE MacLeay, 1838					
	Subfamily ACTAEINAE Alcock, 1898					
	Genus <i>Actaea</i> De Haan, 1833					
335.	<i>A. areolatus</i> (Dana, 1852) IP	+				+
336.	<i>A. calculosa</i> (H. Milne Edwards, 1834) IP	+				+
337.	<i>A. jacquilineae</i> Guinot, 1976 IP	+				+
338.	<i>A. peronii</i> (H. Milne Edwards, 1834) IP	+				+
339.	<i>A. savignii</i> (H. Milne Edwards, 1834) IP Syn. <i>Actaea granulata</i> (Audouin)	+				+
340.	<i>A. tuberculosa</i> (Miers, 1884) IP	+				+

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Genus <i>Actaeodes</i> Dana, 1851					
341.	<i>A. hirsutissimus</i> (Rüppell, 1830) IP Syn. <i>Actaea hirsutissima</i> (Rüppell)	+	+		+	
342.	<i>A. tomentosus</i> (H. Milne Edwards, 1834) IP Syn. <i>Actaea tomentosa</i> (Edwards)	+	+	+	+	
	Genus <i>Epiactaea</i> Serène, 1984					
343.	<i>E. bullifera</i> (Alcock, 1898) BB Syn. <i>Actaea bullifera</i> Alcock <i>Actaea nodulosa bullifera</i> Alcock	+				+
344.	<i>E. margaritifera</i> (Odhner, 1925) IP	+				+
345.	<i>E. nodulosa</i> (White, 1848) IP Syn. <i>Actaea nodulosa</i> White	+	-			+
	Genus <i>Forestia</i> Guinot, 1976					
346.	<i>F. depressa</i> (White, 1847) IP Syn. <i>Actaea depressa</i> (White) <i>Actaea parvula</i> De Man	+				+
	Genus <i>Gaillardiiellus</i> Guinot, 1976					
347.	<i>G. orientalis</i> (Odhner, 1925) IP Syn. <i>Actaea rueppellii orientalis</i> Odhner	+				+
348.	<i>G. rueppellii</i> (Krauss, 1843) IP Syn. <i>Actaea rueppellii</i> (Krauss)	+	+			+
	Genus <i>Novactaea</i> Guinot, 1976					
349.	<i>N. michaelsoni</i> (Odhner, 1925) IP Syn. <i>Actaea michaelsoni</i> Odhner	+	+			+
350.	<i>N. pulchella</i> (A. Milne Edwards, 1865) IP Syn. <i>Actaea pulchella</i> Edwards	+				+
	Genus <i>Paractaea</i> Guinot, 1969					
351.	<i>P. garretti</i> (Rathbun, 1906) IP	+				+
352.	<i>P. indica</i> Deb, 1985 BB	+			+	
353.	<i>P. rufopunctata rufopunctata</i> (H. Milne Edwards, 1834) IP Syn. <i>Actaea rufopunctata</i> (Edwards)	+				+
354.	<i>P. sulcata</i> Stimpson, 1860 CP	+				+
355.	<i>P. typica</i> Deb, 1989 BB	+				+
356.	<i>P. tumulosa</i> (Odhner, 1925) IP Syn. <i>Actaea tumulosa</i> Odhner	+			-	+
	Genus <i>Psaumis</i> Kossmann, 1887					
357.	<i>P. cavipes</i> (Dana, 1852) IP Syn. <i>Actaea cavipes</i> (Dana) <i>Actaea fossulata</i> Edwards	+	+		+	-

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Genus <i>Pseudoliomera</i> Odhner, 1925					
358.	<i>P. granosimana</i> (A. Milne Edwards, 1865) IP	+				+
359.	<i>P. helleri</i> (A. Milne Edwards, 1865) IP	+				+
360.	<i>P. lata</i> (Borradaile, 1902) IP Syn. <i>Actaea lata</i> Borradaile	+	+			+
361.	<i>P. speciosa</i> (Dana, 1852) IP Syn. <i>Actaea speciosa</i> (Dana) <i>Actaeodes nodipes</i> Heller	+	+		+	
362.	<i>P. variolosa</i> (Borradaile, 1902) IP Syn. <i>Actaea variolosa</i> Borradaile		+			+
	Genus <i>Serenius</i> Guinot, 1976					
363.	<i>S. andamanicus</i> Deb, 1985 BB	+	+	-		+
	Subfamily CHLORODIELLINEAE Ng and Holthuis, 2007					
	Genus <i>Chlorodiella</i> Rathbun, 1897					
364.	<i>C. cytherea</i> (Dana, 1852) IP Syn. <i>Chlorodius cytherea</i>	+	+			+
365.	<i>C. laevisissimus</i> (Dana, 1852) IP Syn. <i>Chlorodius laevisissima</i> Dana	+	+		+	
366.	<i>C. nigra</i> (Forskål, 1775) IP Syn. <i>Chlorodius niger</i> (Forskål)	+	+		+	
	Genus <i>Cyclodius</i> Dana, 1851					
367.	<i>C. drachi</i> Guinot, 1964 IO Syn. <i>Phymodius darchi</i> Guinot	+	+			+
368.	<i>C. obscurus</i> (Hornbourn and Jacquinet, 1846) IP Syn. <i>Chlorodopsis (Cyclodius) ornata</i> Dana <i>Phymodius ornatus</i> (Dana) <i>Phymodius monticulosus</i> (Dana)	+	+		+	
369.	<i>C. nitidus</i> (Dana, 1852) IP Syn. <i>Phymodius nitidus</i> (Dana) <i>Phymodius sculptus</i> (Edwards)	+	+		+	
370.	<i>C. unguatus</i> (H. Milne Edwards, 1834) IP Syn. <i>Phymodius unguatus</i> (Edwards)	+	+		+	
	Genus <i>Pilodius</i> Dana, 1852					
371.	<i>P. areolatus</i> (H. Milne Edwards, 1834) IP Syn. <i>Chlorodopsis areolata</i> (Edwards)	+	+		+	
372.	<i>P. nigrocrinitus</i> Stimpson, 1858 IP Syn. <i>Chlorodopsis nigrocrinita</i> (Stimpson) <i>Chlorodopsis melanochira</i> Edwards	+	+	+	+	

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda- man	Nico- bar	Man- grove	Coral	Others
373.	<i>P. pilumnoides</i> (White, 1847) IP Syn. <i>Chlorodopsis pilumnoides</i> (White)	+	+		+	-
374.	<i>P. pugil</i> Dana, 1852 IP Syn. <i>Chlorodopsis pugil</i> Dana	+	+		+	-
375.	<i>P. scabriculus</i> Dana, 1852 IP Syn. <i>Chlorodopsis venusta</i> Rathbun	+	+			+
376.	<i>P. spinipes</i> Heller, 1861 IO Syn. <i>Chlorodopsis spinipes</i> (Heller) <i>Chlorodopsis woodmasoni</i> Alcock	+			+	-
	Subfamily CYMOINAE Alcock, 1898					
	Genus <i>Cymo</i> De Haan, 1833					
377.	<i>C. andreossyi</i> (Audouin, 1826) IP	+	+		+	-
378.	<i>C. melanodactylus</i> De Haan, 1833 IP	+				+
379.	<i>C. quadrilobatus</i> Miers, 1884 IO	+				+
	Subfamily ETISINAE Ortmann, 1893					
	Genus <i>Etisus</i> H. Milne Edwards, 1834					
380.	<i>E. anaglyptus</i> H. Milne Edwards, 1834 IP	+				+
381.	<i>E. andamanicus</i> Deb, 1992 BB	+				+
382.	<i>E. dentatus</i> (Herbst, 1785) IP	+			+	
383.	<i>E. electra</i> (Herbst, 1801) IP Syn. <i>Etisodes electra</i> (Herbst) <i>Etisus electra</i> (Herbst)	+	+			+
384.	<i>E. laevimanus</i> Randall, 1840 IP Syn. <i>Chlorodius espinosus</i> (Borradaile)	+			+	
385.	<i>E. utilis</i> Jacquinot, 1852 IP		+			+
	Subfamily EUXANTHINAE Alcock, 1898					
	Genus <i>Euxanthus</i> Dana, 1851					
386.	<i>E. exsculptus</i> (Herbst, 1790) IP Syn. <i>Euxanthus melissa</i> (Herbst)	+				+
387.	<i>E. huonii</i> (Homborn and Jacquinot, 1846) IP Syn. <i>Euxanthus sculptilis</i> Dana	+				+
388.	<i>E. rugosus</i> Miers, 1884 IO	+				+
	Genus <i>Medaeops</i> Guinot, 1967					
389.	<i>M. neglectus</i> (Balss, 1922) IO	+				+
	Subfamily KRAUSSINAE Ng, 1993					
	Genus <i>Palapedia</i> Ng, 1993					
390.	<i>P. integra</i> (De Haan, 1835) IP Syn. <i>Kraussia integra</i> De Haan	+	-	-	+	-
391.	<i>P. nitida</i> Stimpson, 1858 IP Syn. <i>Kraussia nitida</i> Stimpson	+			+	

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Subfamily LIOMERINAE Sakai, 1976					
	Genus <i>Bruciana</i> Serène, 1977					
392.	<i>B. pediger</i> (Alcock, 1898) IP Syn. <i>Liomera pediger</i> Alcock <i>Carpilodes pediger</i> Alcock	+				+
	Genus <i>Liomera</i> Dana, 1851					
393.	<i>L. bella</i> (Dana, 1852) IP Syn. <i>Carpilodes vaillantianus</i> Edwards	+				+
394.	<i>L. cinctimana</i> (White, 1847) IP	+				+
395.	<i>L. laevis</i> (A. Milne Edwards, 1873) IP	+				+
396.	<i>L. monticulosa</i> (A. Milne Edwards, 1873) IP Syn. <i>Carpilodes cariosus</i> Alcock <i>Carpilodes monticulosa</i> Edwards	+				+
397.	<i>L. stimpsoni</i> (A. Milne Edwards, 1865) IP	+				+
398.	<i>L. rugata</i> (H. Milne Edwards, 1834) IP Syn. <i>Carpilodes rugatus</i> Dana	+			+	
399.	<i>L. tristis</i> (Dana, 1852) IP Syn. <i>Carpilodes tristis</i> Dana	+	+		+	
400.	<i>L. venosa</i> (H. Milne Edwards, 1834) IP	+				+
	Genus <i>Neolimera</i> Odhner, 1925					
401.	<i>N. striata</i> Buitendijk, 1941 IP Syn. <i>Neiliomera straita</i> Buitendijk	+				+
	Subfamily POLYDECTINAE Dana, 1851					
	Genus <i>Lybia</i> H. Milne Edwards, 1834					
402.	<i>L. tassellata</i> (Latreille, 1812) IP	+				+
	Subfamily XANTHINAE MacLeay, 1838					
	Genus <i>Demania</i> Laurie, 1906					
403.	<i>D. intermedia</i> Guinot, 1969 IP	+			+	
	Genus <i>Lachnopodus</i> Stimpson, 1858					
404.	<i>L. rodgersi</i> Stimpson, 1858 IP	+				+
405.	<i>L. subacutus</i> (Stimpson, 1858) IP Syn. <i>Xantho bidentatus</i> A. Milne Edwards <i>Xanthias bidentatus</i> (Edwards)	+	+		+	
	Genus <i>Leptodius</i> A. Milne Edwards, 1863					
406.	<i>L. exaratus</i> (H. Milne Edwards, 1834) IP Syn. <i>Xantho (Leptodius) exaratus</i> (Edwards)	+	+	+	+	
407.	<i>L. gracilis</i> (Dana, 1852) IP	+				+
408.	<i>L. nudipes</i> (Dana, 1852) IP Syn. <i>Xantho (Leptodius) nudipes</i> (Dana)	+	+		+	

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
409.	<i>L. sanguineus</i> (H. Milne Edwards, 1834) IP Syn. <i>Xantho</i> (<i>Leptodius</i>) <i>sanguineus</i> (Edwards) <i>Chlorodius sanguineus</i> Milne Edwards	+	+	+	+	-
	Genus <i>Macromedaeus</i> Ward, 1942					
410.	<i>M. crassimanus</i> (A. Milne Edwards, 1867) IO Syn. <i>Leptodius crassimanus</i> Edwards	+				+
411.	<i>M. quinquedentatus</i> (Krauss, 1843) IP Syn. <i>Leptodius euglyptus</i> <i>Leptodius quinquedentatus</i> (Krauss)	+			+	-
	Genus <i>Neoxanthias</i> Ward, 1933					
412.	<i>N. impressus</i> (Lamarck in Milbert, 1812) IP Syn. <i>Xanthias impressus</i> (Lamarck)	+				+
	Genus <i>Neoxanthops</i> Guinot, 1968					
413.	<i>N. lineatus</i> (A. Milne Edwards, 1867) IP Syn. <i>Xanthias lineatus</i>	+				+
	Genus <i>Paraxanthias</i> Odhner, 1925					
414.	<i>P. notatus</i> (Dana, 1852) IP Syn. <i>Xanthias notatus</i> (Dana) <i>Xanthodes notatus</i> Dana <i>Xantho notatus</i> Dana	+	+		+	
	Genus <i>Xanthias</i> Rathbun, 1897					
415.	<i>X. lamarckii</i> (H. Milne Edwards, 1834) IP Syn. <i>Xanthodes lamarckii</i> (Edwards) <i>Xantho lamarckii</i> Milne Edwards <i>Xanthias lamarckii</i> (Milne Edwards)	+	+		+	
416.	<i>X. punctatus</i> (H. Milne Edwards, 1834) IP	+				+
	Subfamily ZALASIINAE Serène, 1968					
	Genus <i>Banareia</i> A. Milne Edwards, 1879					
417.	<i>B. armata</i> A. Milne Edwards, 1869 IP	+				+
418.	<i>B. bengalensis</i> Deb, 1998 BB	+				+
419.	<i>B. kraussi</i> (Heller, 1861) IP	+			+	
	Subfamily ZOSIMINAE Stimpson, 1907					
	Genus <i>Atergatis</i> De Haan, 1835					
420.	<i>A. dilatatus</i> De Haan, 1835 IP	+			+	-
421.	<i>A. floridus</i> (Linnaeus, 1767) IP	+		+	+	-
422.	<i>A. integerrimus</i> (Lamarck, 1801) IP	+	+	+	+	
	Genus <i>Atergatopsis</i> A. Milne Edwards, 1862					
423.	<i>A. amoyensis</i> De Man, 1879 IP Syn. <i>Actaea amoyensis</i> De Man	+				+
424.	<i>A. signata</i> (Adams and White, 1848) IP	+			+	

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Genus <i>Lophozozymus</i> A. Milne Edwards, 1863					
425.	<i>L. anaglyptus</i> (Heller, 1861) IP Syn. <i>Platypodia anaglypta</i> (Heller)	+				+
426.	<i>L. dodone</i> (Herbst, 1801) IP	+				+
	Genus <i>Platypodia</i> Bell, 1835					
427.	<i>P. alcocki</i> Buitendijk, 1941 IP	+				+
428.	<i>P. andamania</i> Deb, 1992 BB	+	+		+	
429.	<i>P. cristata</i> (A. Milne Edwards, 1865) IP	+		+	+	
430.	<i>P. granulosa</i> (Rüppell, 1830) IP	+			+	
431.	<i>P. semigranosa</i> (Heller, 1861) IP Syn. <i>Lophactaea semigranosa</i> Heller	+				+
	Genus <i>Zosimus</i> Leach, 1818					
432.	<i>Z. aeneus</i> (Linnaeus, 1758) IP Syn. <i>Zozymus aeneus</i> (Linnaeus)	+	+		+	
433.	<i>Z. pilosus</i> A. Milne Edwards, 1867 IP Syn. <i>Zozymus pilosus</i> Edwards	+				+
	Genus <i>Zozymodes</i> Heller, 1861					
434.	<i>Z. cavipes</i> (Dana, 1852) IP Syn. <i>Xantho (Leptodius) cavipes</i> (Dana) <i>Leptodius cavipes</i> (Dana)	+	+		+	-
435.	<i>Z. pumilus</i> (Jacquinot, 1852) IP	+			+	
	Subsection HETEROTREMATA Guinot, 1977					
	Superfamily CRYPTOCHIROIDEA Paul'son, 1875					
	Family CRYPTOCHIRIDAE Paul'son, 1875					
	Genus <i>Cryptochirus</i> Heller, 1861					
436.	<i>C. dimorphus</i> Henderson, 1906 BB	+			+	
	Superfamily GRAPSIDOIDEA MacLeay, 1838					
	Family GECARCINIDAE MacLeay, 1838					
	Genus <i>Cardisoma</i> Latreille, 1828					
437.	<i>C. carnifex</i> (Herbst, 1794) IP	+		+	+	
	Genus <i>Discoplax</i> A. Milne Edwards, 1867					
438.	<i>D. hirtipes</i> Dana 1852 IP Syn. <i>Cardisoma hirtipes</i> Dana	+	+	+		
	Genus <i>Epigrapsus</i> Heller, 1862					
439.	<i>E. notatus</i> (Heller, 1865) IP Syn. <i>Grapsodes notatus</i> Heller		+			+
440.	<i>E. politus</i> Heller, 1862 IP Syn. <i>Nectograpsus politus</i> Heller	+	+			+

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Genus <i>Gecarcoidea</i> H. Milne Edwards, 1837					
441.	<i>G. lalandii</i> H. Milne Edwards, 1837 IP Syn. <i>Pelocarcinus humei</i> (Wood-Mason)	+	+	-	-	+
	Family GRAPSIDAE MacLeay, 1838					
	Subfamily GRAPSINAE MacLeay, 1838					
	Genus <i>Geograpsus</i> Stimpson, 1858					
442.	<i>G. crinipes</i> (Dana, 1851) IP	+	+			+
443.	<i>G. grayi</i> (H. Milne Edwards, 1853) IP	+				+
	Genus <i>Grapsus</i> Lamarck, 1801					
444.	<i>G. albolineatus</i> Lamarck, 1818 IP Syn. <i>Grapsus strigosus</i> (Herbst) ? <i>Sesarma strigosus</i> (Herbst)	+	+	+	+	-
445.	<i>G. tenuicrustatus</i> (Herbst, 1783) IP Syn. <i>G. grapsus</i> (Linnaeus, 1758)	+		-		+
	Genus <i>Metopograpsus</i> H. Milne Edwards, 1853					
446.	<i>M. frontalis</i> Miers, 1880 IP	+		+	+	-
447.	<i>M. latifrons</i> (White, 1874) IP Syn. <i>Metopograpsus maculatus</i> Edwards	+				+
448.	<i>M. messor</i> (Forskål, 1775) IP	+		+	+	-
449.	<i>M. oceanicus</i> Jacquinot, 1842-1853 IP	+	+	+	+	-
	Genus <i>Pachygrapsus</i> Randall, 1840					
450.	<i>P. minutus</i> A. Milne Edwards, 1873 IP		+	-	+	-
451.	<i>P. planifrons</i> De Man, 1887 IO		+		+	-
452.	<i>P. plicatus</i> (H. Milne Edwards, 1837) IP	+			-	+
	Family PLAGUSIIDAE Dana, 1851					
	Genus <i>Plagusia</i> Latreille, 1804					
453.	<i>P. depressa</i> (Fabricius, 1775) CP		+	-	-	+
454.	<i>P. squamosa</i> (Herbst, 1790) CP Syn. <i>P. depressa squamosa</i> (Herbst)	+	+			+
455.	<i>P. immaculata</i> (Lamarck, 1818) CP Syn. <i>Plagusia depressa immaculata</i> Lamarck	+	-	-	+	-
	Subfamily PERCNINAE Števíć, 2005					
	Genus <i>Percnon</i> Gistel, 1848					
456.	<i>P. planissimum</i> (Herbst, 1804) IP Syn. <i>Acanthopus planissimus</i> Herbst <i>Liolophus planissimus</i> (Herbst)	+		-	+	
	Family SESARMIDAE Dana, 1851					
	Genus <i>Clistocoeloma</i> A. Milne Edwards, 1873					
457.	<i>C. balansae</i> A. Milne Edwards, 1873 IP		+		-	+
458.	<i>C. merguense</i> De Man, 1888 IP	+	+	+	-	

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Genus <i>Episesarma</i> De Man, 1895					
459.	<i>E. mederi</i> (H. Milne Edwards, 1853) IP Syn. <i>Sesarma taeniolatum</i> White	+		+		
	Genus <i>Geosesarma</i> De Man, 1902					
460.	<i>G. thelxinoë</i> (De Man, 1908) BB Syn. <i>Sesarma thelxinoe</i> Heller	+				+
461.	<i>G. starmühlneri</i> Pretzmann, 1984 BB	+				+
	Genus <i>Labuanium</i> Serène and Soh, 1970					
462.	<i>L. finni</i> (Alcock, 1900) BB Syn. <i>Sesarma finni</i> Alcock	+				+
463.	<i>L. gracilipes</i> (H. Milne Edwards, 1853 in Jacquinot and Lucas, 1854) BB Syn. <i>Sesarma gracilipes</i> Edwards		+			+
464.	<i>L. rotundatum</i> (Hess, 1865) IP Syn. <i>Sesarma oceanicum</i> De Man		+			+
	Genus <i>Metasesarma</i> H. Milne Edwards, 1853					
465.	<i>M. aubryi</i> A. Milne Edwards, 1869 IP	+				+
466.	<i>M. obesum</i> (Dana, 1851) IP Syn. <i>Metasesarma rousseauxii</i> (H. Milne Edwards)	+	+	+		
	Genus <i>Muradium</i> Serène and Soh, 1970					
467.	<i>M. tetragonum</i> (Fabricius, 1798) BB Syn. <i>Sesarma tetragonum</i> (Fabricius)	+		+		
	Genus <i>Nanosesarma</i> Tweedie, 1950					
468.	<i>N. andersoni</i> (De Man, 1887) IO Syn. <i>Sesarma andersoni</i> De Man	+		+		
	Genus <i>Neosarmatium</i> Serène and Soh, 1970					
469.	<i>N. meinerti</i> (De Man, 1887) IP Syn. <i>Sesarma meinerti</i> De Man	+				+
470.	<i>N. indicum</i> (A. Milne Edwards, 1868) IP Syn. <i>Sesarma indica</i> A. Milne Edwards	+				+
	Genus <i>Parasesarma</i> De Man, 1895					
471.	<i>P. pictum</i> (De Haan, 1835) IP	+				+
472.	<i>P. plicatum</i> (Fabricius, 1798) IP Syn. <i>Sesarma quadratum</i> (Fabricius) <i>Sesarma aspera</i> Heller	+	+	+		
	Genus <i>Perisesarma</i> De Man, 1895					
473.	<i>P. bidens</i> (De Haan, 1835) IP Syn. <i>Sesarma bidens</i> (De Haan)	+	+	+		
	Genus <i>Pseudosesarma</i> Serène and Soh, 1970					
474.	<i>P. edwardsi</i> (De Man, 1888) IP Syn. <i>Sesarma edwardsi</i> De Man	+				+

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Genus <i>Sarmatium</i> Dana, 1851					
475.	<i>S. crassum</i> Dana, 1851 IP		+	-		+
	Genus <i>Selatium</i> Serène and Soh, 1970					
476.	<i>S. brockii</i> (De Man, 1887) IP Syn. <i>Sesarma brockii</i> De Man	+				+
477.	<i>S. elongatum</i> (A. Milne Edwards, 1869) IP Syn. <i>Sesarma latifemur</i> Alcock	+			+	-
	Genus <i>Sesarmoides</i> Serène and Soh, 1970					
478.	<i>S. kraussi</i> (De Man, 1888) IO Syn. <i>Sesarma kraussi</i> De Man		+			+
479.	<i>S. longipes</i> (Krauss, 1843) IP Syn. <i>Sesarma longipes</i> Krauss	+		+		-
	Genus <i>Sesarmops</i> Serène and Soh, 1970					
480.	<i>S. intermedim</i> (De Haan, 1835) IP Syn. <i>Sesarma intermedium</i> (De Haan)	+		+		-
	Family VARUNIDAE H. Milne Edwards, 1853					
	Subfamily CYCLOGRAPSIDAE H. Milne Edwards, 1853					
	Genus <i>Metaplex</i> H. Milne Edwards, 1852					
481.	<i>M. crenulata</i> (Gerstaecker, 1856) IP	+		+		
482.	<i>M. distincta</i> H. Milne Edwards, 1852 IO		+	+		
483.	<i>M. elegans</i> De Man, 1888 IP	+		+	-	
	Subfamily THALASSOGRAPSIDAE Davie and Ng, 2007					
	Genus <i>Thalassograpsus</i> Tweedie, 1950					
484.	<i>T. harpax</i> (Hilgendorf, 1892) IO Syn. <i>Brachynotus harpax</i> Hilgendorf	+				+
	Subfamily VARUNINAE H. Milne Edwards, 1853					
	Genus <i>Parapyxidognathus</i> Ward, 1841					
485.	<i>P. deianira</i> (De Man, 1888) BB Syn. <i>Pyxidognathus deianira</i> De Man	+				+
	Genus <i>Pseudograpsus</i> H. Milne Edwards, 1837					
486.	<i>P. setosus</i> (Fabricius, 1798) IP Syn. <i>Pseudograpsus barbata</i> H. Milne Edwards <i>Pseudograpsus barbatus</i> Rumphius		+	-		+
	Genus <i>Ptychognathus</i> Stimpson, 1858					
487.	<i>P. andamanensis</i> Pretzmann, 1984 BB Syn. <i>Ptychognathus glaber andamanensis</i> Pretzmann	+				+

Table-1 : *Cont'd.*

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
488.	<i>P. barbatus</i> (A. Milne Edwards, 1873) IP	+				+
489.	<i>P. dentatus</i> De Man, 1892 BB	+				+
490.	<i>P. onyx</i> Alcock, 1900 BB	+		+		
491.	<i>P. pusilla</i> Heller, 1865 BB		+			+
492.	<i>P. riedelii</i> (A. Milne Edwards, 1868) IP Syn. <i>P. andamanica</i> Alcock <i>P. riedelii pilosus</i> De Man	+				+
	Genus <i>Varuna</i> H. Milne Edwards, 1830					
493.	<i>V. litterata</i> (Fabricius, 1798) IP	+		+		
	Superfamily OCYPODOIDEA Rafinesque, 1815					
	Family CAMPTANDRIIDAE Stimpson, 1858					
	Genus <i>Baruna</i> Stebbing, 1904					
494.	<i>B. socialis</i> Stebbing, 1904 IP Syn. <i>Leipocten sordidulum</i> Kemp	+		+		
	Family DOTILLIDAE Stimpson, 1858					
	Genus <i>Dotilla</i> Stimpson, 1858					
495.	<i>D. myctiroides</i> H. Milne Edwards, 1852 IP	+		+		
496.	<i>D. wichmanni</i> De Man, 1892 IO	+			+	
	Genus <i>Ilyoplax</i> Stimpson, 1858					
497.	<i>I. orientalis</i> (De Man) IP Syn. <i>Tympanomerus orientalis</i> De Man	+				+
	Genus <i>Scopimera</i> De Haan, 1833					
498.	<i>S. globosa</i> De Haan, 1835 IP	+				+
	Family MACROPHTHALMIDAE Dana, 1851					
	Genus <i>Macrophthalmus</i> Latreille, 1829					
	Subgenus <i>Chaenostoma</i> Latreille, 1829					
499.	<i>M. (C.) boscii</i> Audouin, 1826 IP	+			+	
	Subgenus <i>Macrophthalmus</i> Latreille, 1829					
500.	<i>M. (M.) convexus</i> Stimpson, 1854 IP	+		+	+	
501.	<i>M. (M.) telescopicus</i> Owen, 1839 IP Syn. <i>Macrophthalmus verreauxi</i> Edwards	+			+	
	Subgenus <i>Mareotis</i> Barnes, 1967					
502.	<i>M. (M.) depressus</i> Rüppell, 1830 IP	+		+		
503.	<i>M. (M.) pacificus</i> Dana, 1851 IP Syn. <i>Macrophthalmus bicarinatus</i> Heller		+			+
	Family MICTYRIDAE Dana, 1851					
	Genus <i>Mictyris</i> Latreille, 1806					
504.	<i>M. longicarpus</i> Latreille, 1806 IP	+	+	+	+	

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Family OCYPODIDAE Rafinesque, 1815					
	Subfamily OCYPODINAE Rafinesque, 1815					
	Genus <i>Ocypode</i> Weber, 1795					
505.	<i>O. ceratophthalmus</i> (Pallas, 1772) IP Syn. <i>Ocypoda ceratophthalma</i> (Pallas)	+	+	+	-	-
506.	<i>O. cordimanus</i> Latreille, 1818 IP Syn. <i>Ocypoda cordimana</i> Desmarest	+	+			+
507.	<i>O. platytarsis</i> H. Milne Edwards, 1852 IO Syn. <i>Ocypoda platytarsis</i> Edwards	+	+	-	-	+
	Subfamily UCINAE Dana, 1851					
	Genus <i>Uca</i> Leach, 1814					
508.	<i>Uca inversa</i> (Hoffman, 1874) IP Syn. <i>Gelasimus variegatus</i> Heller	+		+		-
509.	<i>U. lactea</i> (De Haan, 1835) IP Syn. <i>Gelasimus annulipes</i> Milne Edwards <i>Uca annulipes</i> Latreille	+	+	+		-
510.	<i>U. tetragonon</i> (Herbst, 1799) IP Syn. <i>Gelasimus tetragonon</i> Herbst	+	+	+	+	
511.	<i>U. vocans</i> (Linnaeus, 1758) IP Syn. <i>Gelasimus vocans</i> Rumphius <i>Uca marionis</i> Desmarest <i>Uca marionis excisa</i> Nobili <i>Uca marionis nitidus</i> Dana	+	+	+		-
512.	<i>U. acuta</i> (Stimpson, 1858) IP	+		+		-
513.	<i>U. dussumieri</i> (H. Milne Edwards, 1852) IP Syn. <i>Uca dubius</i> Stimpson	+	+	+	+	-
514.	<i>U. urvillei</i> (H. Milne Edwards, 1852) IP	-	+	+		-
	Incerta sedis					
515.	<i>U. rubripes</i> Hombron and Jacquinot, 1846 IP Syn. <i>Gelasimus rubripes</i> (Lucas)		+	+		-
	Family XENOPHTHALMIDAE Stimpson, 1858					
	Subfamily XENOPHTHALMINAE Stimpson, 1858					
	Genus <i>Neoxenophthalmus</i> Serène and Umali, 1972					
516.	<i>N. obscurus</i> (Henderson, 1893) BB Syn. <i>Xenophthalmus obscurus</i> Henderson	+			+	-
	Superfamily PINNOTHEROIDEA De Haan, 1833					
	Family PINNOTHERIDAE De Haan, 1833					
	Subfamily PINNOTHERELIINAE Alcock, 1900					
	Genus <i>Tetrias</i> Rathbun, 1898					
517.	<i>T. fischeri</i> (A. Milne Edwards, 1867) IP	+	-	-	+	-

Table-1 : Cont'd.

Sl. No.	Family and species	Islands		Ecosystems		
		Anda-man	Nico-bar	Man-grove	Coral	Others
	Genus <i>Holotheres</i> Ng and Manning, 2003					
518.	<i>H. setnai</i> (Chopra, 1931) BB Syn. <i>Pinnotheres setnai</i> Chopra	+				+
519.	<i>H. villosissimus</i> (Doflein, 1904) IO Syn. <i>Pinnotheres villosissimus</i> Doflein	+			+	
	Genus <i>Pinnotheres</i> Bosc, 1802					
520.	<i>P. purpureus</i> Alcock, 1900 IO	+			+	
	Genus <i>Xanthasia</i> White, 1846					
521.	<i>X. murigera</i> White, 1846 IP	+			+	

Note : 1. Species marked with single asterisk (*) indicates new records either from Andaman or Nicobar Islands and those marked with double asterisk (**) indicate new record from Indian waters.

2. Two freshwater species namely, *Thelphusa wüllerstorffii* (= *Spiralothelphusa wüllerstorffii* (Heller, 1862) and *Thelphusa leschenaudi* Milne Edwards (= *Oziotelphusa aurantia* (Herbst, 1799) belonging to the family Parathelphusidae were recorded from Nicobars by Heller in 1862 and 1865 respectively.

3. Davie (2002) clarified that *Sesarma indica* Heller actually belongs to the genus *Neosarmatium*.

4. Others include sandy, rocky habitats and commensalic forms, also including unrecorded habitats.

5. Abbreviations used : IP = Indo-Pacific; IO = Indian Ocean; BB = Bay of Bengal; AS = Arabian Sea; CP = Cosonopolitan; Syn. = Synonym.

Doubtful species

Six species viz., *Parapilumnus minimus* Deb, *P. littoralis* Deb (Acidopsidae), *Ocypode kulhii*, *O. macrocera* H. Milne Edwards, *O. stimpsoni* Ortmann, 1897, *U. triangularis* (A. Milne Edwards) (Ocypodidae) reported by Heller (1865) and Deb and Rao (1993) from these islands appear to be of doubtful occurrence. So, they are excluded from the present list. Mention may be made that as early in 1910, Alcock casted doubt about the availability of *Paratelphusa* (*Oziotelphusa*) *hydrodromus* (Herbst) (= *Telphusa leschenaudii*, Edw.) in Nicobars as reported by Heller (1865) and Bürger (1894) and opined that if the identification/locality-label was correct it would be "something extraordinary as the species belongs to the Peninsula, Ceylon and the eastern part of the Indo-Gangetic Plain" In 1900, Alcock recorded *Macrophthalmus sulcatus* from Andaman Islands.

However, later on, he stated as *lapsus calami* that the Indian specimens of this species were actually obtained from Gulf of Kachchh and not from the Andamans (Kemp, 1919) and as such, it is also not considered in this work.

Diversity of species

An analysis of the listed 521 species excluding freshwater forms reveals that many of these species have been reported only once and not collected during subsequent surveys. Mention may be made that out of 329 genera (including the 26 freshwater genera) of brachyuran crabs recorded from Indian waters (Dev Roy, unpublished), 68 genera have been recorded exclusively from these islands. Family-wise Xanthidae contains the highest diversity of species (101 species) followed by Portunidae (56) and Leucosidae (50). The family Xanthidae also supports the highest number of genera (37) followed by Leucosidae (22). Out of

the 249 genera recorded herein, 68 genera viz., *Tymolus* (Cyclodorippidae), *Cymonomus* (Cymonomiidae), *Lewindromia*, *Petalomera* (Dromiidae), *Acanthodromia* (Dynomenidae), *Homola*, *Homolax*, *Latreillopsis* (Homolidae), *Latreilla* (Latreillidae), *Lysirude*, *Notopus* (Raninidae), *Aethra* (Aethridae), *Dacryopilumnus* (Dacryopilumnidae), *Daira* (Dairidae), *Baptozius* (Oziidae), *Parapilumnus* (Acidopsidae), *Camatopsis*, *Hephthopelta* (Chasmocarcinidae), *Psopheticus* (Goneplacidae), *Platypilumnus* (Mathildellidae), *Lambdophallus* (Hexapodidae), *Ebaliopsis*, *Ihleus*, *Oreotlos*, *Alox*, *Dolos*, *Urashima*, *Soceulia* (Leucosiidae), *Xenocarcinus*, *Austrolibinia*, *Criocarcinus* (Epialtidae), *Cyrtomaia*, *Physachaeus*, *Platymaia*, *Pleistacantha*, *Sunipea* (Inachidae), *Entomonyx*, *Maja*, *Pseudomicippe*, *Schizophrys*, *Cyphocarcinus*, *Tairinia* (Majidae), *Neopalicus*, *Palicus*, *Rectopalicus* (Palicidae), *Lambrachaeus*, *Parthenope*, *Pseudolambrus* (Parthenopidae), *Ceratocarcinus*, *Echinoecus*, *Latopilumnus*, *Myopilumnus* (Pilumnidae), *Benthochascon*, *Parathranites* (Portunidae), *Sphenomerides* (Trapeziidae), *Pseudorhombilia* (Pseudorhombilidae), *Forestia*, *Psaumis*, *Serenius*, *Palapedia*, *Paraxanthodes* (Xanthidae), *Epigrapsus*, *Gecarcoidea* (Gecarcinidae), *Geosesarma*, *Thalassograpsus* (Sesarmidae), *Tetrias*, *Holotheres* and *Xanthasia* (Pinnotheridae) are known to occur only in Andaman and Nicobar Islands within Indian territorial waters. Among the 57 families including Parathelphusidae reported in this communication, seven families viz., Cyclodorippidae, Cymonomidae, Homolodromiidae, Dacryopilumnidae, Dairidae, Acidopsidae and Pseudorhombilidae occur exclusively in these Islands.

Table 2 : Diversity of brachyuran crabs in Andaman and Nicobar Islands

Family	Genus	Species
Cyclodorippidae	1	2
Cymonomidae	1	1
Dromiidae	7	12

Table 2 : Cont'd.

Family	Genus	Species
Dynomenidae	1	1
Homolodromiidae	1	1
Homolidae	5	5
Latreillidae	1	1
Raninidae	3	4
Aethridae	2	2
Calappidae	3	8
Matutidae	2	3
Atelecyclidae	1	1
Carpilidae	1	2
Dacryopilumnidae	1	1
Dorippidae	3	3
Ethusidae	2	4
Eriphiidae	1	3
Menippidae	2	2
Oziidae	4	7
Acidopsidae	1	1
Chasmocarcinidae	2	2
Euryplacidae	1	2
Goneplacidae	3	5
Mathildellidae	1	1
Scalopiidae	1	1
Iphiculidae	2	2
Leucosiidae	22	50
Epialtidae	13	28
Hymenosomatidae	3	4
Inachidae	9	18
Majidae	9	15
Palicidae	4	4
Parthenopidae	9	19
Galenidae	1	1
Pilumnidae	20	42
Portunidae	12	56
Parathelphusidae	2	2
Pseudoziidae	1	1
Retroplumidae	2	2
Domeciidae	2	3
Tetralidae	1	2
Trapeziidae	3	11
Pseudorhombilidae	1	1
Xanthidae	37	101

Table 2 : Cont'd.

Family	Genus	Species
Cryptochiridae	1	1
Gecarcinidae	4	5
Grapsidae	4	11
Plagusiidae	2	4
Sesarmidae	15	24
Varunidae	6	13
Camptandriidae	1	1
Dotillidae	3	4
Macrophthalmidae	1	5
Mictyridae	1	1
Ocypodidae	2	11
Xenophthalmidae	1	1
Pinnotheridae	4	5
Total : 57	249	523

Out of 57 families recorded from these islands, 27 families, viz., Cyclodorippidae, Cymonomidae, Dynomenidae, Homolodromiidae, Latreillidae, Raninidae, Aethridae, Atelecyclidae, Dacryopilumnidae, Dorippidae, Acidopsidae, Chasmocarcinidae, Euryplacidae, Goneplacidae, Mathildellidae, Scolopididae, Palicidae, Parthenopidae, Pseudoziidae, Retroplumidae, Domeciidae, Pseudorhombilidae, Cryptochiridae, Camptandriidae, Dotillidae, Xenophthalmidae and Pinnotheridae are not represented in Nicobars. Two families namely, Galenidae and Parathelphusidae are also absent from Andaman Islands. From the present study, it is evident that 32 species viz., *Ozius tuberculosus*, *Pariphiculus coronatus*, *Arcania gracilis*, *Philyra scabriuscula*, *Urnalana cumingii*, *Simocarcinus pyramidatus*, *Doclea alcocki*, *D. ovis*, *Hyastenus hilgendorfi*, *Rochini riversandersoni*, *Pleistacantha moseleyi*, *Micippa platipes*, *Parapanope euagora*, *Echinoecus pentagonus*, *Eurycarcinus natalensis*, *Pseudoliomera variolosa*, *Etisus utilis*, *Epigrapsus notatus*, *Pachygrapsus minutus*, *P. plicatus*, *Plagusia depressa*, *Clistocoeloma balansae*, *Labuanium finni*, *L. rotundatum*, *Sarmatium crassum*, *Sesarmoides*

kraussi, *Metaplex distincta*, *Pseudograpsus setosus*, *Ptychognathus pusilla*, *Macrophthalmus (Macrophthalmus) pacificus*, *Uca rubripes* and *Uca urvillei* occur exclusively in Nicobar groups of islands. This may be due to lack of thorough and systematic survey in these islands.

Freshwater crabs have been least explored in these islands. Heller recorded two species, viz., *Thelphusa wüllerstorfi* (= *Spiralothelphusa wüllerstorfi*) and *Thelphusa leschenaudi* Milne Edwards (= *Oziotelphusa aurantia*) as early in 1862 and 1865 respectively (both belonging to the family Parathelphusidae) from Nicobars, but there are no subsequent reports that these two species occur in these islands. However, it may be noted that De Man (1908) described a sesarmid crab, *Geosesarma thelxinoë* from a freshwater stream of Mount Harriet, Port Blair (South Andamans). Later on, from freshwater habitat, Pretzmann (1984) also reported three other species, *Varuna litterata* (Fabricius, 1798) from River Kalimpong at Diglipur (North Andaman), *Labuanium finni* (Alcock, 1900) and *Geosesarma starmühlneri* Pretzmann from wood brook at Bambooflat, North Bay (South Andamans). *L. finni* was also found in a rivulet reaching to Dhanikhari dam. Among these three species, *Labuanium finni* has been recorded after a lapse of 84 years since its description.

Distribution of species

Physiographically Andaman and Nicobar groups of islands are hilly in nature with steep slopes and limited shallow areas but endowed with extensive deep offshore oceanic region while the submerged banks and reefs along with extensive mangrove vegetation and shelf and offshore areas in the Andaman coasts harbour a wide variety of brachyuran species as discussed hereunder.

Out of 521 species under 56 families recorded in this communication (excluding two freshwater species of the family Parathelphusidae), 489 species are distributed in Andaman group of islands

and only 138 species in Nicobar groups while 108 species are common to both the groups of islands. Two species namely, *Drachiella lapillulus* (Alcock, 1896) and *Alox ornatum* (Ihle, 1840) are recorded for the first time from Indian waters besides two other species, *Philyra sagittifera* (Fabricius, 1787) and *P. scabriuscula* are also recorded as new from Andaman and Nicobar Islands respectively.

The present study shows that 397 species are distributed in Indo-Pacific region, 45 species in Indian Ocean and 70 species in Bay of Bengal and 2 species in Arabian Sea. Only 7 species are cosmopolitan in distribution. The distribution of these species in various ecosystems reveals that,

59 species occur in mangroves and 179 in coral reefs while 34 species are common to both the ecosystems. A large number of species (312 species), however, occurs in other oceanic and intertidal ecosystems comprising of sandy, muddy, rocky and grassy habitats. Island-wise distribution of 227 species of crabs presented in Table 3 reveals that 174 species are distributed in South Andamans, 29 in Middle Andamans, 47 in North Andamans, 11 in Little Andaman, 43 in Car Nicobar, 21 in Nancowry, 7 in Trinket and 42 in Great Nicobar Island. The occurrence of maximum number of species (174) in South Andamans may be attributed to larger area with more diverse ecological niches.

Table 3 : Island-wise distribution of crabs

Sl. No.	Family and Species	Andaman group of Islands				Nicobar group of Islands			
		1	2	3	4	5	6	7	8
	Family DROMIIDAE								
1.	<i>Conchoecetes andamanicus</i>	+							
2.	<i>Conchoecetes artificiosus</i>	+			-				-
3.	<i>Cryptodromia fallax</i>			+				-	-
4.	<i>Lauridromia dehaani</i>							-	+
5.	<i>Petalomera granulata</i>	+							+
	Family HOMOLIDAE								
6.	<i>Lamoha longipes</i>								+
	Family RANINIDAE								
7.	<i>Lysirude channeri</i>	+							
8.	<i>Notopus dorsipes</i>	+	-						
	Family AETHRIDAE								
9.	<i>Aethra scruposa</i>	+	-					-	
	Family CALAPPIDAE								
10.	<i>Calappa hepatica</i>	+							
11.	<i>Calappa japonica</i>	+							
12.	<i>Calappa lophos</i>	+							
13.	<i>Calappa philargius</i>	+							
14.	<i>Mursia bicristimana</i>			-					+
	Family MATUTIDAE								
15.	<i>Ashtoret lunaris</i>			+				-	
16.	<i>Matuta planipes</i>			+			-		-
17.	<i>Matuta victor</i>	+				+			

Table 3 : Cont'd.

Sl. No.	Family and Species	Andaman group of Islands				Nicobar group of Islands			
		1	2	3	4	5	6	7	8
	Family CARPILIDAE								
18.	<i>Carpilius maculatus</i>		+		-				+
19.	<i>Carpilius convexus</i>		+						+
	Family ETHUSIDAE								
20.	<i>Ethusa sexdentata</i>								+
	Family ERIPHIIDAE								
21.	<i>Eriphia sebana</i>	+		+		+		+	+
22.	<i>Eriphia smithi</i>	+							
23.	<i>Lydia annulipes</i>	+							
	Family OZIIDAE								
24.	<i>Baptozius vinosus</i>	+	+						
25.	<i>Epixanthus dentatus</i>	+					+		
26.	<i>Epixanthus frontalis</i>	+	+	+			+		
	Family GONEPLACIDAE								
27.	<i>Carcinoplax longipes</i>								+
28.	<i>Psopheticus stridulans</i>								+
	Family IPHICULIDAE								
29.	<i>Pariphiculus coronatus</i>								+
	Family LEUCOSIDAE								
30.	<i>Arcania gracilis</i>								+
31.	<i>Arcania undecimspinosa</i>						+		
32.	<i>Ihleus lanata</i>								+
33.	<i>Myra affinis</i>						+		
34.	<i>Myra fugax</i>	+							+
35.	<i>Leucosia craniolaris</i>	+							
36.	<i>Seulocia rhomboidalis</i>								+
37.	<i>Oreotlos latus</i>	+							
38.	<i>Nursilia dentata</i>	+							
39.	<i>Tanoa pustulosa</i>								+
40.	<i>Urnalana cumingii</i>						+		
41.	<i>Urnalana margaritata</i>	+							
	Family EPIALTIDAE								
42.	<i>Doclea alcocki</i>								+
43.	<i>Doclea ovis</i>								+
44.	<i>Menaethius monoceros</i>	+				+			
45.	<i>Nasutocarcinus cuneus</i>	+							
46.	<i>Phalangipus hystrix</i>								+
47.	<i>Rochinia globulifera</i>								+

Table 3 : Cont'd.

Sl. No.	Family and Species	Andaman group of Islands				Nicobar group of Islands			
		1	2	3	4	5	6	7	8
	Family HYMENOSOMATIDAE								
48.	<i>Elamena truncata</i>	+			-	+	-		-
49.	<i>Trigonoplax unguiformis</i>	+			-	-	-		-
	Family INACHIDAE								
50.	<i>Achaeus cadelli</i>	+			-				-
51.	<i>Achaeus lacertosus</i>	+						-	-
52.	<i>Camposcia retusa</i>			+		-			
53.	<i>Cyrtomaia suhmi</i>					-		-	+
54.	<i>Paratymolus hastatus</i>	+				-			-
55.	<i>Physachaeus ctenurus</i>						-		+
56.	<i>Platymaia wyvillethomsoni</i>								+
57.	<i>Pleistacantha moseleyi</i>				-	-			+
	Family MAJIDAE								
58.	<i>Cyphocarcinus minutus</i>	+		-	-			-	-
59.	<i>Pseudomicippe tenuipes</i>	-			-	+	-		
60.	<i>Schizophrys aspera</i>					+			-
61.	<i>Tiarinia cornigera</i>					+			
62.	<i>Tylocarcinus styx</i>	+				-			-
	Family PARTHENOPIDAE								
63.	<i>Daldorfia horrida</i>	+							
64.	<i>Aulacolambrus hoplonotus</i>	+	-						-
	Family PILUMNIDAE								
65.	<i>Actumnus dorsipes</i>	+						-	
66.	<i>Actumnus fissifrons</i>	+							
67.	<i>Actumnus setifer</i>	+			+		+	-	
68.	<i>Eurycarcinus natalensis</i>	+		-					
69.	<i>Heteropanope glabra</i>	+					-		
70.	<i>Myopilumnus andamanicus</i>	+				-		-	-
71.	<i>Nanopilumnus barbatus</i>	-		+					
72.	<i>Nanopilumnus heterodon</i>					+	+		-
73.	<i>Pilumnus caeruleus</i>	+						-	
74.	<i>Pilumnus cursor</i>	+							
75.	<i>Pilumnus longicornis</i>	+							
76.	<i>Pilumnus minutus</i>	+						-	+
77.	<i>Pilumnus rotundus</i>	+							
78.	<i>Pilumnus scabriusculus</i>	+							
79.	<i>Pilumnus vespertilio</i>	+	+	+		+		+	+
80.	<i>Typhlocarcinus nudus</i>	+					+		-

Table 3 : Cont'd.

Sl. No.	Family and Species	Andaman group of Islands				Nicobar group of Islands			
		1	2	3	4	5	6	7	8
	Family PORTUNIDAE								
81.	<i>Benthochascon hemingi</i>								+
82.	<i>Charybdis (Charybdis) feriata</i>	+							+
83.	<i>Charybdis (Charybdis) helleri</i>	+	+						
84.	<i>Charybdis (Charybdis) orientalis</i>	+				+			
85.	<i>Charybdis (Charybdis) rostrata</i>	+							
86.	<i>Charybdis (Goniohellenus) truncata</i>	+							+
87.	<i>Portunus (Achelous) orbicularis</i>	+							
88.	<i>Portunus (Achelous) tuberculosus</i>	+							
89.	<i>Portunus (Lupocycloporus) minutus</i>	+							
90.	<i>Portunus (Portunus) pelagicus</i>	+		+					
91.	<i>Portunus (Portunus) sanguinolentus</i>	+							
92.	<i>Portunus (Xiphonectes) stephensoni</i>	+			-				
93.	<i>Scylla serrata</i>	+	+	+	+	+			
94.	<i>Thalamita admete</i>	+	+			+			
95.	<i>Thalamita chaptalii</i>	+							
96.	<i>Thalamita crenata</i>	+	+	+					+
97.	<i>Thalamita exetastica</i>	+							
98.	<i>Thalamita integra</i>	+							
99.	<i>Thalamita prymna</i>	+	+	+					
100.	<i>Thalamita stimpsoni</i>								+
101.	<i>Thalamita oculaea</i>	+							
102.	<i>Podophthalmus</i> sp.	+							
	Family DOMECEIIDAE								
103.	<i>Domecia hispida</i>	+			+				
104.	<i>Jonesius triunguiculatus</i>	+							
	Family TETRALIDAE								
105.	<i>Tetralia glaberrima</i>	+							
	Family TRAPEZIIDAE								
106.	<i>Sphenomerides trapezoides</i>	+							
107.	<i>Trapezia areolata</i>	+							
108.	<i>Trapezia bidentata</i>	+							
109.	<i>Trapezia cymodoce</i>	+							
110.	<i>Trapezia intermedia</i>	+							
	Family XANTHIDAE								
111.	<i>Actaeodes hirsutissimus</i>	+				+			
112.	<i>Actaeodes tomentosus</i>	+				+			
113.	<i>Atergatis dilatatus</i>	+							
114.	<i>Atergatis floridus</i>	+	+	+					

Table 3 : Cont'd.

Sl. No.	Family and Species	Andaman group of Islands				Nicobar group of Islands			
		1	2	3	4	5	6	7	8
115.	<i>Atergatis integerrimus</i>	+							+
116.	<i>Atergatopsis signata</i>	+							-
117.	<i>Banareia armata</i>	+							
118.	<i>Banareia kraussi</i>	+							-
119.	<i>Chlorodiella laevis</i>	+				+			
120.	<i>Chlorodiella nigra</i>	+		+			+		+
121.	<i>Cyclodius drachi</i>	+						+	-
122.	<i>Cyclodius nitidus</i>	+				+			+
123.	<i>Cyclodius obscurus</i>	+							-
124.	<i>Cyclodius unguatus</i>	+				+			-
125.	<i>Cymo andreossi</i>	+							
126.	<i>Cymo melanodactylus</i>	+	-	+					
127.	<i>Cymo quadrilobatus</i>				+				
128.	<i>Epiactaea margaritifera</i>			+					
129.	<i>Etisus anaglyptus</i>	+							
130.	<i>Etisus dentatus</i>	+	-	+	-				
131.	<i>Etisus laevimanus</i>	+		+	-		-	-	-
132.	<i>Euxanthus exsculptus</i>	+		+		-			
133.	<i>Gaillardiiella rueppelli</i>					+	-		
134.	<i>Lachnopus rodgersi</i>	+			-	-			
135.	<i>Lachnopus subacutus</i>	+		-		-	-	+	-
136.	<i>Leptodius exaratus</i>	+		+		+	-		
137.	<i>Leptodius gracilis</i>	+				-			
138.	<i>Leptodius nudipes</i>	+				+	-		
139.	<i>Leptodius sanguineus</i>	+		+	+	+	+	+	
140.	<i>Liomera bella</i>								+
141.	<i>Liomera monticulosa</i>						+		
142.	<i>Liomera rugata</i>	+		+					-
143.	<i>Liomera stimpsoni</i>	+	-						
144.	<i>Liomera tristis</i>	+				-			-
145.	<i>Liomera venosa</i>	+							
146.	<i>Macromedaeus crassimanus</i>	+		+				-	-
147.	<i>Neoxanthius impressus</i>	+		-					-
148.	<i>Novactaea michaelsoni</i>					-	+		
149.	<i>Palapedia integra</i>	+					-		
150.	<i>Paractaea indica</i>	+		-	-	+	-	-	
151.	<i>Paraxanthias notatus</i>	+		+		+	-	-	
152.	<i>Pilodius areolatus</i>	+					-	-	
153.	<i>Pilodius nigrocrinitus</i>	+	+		-	-	+	+	

Table 3 : *Cont'd.*

Sl. No.	Family and Species	Andaman group of Islands				Nicobar group of Islands			
		1	2	3	4	5	6	7	8
154.	<i>Pilodius pilumnoides</i>					+			
155.	<i>Pilodius pugil</i>	+					+		
156.	<i>Pilodius scabriculus</i>	+					+		
157.	<i>Pilodius spinipes</i>	+		+					
158.	<i>Platypodia anaglypta</i>	+							
159.	<i>Platypodia andamanica</i>	+							
160.	<i>Platypodia cristata</i>	+							
161.	<i>Platypodia granulosa</i>	+							
162.	<i>Psaumis cavipes</i>	+				+	+		
163.	<i>Pseudoliomera lata</i>						+		
164.	<i>Pseudoliomera speciosa</i>	+							
165.	<i>Pseudoliomera variolosa</i>						+		
166.	<i>Serenius andamanicus</i>	+							+
167.	<i>Xanthias lamarckii</i>	+		+		+			
168.	<i>Zosimus aeneus</i>	+		+			+	+	+
169.	<i>Zosimus pilosus</i>	+							
170.	<i>Zozymodes cavipes</i>			+		+			
171.	<i>Zozymodes pumilus</i>	+							
	Family GECARCINIDAE								
172.	<i>Cardisoma carnifex</i>	+	-	+		+			
173.	<i>Cardisoma hirtipes</i>	+				+			
174.	<i>Epigrapsus politus</i>	+							
	Family GRAPSIDAE								
175.	<i>Grapsus albolineatus</i>	+	+	+	+	+			+
176.	<i>Geograpsus crinipes</i>	+							
177.	<i>Geograpsus grayi</i>	+				+			
178.	<i>Grapsus tenuicrustatus</i>	+							
179.	<i>Metopograpsus frontalis</i>	+	+	+	+	+			
180.	<i>Metopograpsus oceanicus</i>	+							
181.	<i>Pachygrapsus minutus</i>					+			
	Family PLAGUSIIDAE								
182.	<i>Plagusia immaculata</i>		+			+			
183.	<i>Plagusia squamosa</i>	+							
184.	<i>Percnon planissimum</i>	+				+			
	Family SESARMIDAE								
185.	<i>Clistocoeloma merguiense</i>	+	+						
186.	<i>Episesarma mederi</i>	+							
187.	<i>Geosesama starmühlneri</i>	+							
188.	<i>Geosesama thelxinoë</i>	+	+	-					

Table 3 : Cont'd.

Sl. No.	Family and Species	Andaman group of Islands				Nicobar group of Islands			
		1	2	3	4	5	6	7	8
189.	<i>Labuanium finni</i>	+							
190.	<i>Metasesarma aubryi</i>								+
191.	<i>Metasesarma obesum</i>	+		+		+			-
192.	<i>Muradium tetragonum</i>	+					-	-	-
193.	<i>Nanosesarma andersoni</i>		+					-	-
194.	<i>Neosarmatium indicum</i>	+		-	-				-
195.	<i>Parasesarma plicatum</i>	+	+	+		-		-	-
196.	<i>Perisesarma bidens</i>	+	+	+	+	+			-
197.	<i>Pseudosesarma edwardsi</i>	+							
198.	<i>Selatium brockii</i>	+							-
199.	<i>Selatium elongatum</i>			+			+	-	
200.	<i>Sesarmoides longipes</i>	+	+	+		+			-
201.	<i>Sesarmops intermedium</i>	+		+		+			
	Family VARUNIDAE								
202.	<i>Metaplax crenulata</i>	+	+						-
203.	<i>Metaplax distincta</i>	+	+	+					
204.	<i>Metaplax elegans</i>		+		-		-		-
205.	<i>Parapyxidognathus deianira</i>			+				-	-
206.	<i>Ptychognathus barbata</i>	+	-	+	-				-
207.	<i>Ptychognathus dentatus</i>	+		-	-				
208.	<i>Ptychognathus pusilla</i>	+		+					
209.	<i>Thalassograpsus harpax</i>	+		-				-	
210.	<i>Varuna litterata</i>	+		+		+			
	Family CAMPTANDRIIDAE								
211.	<i>Baruna socialis</i>	+			-				
	Family DOTILLIDAE								
212.	<i>Dotilla myctiroides</i>	+	-	+					
213.	<i>Dotilla wichmanni</i>	+							
	Family MACROPHTHALMIDAE								
214.	<i>Macrophthalmus (Macrophthalmus) convexus</i>	+							
215.	<i>Macrophthalmus (Macrophthalmus) telescopicus</i>	+					-		
216.	<i>Macrophthalmus (Mareotis) depressus</i>	+	+						
	Family MICTYRIDAE								
217.	<i>Mictyris longicarpus</i>	+		+		-			+
	Family OCYPODIDAE								
218.	<i>Ocypode ceratophthalma</i>	+		+					+
219.	<i>Ocypode cordimana</i>		+		-				
220.	<i>Ocypode platytarsis</i>	+				+			

Table 3 : Cont'd.

Sl. No.	Family and Species	Andaman group of Islands				Nicobar group of Islands			
		1	2	3	4	5	6	7	8
221.	<i>Uca acutus</i>	+							
222.	<i>Uca dussumieri</i>	+	+		+				
223.	<i>Uca lactea</i>	+	+		+	+			
224.	<i>Uca tetragonon</i>	+		+					
225.	<i>Uca vocans</i>	+	+	+	+	+	+		+
	Family PINNOTHERIDAE								
226.	<i>Tetrias fischeri</i>	+							
227.	<i>Holotheres villosissimus</i>	+							
	Total number of crab species : 227	174	29	47	11	43	21	7	42

1 = South Andamans 2 = Middle Andamans 3 = North Andamans 4 = Little Andaman 5 = Car Nicobar
6 = Nancowry 7 = Trinket 8 = Great Nicobar.

Note : 1. South Andamans include Aberdeen Bay, Bambooflat, Carbyn's Cove, Chidyatapu, Guptapara, Manjeri, North Bay, Rangachang, Sippighat, Kadakachang, Wandoor, Wright Myo, Rutland Island, Baratang Island, Neil Island, Havelock Island, Peel Island, North and Middle and South Button Islands and Barren Island. 2. Middle Andamans include Uttara jetty, Nimbutala jetty, Bakultala, Panchabati, Betapur, Pitcher Nallah, Austin 9, Yereta jetty and Mayabandar. 3. North Andamans include Carlew Island, Diglipur, Alexandra Island, Stewart Island and Interview Island
2. Based on 227 species of crabs for which island-wise distribution is available.
3. Species within families are arranged alphabetically.

Bathymetric distribution :

Data on bathymetric distribution of crab species as no bathymetric study has been undertaken from these islands are very meagre and available especially from deep waters after the expeditions for a limited number of species only (86 species) of R. I. M. S. 'Investigator' and "Valdivia"

Table 4 : Bathymetric distribution of brachyuran species from Andaman and Nicobar Islands.

Depth (m)	Species
Narrow depth range species (within 300m)	
Tide marks to 50	<i>Cryptodromia pileifera</i> , <i>Dromidiopsis cranioides</i> , <i>Latreillopsis bispinosa</i> , <i>Eriphia sebana</i> , <i>Baptozius vinosus</i> , <i>Epixanthus dentatus</i> , <i>E. frontalis</i> , <i>Lydia annulipes</i> , <i>Urnalana margaritata</i> , <i>Huenia heraldica</i> , <i>Pseudolambrus tarpeius</i> , <i>Actumnus setifer</i> , <i>Myopilumnus andamanicus</i> , <i>Nanopilumnus heterodon</i> , <i>Pilumnus vespertilio</i> , <i>Lupocyclus strigosus</i> , <i>Domacia hispida</i> , <i>Cymo quadrilobatus</i> , <i>Etisus electra</i> , <i>Palapedia nitida</i> , <i>Bruciana pediger</i> , <i>Liomera monticulosa</i> , <i>Leptodius exaratus</i> , <i>L. sanguineus</i> , <i>Atergatis floridus</i> , <i>A. integerrimus</i> , <i>Platypodia cristata</i> , <i>Neoxenophthalmus obscurus</i> .
51-200	<i>Acanthodromia margarita</i> , <i>Homola orientalis</i> , <i>Latreillopsis bispinosa</i> , <i>Carpilius convexus</i> , <i>C. maculatus</i> , <i>Carcinoplax longimana</i> , <i>Notonyx vitreus</i> , <i>Alox ornatum</i> , <i>Arcania undecimspinosus</i> , <i>Ebalia glans</i> , <i>Ihleus lanata</i> , <i>Myra brevimana</i> , <i>Nursilia</i>

Table 4 : Cont'd.

Depth (m)	Species
	<i>tonsor</i> , <i>Naxioides taurus</i> , <i>Phalangipes hystrix</i> , <i>Sunipea indicus</i> , <i>Neopalicus jukesii</i> , <i>Thyrolambrus efflorescens</i> , <i>Pseudolambrus beaumontii</i> , <i>Rhinolambrus cybelis</i> , <i>Harrovia elegans</i> , <i>Ceratoplax ciliata</i> , <i>Lupocyclus rotundatus</i> , <i>Portunus (Monomia) argentatus glareosus</i> , <i>Paractaea rufopunctata rufopunctata</i> .
201-500	<i>Lysirude channeri</i> , <i>Ethusa indica</i> , <i>Ethusa pygmaea</i> , <i>Ethusina desciscens</i> , <i>Camatopsis rubida</i> , <i>Platypilumnus gracilipes</i> , <i>Pariphiculus coronatus</i> , <i>Tanaoa pustulosa</i> , <i>Nasutocarcinus cuneus</i> , <i>Rochinia globulifera</i> , <i>Physachaeus tonsor</i> , <i>Pleistacantha moseleyi</i> , <i>Pleistacantha pungens</i> , <i>Maja gibba</i> .
501-800	<i>Urashima lamellidentata</i> , <i>Cyrtomaia suhmi</i> .
801-1100	<i>Lamoha longipes</i> , <i>Hepthopelta lugubris</i> .
Wide depth range species (above 300m)	
100-800	<i>Tymolus glaucommus</i> , <i>Dicranodromia baffini</i> , <i>Homolax megalops</i> , <i>Carcinoplax longipes</i> , <i>Psopheticus stridulans</i> , <i>Dolos petraeus</i> , <i>Physachaeus ctenurus</i> , <i>Platymaia wyville-thomsoni</i> , <i>Pleistacantha rubida</i> , <i>Benthochascon hemingi</i> , <i>Retropluma chuni</i> , <i>Sphenomerides trapezoides</i> .
200-1100	<i>Ethusa sexdentata</i> , <i>Hepthopelta lugubris</i> , <i>Rochinia pulchra</i> .
500-1100	<i>Paromolopsis boasi</i> .

● Based on Alcock (1900), Doflein (1904) and author's observations in the intertidal areas

Zonation of species

The zonation pattern of various crabs especially those of the mangrove ecosystem of the Andaman Islands as studied by Das and Dev Roy (1989) and Das (1996) has been further evaluated hereunder. It has been observed that the mangrove crabs of these islands broadly fall under 10 groups which have been shown schematically in Fig. 1. The result is as follows :

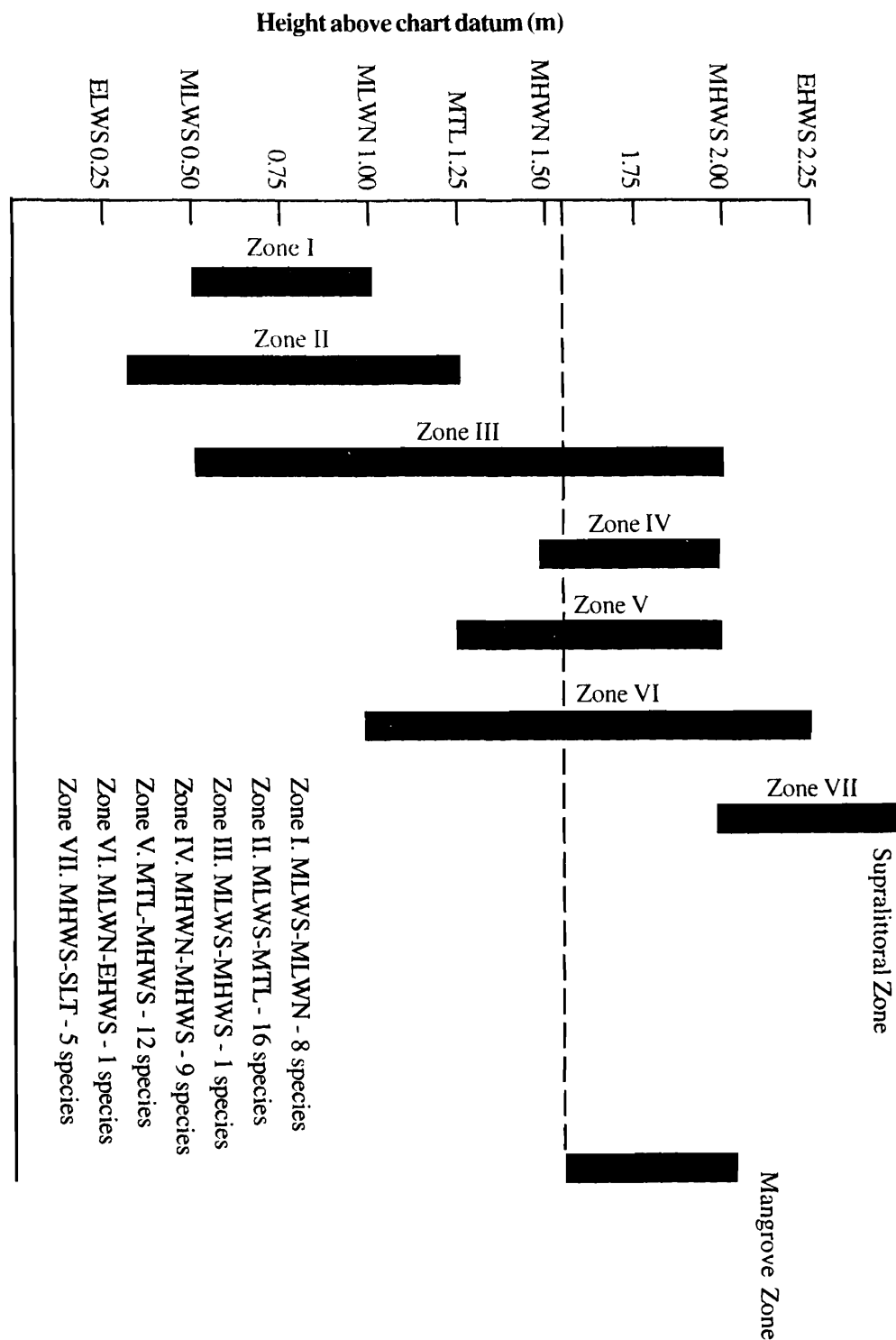
Zone I. Low Tide Level (LTL) : Low tide species are represented mostly by swimmers. Eight species are found in this zone. Except, *Carpilius convexus*, *C. maculatus* and *Metaplex crenulata*, the remaining species viz., *Matuta planipes*, *Ashtoret lunaris*, *Portunus (Portunus) pelagicus*, *P. (P.) sanguinolentus* and *Charybdis (Charybdis) merguensis* are swimming crabs migrating up and down along with high tide water.

Zone II. Mid to Low Tide Level (MTL-LTL) : Sixteen species occur in this zone. Four species

of swimming crabs viz., *Thalamita admete*, *T. crenata*, *T. prymna* and *Charybdis (Charybdis) orientalis*, all belonging to the family Portunidae are found in this zone. Two burrowing species viz., *Uca vocans* and *Macrophthalmus (Mareotis) depressus* inhabits this zone. Ten species viz., *Actaeodes tomentosus*, *Atergatis floridus*, *A. integerrimus*, *Platypodia cristata*, *Leptodius exaratus*, *L. sanguineus*, *Pilodius nigrocrinitus*, *Pilumnus vespertilio*, *Lydia annulipes* and *Eriphia laevimana* belonging to the families Xanthidae, Pilumnidae and Eriphiidae are also found here.

Zone III. Low Tide Level to High Tide Level (LTL-HTL) : This zone is represented by a single species, *Scylla serrata* which is both a burrower and a swimmer.

Zone IV. Mid Tide Level to Mean Low Water Spring (MTL-MLWS) : This zone is inhabited by a single species *Macrophthalmus (Macrophthalmus) convexus* which is a burrower.

Fig. 1 : Schematic representation of vertical distribution of brachyuran crabs in mangroves of Andaman Islands.

Zone V. High Tide Level to Mean High Water Neap (HTL-MHWN) : Two species viz., *Uca dussumieri* and *Metaplex elegans* occur in this zone. Both the species are burrowers.

Zone VI. High Tide Level (HTL) : This zone is inhabited by four species viz., *Dotilla myctiroides*, *Mictyris longicarpus*, *Baruna socialis* and *Clistocoeloma merguense*.

Zone VII. Mid Tide Level to High Tide Level : Three species of eriphiid crabs such as, *Epixanthus dentatus*, *E. frontalis* and *Baptozius vinosus* and eight species of grapsid crabs namely, *Grapsus albolineatus*, *Metopograpsus messor*, *M. oceanicus*, *Nanosesarma andersoni*, *Sesarmoides longipes*, *Parasesarma plicatum* and *Perisesarma bidens* inhabit this zone.

Zone VIII. High Water Spring Tide to High Water Neap Tide (HWST–HWNT) : This zone is inhabited by a single species, *Ocypode ceratophthalma* which is a burrower.

Zone IX. Extreme High Water Spring to Mean Low Water Neap (EHWS–MLWN) : This zone is represented by a single species, *Uca lactea* which is a burrower.

Zone X. High Tide Level to Supralittoral Level (HTL–SL) : This zone is inhabited by four species of grapsid crabs namely *Episesarma mederi*, *E. tetragonum*, *Sesarmops intermedium*, *Metasesarma obesum* and a single species of gecarcinid crab, *Cardisoma carnifex*.

It may be seen from the above account that richest crab fauna is found in the zone between MTL–LTL (16 species) followed by MTL–HTL (10 species), LTL (8 species), between HTL and supralittoral (5 species), HTL (4 species) and HTL–MHWN (2 species). The differences in diversity and distribution of brachyuran species in these zones may be related with the physical nature of substratum, tidal exposure and period of tidal inundation, vegetation and salinity. Among these factors, particle size of sediment and salinity have been reported to be the principal factors that affect the distribution and abundance of mangrove crabs in Andaman islands (Das and Dev Roy, 1989).

SUMMARY

Diversity and distribution of 521 species of brachyuran crabs (excluding two freshwater species) occurring in Andaman and Nicobar groups of islands are presented. These species belong to 56 families under 246 genera. Two species viz., *Alox ornatum* (Ihle, 1840) and *Drachiella lapillulus* (Alcock, 1896) have been recorded for the first time from Indian waters and two other species, *Philyra sagittifera* (Fabricius, 1798) and *P. scabriusculua* (Fabricius, 1798) are recorded as new from Andaman and Nicobar islands respectively. Sixteen species have been considered as doubtful records. Of the 521 species, 489 species occur in Andaman groups and 138 species in Nicobar groups of islands while 108 species are common to both the groups of islands. Maximum number of species has been encountered in the family Xanthidae (101 species). Sixty-eight genera have been recorded exclusively from these islands. The distribution of these species has been dealt along with zonation pattern of mangrove species.

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