

1 & 2. *Batissa similis* Prime, 3. *Geloina galathea* (Mörch), 4. *Geloina siamica* (Prime), 5. *Novaculina andamanensis* Preston

ON A SMALL COLLECTION OF NEUROPTERA FROM ANDAMAN AND NICOBAR ISLANDS

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(With 1 Text-figure and 1 Plate)

INTRODUCTION

(a) *General*

The neuropteran fauna of the Andaman and Nicobar islands is still far from being well known. Apart from some scattered references by Fabricius (1793), Brauer (1865) and Navas (1912, 1929), the neuropteran fauna of the Andaman and Nicobar islands has not been studied thoroughly. The reason may be due to the lack of intensive faunistic surveys in the areas. The present study was undertaken with a view to record the species occurring in these islands and also comparing the distribution of the species with the mainland of India. All the species except *Ankylopteryx octopunctata* (Fabricius) and *Distoleon audax* (Walker), studied by the author, are recorded for the first time from the area under study. Moreover, this paper also includes the new record of the genus *Sencera* Navas from India, a detailed description of the species *Chrysopa* (*Glenochrysa*) *marmorata* (Needham) (Family Chrysopidae), a list of species hitherto recorded from these islands, the synonymies and distribution of all the species in India and a key to the genera and species belonging to the family Chrysopidae.

(b) *Acknowledgement*

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(c) *Abbreviations used*

Coll., Collected by ; Ex. Example

LIST OF NEUROPTERA OF THE ANDAMAN AND NICOBAR ISLANDS

Seven species studied by the author along with 4 species recorded previously are listed below. The species marked with * were recorded from the Nicobar Islands by the previous authors.

Order NEUROPTERA

Family 1. OSMYLIDAE

1. *Spilosmylus tuberculatus* (Walker)

Family 2. BEROETHIDAE

- * 2. *Acroberotha nicobarica* Navas

Family 3. CHRYSOPIDAE

3. *Chrysopa lacciperda* Kimmins
- + *4. *Chrysopa (Glenochrysa) faceta* Navas
- *5. *Chrysopa procubitalis* Navas
6. *Chrysopa (Glenochrysa) marmorta* (Needham)
7. *Ankylopteryx octopunctata* (Fabricius)
8. *Ankylopteryx tessellatus* Needham
9. *Sencera* sp.

Family MYRMELEONIDAE

- *10. *Myrmeleon nicobaricus* Brauer
11. *Distoleon audax* (Walker)

SYSTEMATIC ACCOUNT

Family 4. OSMYLIDAE

***Spilosmylus tuberculatus* (Walker)**

1853. *Osmylus tuberculatus* (Walker), *Cat. Brit. Mus. Neur.*, 2 : 255.
 1913. *Osmylus tuberculatus* : Petersen, *Entt. mitt*, 2 : 27.
 1893. *Osmylus modestus* Gerstaecker, *Naturwiss. Ver. Neu-Vorpom. u. Rugen, Mitt.*, 25 : 77,
 1914. *Osmylus (Lysmus) japonicus* Okamoto. *Ent. Mitt.*, 3 : 23.
 1915. *Spilosmylus modestus* : Krüger, *Stett. Ent. Ztg.*, 76 : 78.
 1937. *Spilosmylus japonicus* : Banks, *Phil. Jour. Sci.*, 62 : 278.
 1914. *Spilosmylus tuberculatus* : Nakahara, *Zool. Jap. Ann.*, 8 : 502.
 1955. *Spilosmylus tuberculatus* : Nakahara, *Kontyu*, 23 : 11.
 1956. *Spilosmylus tuberculatus* : Nakahara, *Shikoku Ent. Soc., Trans.* 3 : 22-23.

Material : 1 ♂, Tugapur rest house. Mayabandar, North Andaman, 11.v.1971, Coll. B. K. Tikader.

Distribution : India : North Andaman.

+ Banks, N. (1930). *Fed. Malay Mus., Jour.*, 41 : 380 states, "*Chrysopa faceta* Navas is the same form" of *Chrysopa splendida* Weele.

Family CHRYSOPIDAE

Key to the genera represented in the collection from Andaman and Nicobar Islands.

- | | | | | |
|---|-----|-----|-----|----------------------------|
| 1. Costa steep at base; forewing much broader than hindwing | ... | ... | ... | 2 |
| — Costa at base very narrow, then gradually widening | ... | ... | ... | <i>Chrysopa</i> Leach |
| 2. Third cubital cell divided | ... | ... | ... | <i>Ankylopteryx</i> Brauer |
| — Third cubital cell undivided | ... | ... | ... | <i>Sencera</i> Navas |

Key to species of *Chrysopa* Leach

- | | | | | | |
|--|-----|-----|-----|-----|----------------------------|
| Both wings with the cross veins tinged golden brown, more strongly upto the basal third and along the margin, but suffused on the disc | ... | ... | ... | ... | <i>marmorata</i> (Needham) |
| — Both wings with the cross veins uniformly pale fuscous | ... | ... | ... | ... | <i>lacciperda</i> Kimmins |

***Chrysopa lacciperda* Kimmins**

1955. *Chrysopa lacciperda* Kimmins, *Indian J. Ent.*, 17 (2) : 217-218.

Material : 1 ♂, "Cheria Tapu", S. Andamans, 19.iv.1964, Coll. B. S. Lamba.

Distribution : India : Bihar; S. Andamans.

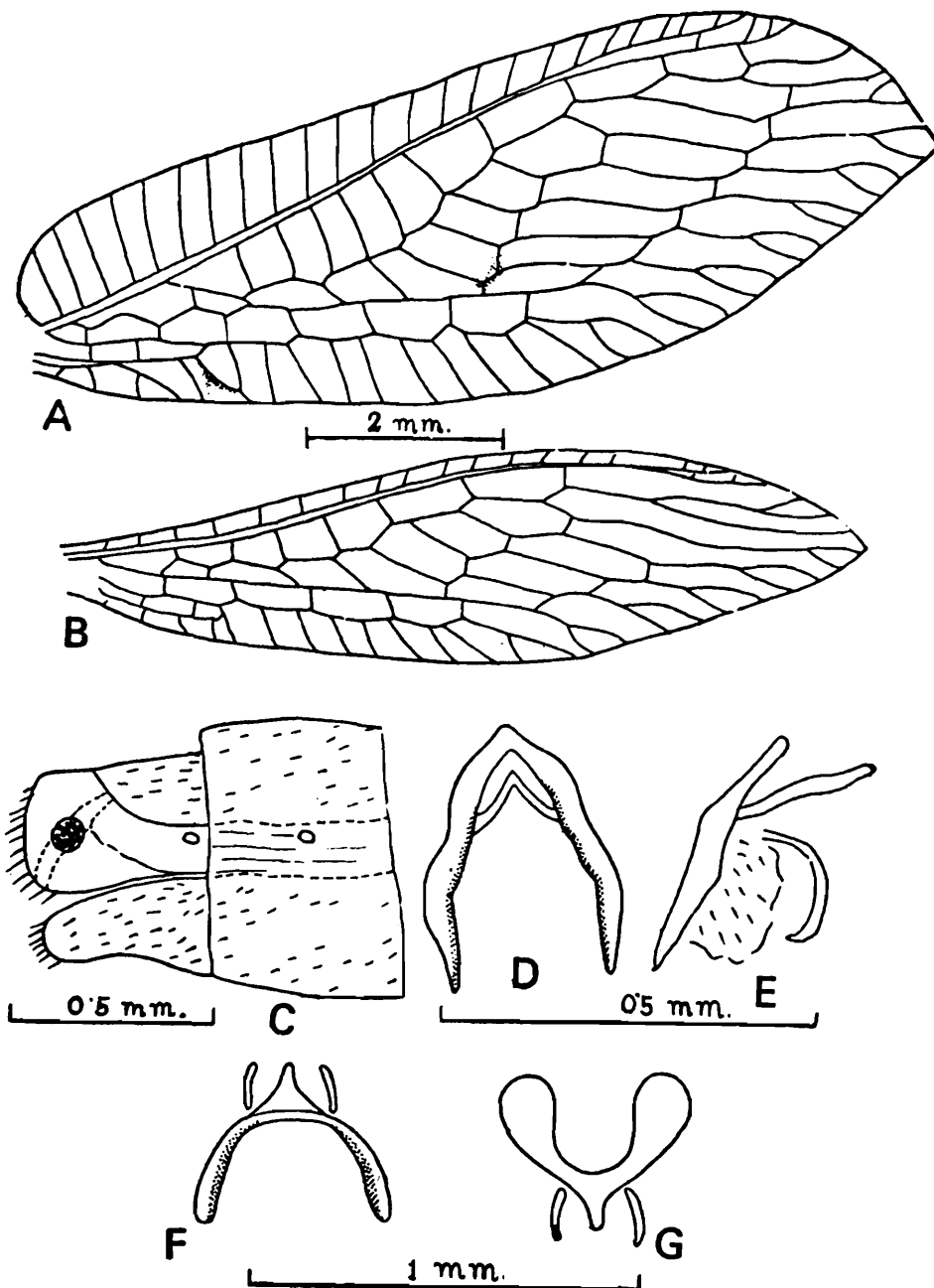
***Chrysopa (Glenochrysa) marmorata* (Needham)**

1909. *Eremochrysa marmorata* Needham, *Rec. Indian Mus.*, 3 : 205.

1940. *Glenochrysa marmorata* : Kimmins, *Ann. Mag. nat. Hist.*, (11)5 : 449.

Redescription : Vertex dark brown; clypeus brownish ; genae dark brown; frons yellowish; epicranium : a black stripe between the antennae continuing along the inner margin of toruli; antennae : scape yellow but black at the base ; flagellum yellowish ; pronotum : bright yellow with black lateral margins and a pair of distinct black patches on the anterior margin; meso—and metanota : yellow, each with a pair of large brown spots towards the wing base ; legs : yellow, claws brown ; wings (Pl. V) : rather broad with angular tip, hyaline, forewing : costal veins black; pterostigma dark brown; subcostal crossveins black; all other veins yellow; all cross veins bordered pale brown, more strongly on basal third of the wing; some milky-white, elongated and irregular spots on the apical portion in between the branches of the

radial sector; veins on the hindmargin of the apical part forked, alternately yellow and dark brown; cell *im* elongate, its tip extending beyond 1st radio-medial cross vein; number of gradates $3/4$; hindwing: narrower than forewings; costal crossveins black and bordered brown; 1st crossvein between R and Rs, a crossvein between Psm and Psc, some of the cubital and anal crossveins partly or wholly bordered dark brown; abdomen: dark brown; ♂ genitalia (Text-fig. 1 F & G): gonarcus with rounded lateral pieces and a narrow central piece; arcessus attached to gonarcus, entoprocessus as shown in figs.



Text-fig. 1 (A-E) *Sencera* sp., male: A—Forewing; B—Hindwing; C—Apex of abdomen (lateral view); D—Gonarcus with entoprocessus, (dorsal view); E—Gonarcus with entoprocessus, part of gonosaccus and pseudopenis (lateral view). (F-G) *Chrysopa* (*Glenochrysa*) *marmorata* (Needham) F—Gonarcus with arcessus (dorsal view) and G—same (Caudal view).

Material : 1 ♂, "Cheria Tapu", South Andamans, 9.iv.1964, Coll. B. S. Lamba.

Remarks: Needham (1909) described *Eremochrysa marmorata*, from upper Assam by one broken and incomplete specimen. His description was mainly on the measurements of antennae, body and wings as well as the marking on the wings. He also indicated the repository of type as the Indian Museum. But unfortunately after a thorough search, the author is unable to find out the type in the National collection at Zoological Survey of India and it seems thus to be lost. So the specimen collected from the Andamans has been carefully studied with the available literature on the species and a detailed description of the species along with the illustrations of genitalia and a photograph of the wings are given. After detailed study, the author feels that the species should be placed in the subgenus *Glenochrysa* of the genus *Chrysopa*, as considered by Tjeder (1966).

Distribution : India : Assam; Andaman Islands.

Key to species of *Ankylopteryx* Brauer

- | | | | | |
|--|-----|-----|-----|---------------------------------|
| Both wings with the veins yellow; hindwing with the inner gradates and tips of cubitals immaculate | ... | ... | ... | <i>octopunctata</i> (Fabricius) |
| — Both wings with the veins whitish, hindwing with the inner gradates and tips of cubitals spotted brown | ... | ... | ... | <i>tesselatus</i> Needham |

Ankylopteryx octopunctata (Fabricius)

1793. *Hemerobius octopunctata* Fabricius, *Ent. Syst.*, 2 : 85.
 1798. *Hemerobius candidus* Fabricius, *Ent. suppl.* : 202.
 1851. *Chrysopa candida* Schneider, *Mon. chrysop.* : 161.
 1853. *Chrysopa candida* : Walker, *Cat. Brit. Mus. Neur.* : 274.
 1864. *Ankylopteryx candida* : Brauer, *Zool. -bot. Ges. Wien. Verh.*, 14 : 901.
 1858. *Chrysopa punctata* Hagen, *Syn. Neur. Ceyl.*, 1 : 483.
 1864. *Ankylopteryx punctata* : Brauer, *Zool. -bot. Ges. Wien. Verh.*, 14 : 901.
 1853. *Hemerobius trimaculatus* Girard, *Ann. Soc. Ent. Fr.*, (3) 7 : 163.
 1864. *Ankylopteryx trimaculata* : Brauer, *Zool. -bot. Ges. Wien. Verh.*, 14 : 901.
 1864. *Ankylopteryx anomala* Brauer, *Novara Exp. Zool.*, 11 : 35.
 1893. *Ankylopteryx sigillaris* Gerstaecker, *Naturwiss, Ver. Neu-Vorpom. U. Rugen, Mitt.*, 25 : 162.
 1909. *Ankylopteryx octopunctata* : Weele, *Leyden Mus., Notes*, 31 : 57-58.
 1935. *Ankylopteryx octopunctata* : Handschin, *Rev. Suisse Zool.*, 42 : 695-696.

Material : 1 ex. (damaged), Mayabundar, N. Andaman, 26.iii.1969, Coll. T. D. Soota. 2 ♀ ♀, Cowria Ghat, S. Andamans, 8.iv.1964, Coll.

B. S. Lamba. 1 ♀, "Cheria Tapu", S. Andamans, 8.iv.1964, Coll. *B. S. Lamba.*

Distribution : India : Andamans.

Ankylopteryx tessellatus Needham

1909. *Ankylopteryx tessellatus* Needham, *Rec. Indian Mus.*, 3 : 205.

Material : 1 ♂ Wrafters creek, Baratang, S. Andamans, 18.iii.1964, Coll. *B. S. Lamba.* 1 ex. (damaged), Cowria Ghat, S. Andamans, 11.iv.1964, Coll. *B. S. Lamba.*

Distribution : India : Assam ; S. Andamans.

Sencera sp.

(Text-fig. 1 A-E)

Head pale; clypeus yellow; gena unmarked; last joint of maxillary palpus fuscous; antennae pale yellow; vertex yellowish; pronotum mesonotum and legs pale yellow; forewing (Text-fig. 1A) : fine black dots on some of costal crossveins and at the tip of vein along the margin; pterostigma unmarked; brown clouds over basal two of the inner gradate crossveins and first radio-medial crossvein; faint brownish clouds on last two branches of first anal; no divisory veinlet in the 3rd cubital cell; the last branch of first anal and 1st cubital branch meet at margin and enclose an elongated cell with triangular tip; radial sector sinuous with 6 branches; 4 radio-medial crossveins; inner gradates with 5 crossveins and outer gradates with 7; hindwing (Text-fig. 1B) : no brownish clouds anywhere; inner and outer gradates each with 4 crossveins; abdomen (Text-fig. 1C-E) : pale yellow; posterior margin of tergite 9 and ectoproct straight in lateral view ; tip of the sternites 8 and 9 rather narrow and rounded; gonarcus and entoprocessus as in fig. 1D ; pseudopenis slender and slightly curved; gonosaccus with a few gonosetae.

Length of the forewing, 10 mm. ; of hindwing, 9 mm.

Material : 1 ♂, Kamorta island, Nicobar, 22. iii. 70. Coll. *B. K. Tikader.*

Distribution : India : Nicobar Island.

Remarks : The genus is for the first time recorded from India. The species is very similar to *Sencera exquisita* Nakahara, but the wings of the species is not so exquisitely marked. The species also differs from *S. exquisita* by the body colour and size of the wings. Due to the paucity of material, it is not possible at the moment to describe the species as new to science.

Family MYRMELEONIDAE

Distoleon audax (Walker)

1853. *Myrmeleon audax* Walker, *Cat. Brit. Mus. Neur.* : 338.
 1853. *Myrmeleon gravis* Walker, *l.c.* : 339.
 1853. *Myrmeleon vafer* Walker, *l.c.* : 345.
 1853. *Myrmeleon dirus* Walker, *l.c.* : 346.
 1853. *Myrmeleon lentus* Walker, *l.c.* : 346.
 1853. *Myrmeleon desperatus* Walker, *l.c.* : 359.
 1853. *Myrmeleon perniciosus* Walker, *l.c.* : 360.
 1853. *Myrmeleon malefidus* Walker, *l.c.* : 364.
 1853. *Myrmeleon actus* Walker, *l.c.* : 377
 1853. *Myrmeleon* ? *insomnis* Walker, *l.c.* : 385.
 1900. *Formicaleo morpheus* Kirby, *Mongr. Christmas Isl.* : 140.
 1865. ? *Formicaleo longicornis* Brauer, *Novara Exp. Zool. II, Neur.* : 42.
 1909. *Formicaleo audax* : Weele, *Leyden Mus. Notes*, 31 : 19-23.

Material : 1 ♀, 3Kms. S. E. of Mayabundar, N. Andamans, 9.iii.1975. Coll. G. K. Srivastava and party.

Distribution : India : "Nepaul"; Andaman and Nicobar Islands.

Remarks : Considering the characteristics of the wings and legs, the species is being placed under the genus *Distoleon*. Brauer (1865) recorded "? *Formicaleo longicornis*" from the Nicobar Islands. But without the re-examination of the type it is not possible to decide on the merger of Brauer's species with *D. audax* (Walker).

SUMMARY

The present paper deals with the systematic account of seven neuropteran species along with illustrations from the Andaman and Nicobar Islands. One genus *Sencera* Navas is a new record for India, of which the species under study could not be identified but described and the affinities with its nearest ally have been shown. Four species, viz., *Spilosmylus tuberculatus* (Walker), *Chrysopa lacciperda* Kimmins, *Chrysopa (Glenochrysa) marmorata* (Needham) and *Ankylopteryx tessellatus* Needham, are also reported for the first time from the area concerned. Besides, *Chrysopa (Glenochrysa) marmorata* (Needham) has been redescribed. With this, the total number of species hitherto known from the insular area is raised to eleven.

REFERENCES

- BRAUER, F. 1865. Zweiter Bericht über die auf der Wellfahrt der kais. Fregatte Novara gesammelten Neuroptera. *Zool. -bot. Ges. Wien. Verh.*, 15 : 903-908.