THE CHEWING-LICE (PTHIRAPTERA : INSECTA) FROM ANDAMAN AND NICOBAR ISLANDS WITH REMARKS ON SOME HOST RELATIONSHIPS

By

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During the survey tours of Drs. K. K. Tiwari, A. K. Mukherjee, and Mr. S. S. Saha of the Zoological Survey of India, they collected three samples of the chewing-lice comprising of three species from Megapodops fremenet Gaimard and Collocaia esculenta affinis Beavan. Of these, the former host has two subspecies in these Islands, and has considerable range of distribution in the Indo-Pacific, while the latter is endemic to the islands. Therefore, their parasites are of considerable interest from the point of distribution and study of host relationships, since the fauna of this region generally shows affinities with Burmese and Malayan fauna. Hither to, only three genera and species, viz., Goniodes minor confuso Clay, Oxylipurus appendiculatus (Piaget) (Clay, 1938 ; 1940), and Columbicola cavifrons (Taschenberg) (Tendeiro, 1962) have been reported from these islands. The two first named species together with Dennyus (Collocaia) medwayi Ledger (Ledger, 1970) are now reported from the above collection, and form the first new additions of chewing-lice from these islands to the National Zoological collections.

The material is mounted on slides, and the measurements are given in mm.

Suborder AMBLYCEROPHTHIRINA Lakshminarayana, 1976
(= AMBLYCERA Kellogg, 1896)
Family Menoponidae Mjoeborg, 1910
Genus Dennyus Neumann, 1906
Dennyus (Collocaia) medwayi Ledger, 1970


of the non-echolocating esculenta group viz., C. esculenta affinis Beavan, an endemic bird to these islands. The parasite species is also now being reported for the first time from Indian limits. C. esculenta as already stated is common in the Indo-Pacific, with its own parasite species, D. (C.) distinctus. We can only account for the present record in that possibly D. (C.) medwayi and D. (C.) distinctus are both sympatric species evolved on an ancestral stock of C. esculenta retained by different subspecies of C. esculenta and C. gigas; or the second species D. (C.) distinctus, has not so far been encountered on C. e. affinis and C. gigas or vice versa. It indicates however, that 'grey swiftlet' stock, and gigas acquired the characters of 'grey swiftlet' group as has been contended by Medway & Wells and Ledger.

Suborder ISCHNOCEROPHYTHIRINA Lakshminarayana, 1976

(= ISCHNOCERA Kellogg, 1896)

Family PHILOPTERIDAE Burmeister, 1838

Genus Goniodes Nitzsch, 1818

Goniodes minor (Piaget, 1880)

Material examined.—10 Ψ, 9 Φ, 4 ex. ( ), from Megapodus freycinet Gaimard, Campbell Bay, Great Nicobar Is., 4. iv. 1977. (Coll. K. K. Tiwari (Reg. Nos. 709-726/H 16); on slides with nymphs in alcohol) 8 Ψ, 7 Φ, 5 ex. ( ), from the same host, 24 km. N. S. Road, Nicobar, 9. iv. 1977, coll. S. S. Saha (Reg. Nos. 27-74/16/H 16) (both on slides and nymphs in alcohol).

Measurements:

<table>
<thead>
<tr>
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<th>Length</th>
<th>Width</th>
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<tbody>
<tr>
<td>Head</td>
<td>0.37-0.40</td>
<td>0.44-0.46</td>
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<tr>
<td>Prothorax</td>
<td>0.19-0.21</td>
<td>0.27-0.29</td>
</tr>
<tr>
<td>Mesothorax</td>
<td>0.10-0.11</td>
<td>0.42-0.44</td>
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<tr>
<td>Metathorax</td>
<td>1.12-0.19</td>
<td>0.47-0.48</td>
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<tr>
<td>Abdomen</td>
<td>1.24-1.30</td>
<td>0.63-0.66</td>
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<tr>
<td>Total</td>
<td>1.88-1.97</td>
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Remarks.—Ledger (1970) described this species in detail from specimens off Collocalia gigas (Hartt. & Butler), from Fraser’s Hill, Pahang, Malaya, coll. Lord Medway, and named it after the collector. The present record on Collocalia esculenta affinis Beavan is quite interesting.

Demyus (Collodennysus) distinctus Ferris is the normal species of lice that harbours on C. esculenta and its different subspecies cynoptile, and desiderata (Ledger, 1970). Ledger (op. cit.) examined material from Malaya, North Borneo, Java, New Guinea, Rennell Is. and New Hecthides. The specimens under discussion are referred however, to D. (C.) medwayi Ledger, instead of the usual species D. (C.) distinctus Ferris because of the following diagnostic characters which make it distinct from the latter: the sternite II wider in the middle, the presence of fewer tergocentral setae on abdominal tergites I & II, and the subgenital plate without any additional and smaller central setae in the female. The setae in the lateral brushes of the abdomen vary not only from individual to individual, but also from segment to segment and on the two sides.

D. (C.) medwayi comes very close to D. (C.) distinctus. Ledger (op. cit.) while discussing the host relationship of Collocalia gigas, the type host of D. (C.) medwayi, quoted Medway & Well (1969) than the non-echolocating gigas shows morphological affinities with the echolocating 'grey swiftlets', though by behaviour it shows affinities with non-echolocating 'grey swiftlets' to which group C. esculenta belongs. Medway & Wells (1969) contended that gigas may be a member of a monophyletic 'grey swiftlet' group which lost its capability of echolocation, or it evolved from an ancient non-echolocating 'grey swiftlet' stock, which later acquired the features of the 'grey swiftlets' by convergence. Ledger (1970) supported the latter relationship, because D. (C.) medwayi found on C. gigas has its nearest relative in D. (C.) distinctus found on the ‘grey swiftlet’, D. esculenta.

The present record helps us to go further to what Ledger suggested above. Here D. (C.) medwayi has been reported on a 'grey swiftlet'
Remarks.—Piaget (1880) collections according to Clay (1940) contain at least three closely related species collected from different species and subspecies of Megapodius, though all of them were labelled as Goniodes minor Piaget. Clay (1940) restricted the name Goniodes minor (Piaget) to those forms reported from Megapodius reinwardti Dumont. Another δ from the same series was assigned the name G. ovata (Piaget), and Hopkins & Clay (1952) suggested that the type host was "probably Euhippa wallacei (G. R. Gray)". Clay (1940) described another subspecies G. minor confusio Clay from (M. n. nicobariensis) Megapodius freyneti nicobariensis Blyth from Nicobar Island. K'er (1939) included this species in his new genus Homocerus.

We refer our material to M. minor (Piaget), although the material has been collected from M. freyneti, and the measurements are slightly smaller (or some of them are identical) than with G. minor s. str., or G. m. confusio, by the shape of the head, laterally drawn prothorax, which is nearer to the prothoracic region, without continuous rows of setae on IV abdominal segment, and the long and broader basal plate in the male and the flattened posterior margin of the valve and its chaetotaxy, the minute spines and striations on the genital region in the female. We have examined a para-type slide of G. minor confusio Clay (2 + 2), from (M. nicobariensis) M. f. nicobariensis Blyth, Ketchell, Nicobar Islands, coll. Dr. R. Meinertzhagen (BMNH), No. 3008, lent to the senior author by the British Museum (Nat. History), and though our specimens are smaller than these specimens, the male genitalia appear distinctly sclerotized and stouter in proportion.

The present host M. freyneti Gaimard, otherwise harbours three more species of Genioides besides G. minor viz., G. major (Piaget), G. discogaster (Taschenberg), (vide Clay, 1940), and G. biordinatus Clay (Emersen & Ward, 1958). G. major as the name indicates is a large form than minor, its prothorax not laterally produced, with numerous short setae on tergite IX, the very distinct male genitalia, and the shape of the female valve and the chaetotaxy of the female genital region enables us to distinguish it from minor. G. discogaster can be recognized by the smaller size, expanded temples, large truncated coni, and the male genitalia which differ in minor. G. biordinatus can be recognized by the chaetotaxy of tergite IV, and female genital region. G. ovata from Euhippa wallacei (?) can be readily distinguished from all other species of Genioides from the Megapodidae, by the distal prolongation of the post axial angle of the third antennal segment in the male at a glance.

The present record of G. minor (Piaget) collected from M. freyneti at two different places is interesting. In Nicobar Islands two subspecies are known viz., M. f. nicobariensis Blyth and M. f. abbotti Oberholser from Great Nicobar. G. minor s. str., is so far known from the type host, M. reinwardti Dumont (New Guinea), M. r. yorki Mathews (N. Queensland), M. r. tumulus Gould (no data), M. f. cumingii Dillwyn (Labuan & S. E. Celebes), and M. f. pusillus Tweeddale (Philippine Islands), and G. m. confusio Clay from M. f.
The specimens before us approach very near to O. appendiculatus (Piaget), although our specimens exhibit minor differences from O. appendiculatus, we are not describing any new subspecies, since our material is not in good condition. We have also examined the slide with specimens (2 3 2 2?) from M. f. nicobariensis from Katchall Nicobar, Coll. Dr. R. Meieritzhagen (BMNH No. 3008) Our specimens are elongated, and narrow, with the first antennal segment stout and elongated in the male, the dorsal setae to the middle of the pre-antennal head are finer as indicated by Clay (1938), prothoracic margin straight, pterothorax margin distinctly truncated and elongated, abdominal pleura is with complicated head (simple in inaequilis); the male genitalia however, nearer to inaequilis; the female ‘valve’ with finer and fewer setas, the lobes of the apical segment are narrower in our specimens unlike inaequilis.

Clay (1938) examined Piaget’s type material of (M. nicobariensis gilbertii) M. f. gilbertii G. R. Gray and (M. n. nicobariensis) M. f. nicobariensis Blyth from Katchall, Nicobar. The present record can be considered at best as a new valuable addition to the National Zoological collections of the Z. S. I.

SUMMARY

This paper deals with a small interesting collection of chewing-lie from Andaman & Nicobar group of Islands. One of the species is now being reported for the first time since its description and from India on a new host which throws considerable light on the host relationship; the other two species are valuable new additions to the National zoological collections of the Zoological Survey of India.

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REFERENCES


