

NOTES ON TWO NEW SUCKING LICE (HOPLOPLEURIDAE;
ANOPLURA) FOUND ON NORTHERN PALM
SQUIRREL FROM INDIA

BY

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During the survey conducted by the research group of "Japan Academic Expedition of Central and South India" sponsored by the Tokyo Shinbun (Chief: Dr. Shinya Nishimaru) from December 1961 to March 1962, Dr. Genzo Mitsui collected many specimens of sucking lice from a Northern Palm Squirrel (Five Striped Palm Squirrel) captured in Nalainpur, Madhya-Pradesh, India. The author examined specimens in detail and found that they consist of three species belonging to the three genera *Enderleinellus*, *Hoplopleura* and *Neohaematopinus*, respectively, and that two species of them are new species. Therefore the descriptions and figures of both the two new species and a note on another previously described species will be given in the present paper.

As for the scientific names of the host animals, the author followed the identification by Dr. Yoshinori Imaizumi, a member of the National Science Museum (Tokyo).

Hoplopleura mitsuii n. sp.

Male (Fig. I, right)

Body length: 1.1 mm. Mounted on slides in Methylcellulose base insect-mounting medium.

Head: Somewhat longer than broad, rounded anteriorly with a slightly projecting median point, with post-antennal angles slightly expanded laterally.

Antennae: First segment largest, second segment longer than other segments and with usual sensory base between the fourth and fifth segments.

Thorax: Normal form, apparently without any particular specializations.

Sternal plate: Slightly broader than long, triangular, with broad angles. Legs same as other species of *Hoplopleura*.

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Received for publication, May 30, 1962.

Abdomen: Elongate, egg-shaped; pleural plates rather small, with rows of scales, overlapping but little; first pair of pleural plates ordinary form; second pair with strong dorsal and ventral posterior lobes, ventral lobes nearly the same as dorsal, pointed at apex; third to sixth with the dorsal and ventral angles each produced into a long, tapering tooth; seventh and eighth small and without teeth. Second pleural plate with three setae, a seta on the nearly center of dorsal surface and a pair of setae on the posterior margin, the dorsal seta larger; third to sixth each with a pair of slender setae at the emagination between two lobes; seventh and eighth with the usual pair of long setae. Usual spiracles on the third to seventh pairs of

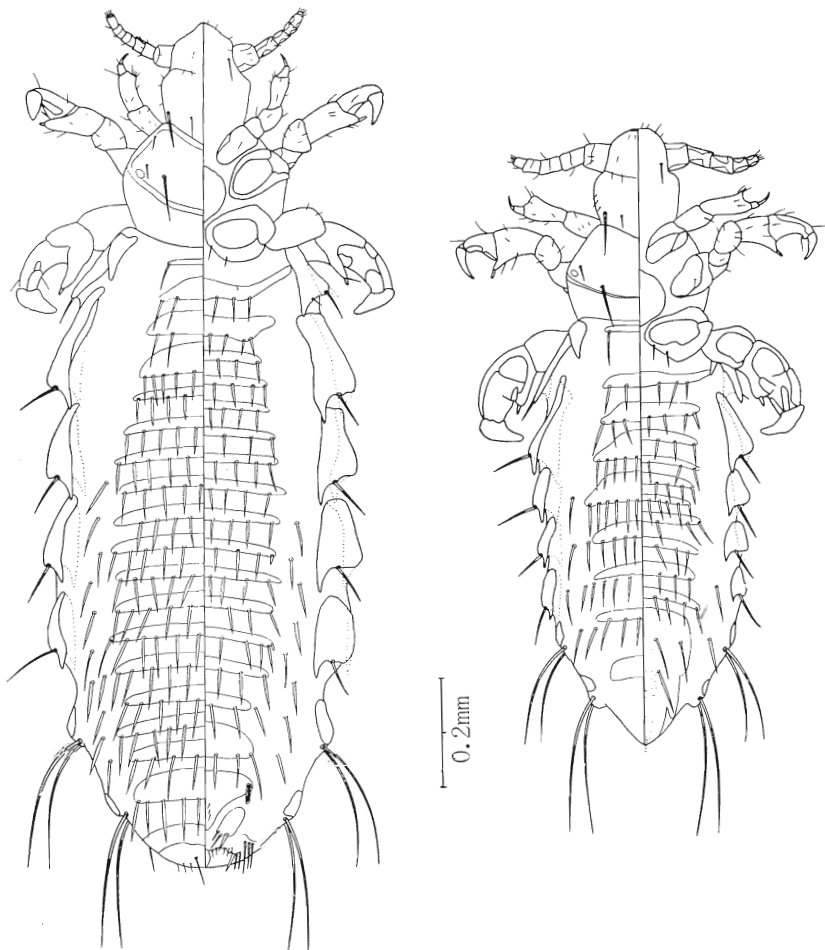


Fig. I. *Hoplopleura mitsuii* n. sp.
Dorsal (left) and Ventral (right) half.

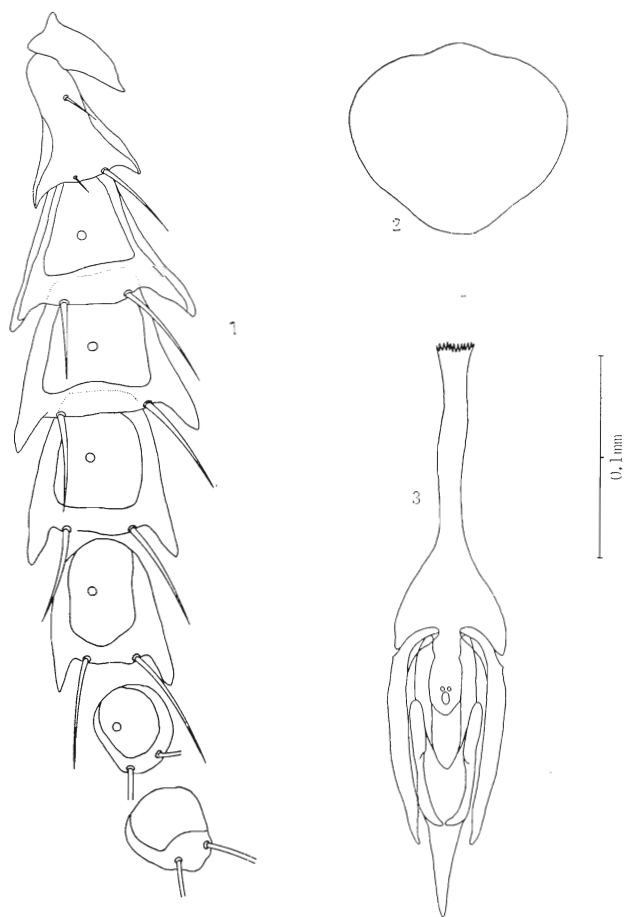


Fig. II. *Hoplopleura mitsuii* n. sp.

1. Pleural plates 2. Sternal plate 3. Male genitalia

the pleural plates. Dorsal chitinized plates strongly developed; dorsal surface of abdomen with eight transverse rows of setae, first row with two slender setae, second with four, third with six, fourth to eighth with six to twelve setae. Sternal plates well developed. Second sternite extended laterally to articulate with the corresponding pleural plate, third sternite not extended laterally; ventral surface of abdomen with twelve transverse rows of setae, these rows each with four to ten setae, but last row with two slender setae.

Genitalia: The basal plate rather long and slender, paramere slender and not notched at apex but with a small notch at subbasal lateral margin; the pseudopenis very long and stout, with long, slender and U-shaped arms.

Female (Fig. I, left)

General character closely resembles male, but with more numerous dorsal and ventral sclerites. Dorsal surface of abdomen with eighteen transverse rows of setae; first to third rows each with two to four slender setae; fourth to eighteenth rows with eleven stout setae. Ventral surface of abdomen with sixteen transverse rows of setae on the well developed sternites. Setae of second row slender, but outer two pairs of them slightly stout; third to sixteenth transverse row each with six to eight setae, but tenth and thirteenth rows each with a pair of outer short spines laterally. A pair of strongly chitinized pieces on the both sides of genital plate.

REMARKS

This new species closely resembles *Hoplopleura disgrega* Ferris, 1921, *H. chilensis* Werneck, 1937 and *H. emarginata* Ferris, 1922 in having the first sternal plate of the third abdominal segment does not attain the pleural plate, but the new species differs from the latter in the under-described characteristics.

H. emarginata differs from the new species in having a much longer dorsal setae on the fourth to sixth pleural plates, and in having almost straight posterior margins of these pleural plates, their posterior angles forming but slight teeth; and in having much more submarginal setae on dorsal and ventral surfaces of abdomen. *H. chilensis* and *H. disgrega* have six pleural plates with the dorsal apical angles prolonged into processes, the ventral angles rounded. Also *H. disgrega* differs from the new species in having a pair of apically flattened and truncated setae on the pleural plate instead of a pair of slender setae.

The specific trivial name "*mitsuii*" was dedicated to my colleague, Dr. Genzo Mitsui, the collector of these specimens.

TYPES

Holotype male and allotype female from a *Funambulus pennanti* Wroughton, 1905; Nalainpur, Madhya-Pradesh, India; January, 1962, coll. Dr. Mitsui.

Paratypes: One male and two females from same host. All type specimens were deposited in the Department of Medical Zoology, Tokyo Medical and Dental University.

Enderleinellus nishimarui n. sp.

Male (Fig. III, right)

Body length: 0.56~0.6 mm.

Head: Somewhat longer than wide, anterior margin broadly rounded, lateral margins almost straight and nearly parallel; antennae set well toward the apex of the head.

Thorax: About as long as and only slightly wider than head; sternal plate (Fig. IV, 2) consisting of two posteriorly attached, kidney-shaped pieces, with lateral marginal areas more heavily pigmented than the remainder. Legs of the usual type, hind femur with three tooth-like processes on the anterior margin and hind tarsus with a similar process at the proximal anterior angle.

Abdomen: Elongate-oval, except that the end of the abdomen sharply pointed. Pleural plates (Fig. IV, 1) present on the second to fourth abdominal first and second plates approximately triangular in shape, third plate almost elliptical shape; first plate with two small setae, second with a pair of moderately long setae on the posterior margin, and third with a pair of very minute setae. Small spiracles present on the last two pairs of the pleural plates. First tergite relatively broad, second to eighth tergites chitinized to a narrow transverse sclerite. Dorsal surface of abdomen with eight transverse rows of setae; first to third tergites with a median pair of extremely minute seta, and outside of these a pair of slender longer setae. The third segment with a pair of elongate cuneiform and flattened setae on the lateral margin. Fourth to seventh rows each with ten to fourteen large, flattened and elongate cuneiform setae, along the midlines of these setae chitinization is remarkable. Eighth tergite with a median pair of slender setae.

Except for the third abdominal segment, the shape of median and submarginal setae undistinguishable. Sternal paltes entirely lacking except for the genital plate; ventral surface of abdomen with seven transverse rows of setae, first row with a median pair of slender setae and two pair of minute setae outside, second to fifth rows with six to twelve setae similar to those on the dorsum, sixth row with median pair of slender setae and a pair of elongate cuneiform setae laterally, seventh row with a median pair of slender setae and a pair of very long slender setae at lateral margins.

Genitalia (Fig. IV, 4): Relatively small and conspicuous; basal plate composed of a single piece, arms of which less than one eighth of its length. Between the arms, basal plate with a small finger-shaped projection. To the subapical median parts of the arms a pair of flattened parameres are attached. They are very stout and strongly convex; between the parameres lies a penis. The stout V-shaped endomere located behind the penis; a triangular pseudopenis present outside and caudal of parameres.

Female (Fig. III, left)

Body length: 0.63~0.66 mm.

General character closely resembles male, but with the apex of the abdomen rounded. Tergites unchitinized except for a rather large, oval sclerite which occupies the median fourth of the first and second abdominal segments, each tergites with a median pair of extremely minute setae, and a pair of slender setae outside. Third segment entirely without chitinized area, but setae of this segment much varied usually with a median pair of very minute setae, a pair of submedian slender setae, and a pair of elon-

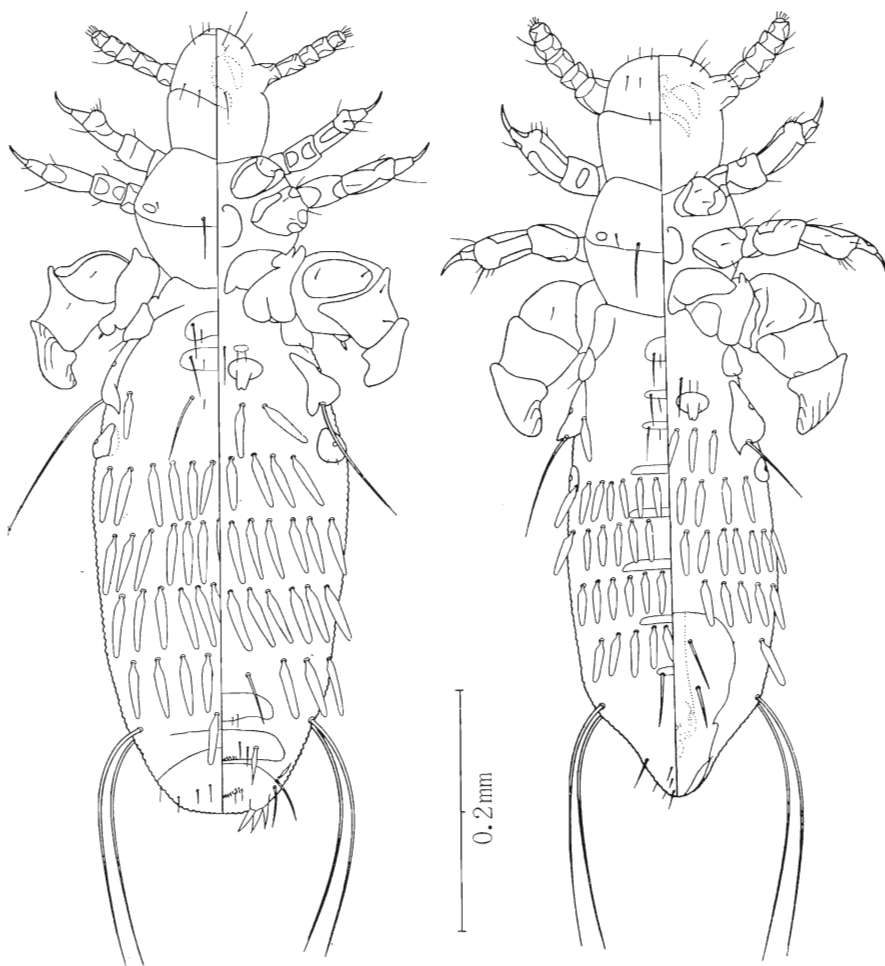


Fig. III. *Enderleinellus nishimarui* n. sp.
Dorsal (left) and Ventral (right) half.

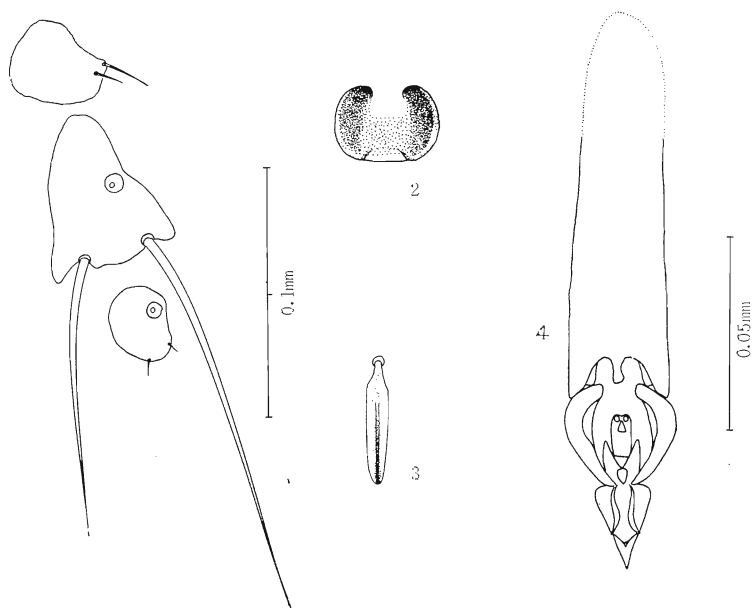


Fig. IV. *Enderleinellus nishimarui* n. sp.

1. Pleural plates 2. Sternal plate 3. Flattened seta
4. Male genitalia

gate cuneiform and flattened lateral setae. But occasionally the submedian setae are replaced with flattened setae. On the ventral side the first segment bears a pair of small oval sclerites, each with two minute setae, unchitinized median part of these sclerites with a pair of slender setae. Except for these sclerites on the first segment and the genital plate, the remainder of ventral surface being unchitinized. Genital plate divided transversely into two plates, posterior plate with a pair of flattened and acuminate setae and two pairs of slender setae. Posterior margin of the abdomen with three pairs of flattened and acuminate setae on a pair of small protuberances.

REMARKS

This new species is related to *Enderleinellus platyspicatus* Ferris, 1919 reported from *Funambulus palmaris* Linné, 1766 or *F. tristriatus* Waterhouse, 1837 in Colombo, Ceylon. The new species differs from *E. platyspicatus* in having a more numerous tergites in male, and in having a pair of short setae on the pleural plate of the second and fourth segments.

Genital organ of *E. platyspicatus* was not described in the original description by Ferris, because of the destruction of the male type specimen. Therefore, the comparison of the genital organs can not be made here.

The specific trivial name of this species was dedicated to Dr. Sinya Nishimaru, the chief of "Japan Academic Expedition of Central and South India".

TYPES

Holotype male and allotype female from a *Funambulus pennanti* Wroughton, 1905; Nalainpur, Madhya-Pradesh, India; January, 1962, coll. Dr. Genzo Mitsui.

Paratypes: Ten males and ten females with same data were deposited in the Department of M. Z., Tokyo Medical and Dental University.

Neohaematopinus echinatus (Neumann, 1909)

Haematopinus (Polyplax) echinatus Neumann, 1909, Archives de Parasitologie 13: 517-521; Fig. 19-20.

Neohaematopinus echinatus (Neumann), Cummings, 1912, Bulletin of Entomological Research 3: 393.

Type host: *Funambulus palmarum* Linné, 1766, Rajkote, India.

Notes. The author has collected five male and three female specimens of this species from *Funambulus pennanti* Wroughton, 1905 in Nalainpur, India.

They differ from the description by Ferris (1922) in having three very long setae and one short setae on eighth pleusal plate instead of two very long and two short setae. In addition, the apex of paramere of the present specimen is recurved like a fishhook instead of nearly straight apex shown in Ferris's drawing.

ACKNOWLEDGEMENT

The author wishes to acknowledge the kind arrangements given by Indian Government and by the Board of Development in Dandakaranya, India during the present study. He is also deeply grateful to Dr. Kenkichi Kawashima and Dr. Toshiki Shimazaki for their helpful advice. He is much indebted to Dr. Rokuro Kano and Dr. Nobuo Kumada for their valuable suggestions and for criticism the manuscript.

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