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Myrsidea willardi Price and Johnson, a New Species of Chewing Louse (Phthiraptera: Menoponidae) from Schlegel's Asity (Passeriformes: Philepittidae)

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ABSTRACT: A new species, ***Myrsidea willardi***, is described from the Schlegel's Asity, *Philepitta schlegeli*, from Madagascar. The only previously described species from the host family Philepittidae, *Myrsidea minuscula* (Piaget), is redescribed and illustrated. These two species of lice show pronounced genetic divergence based on partial mitochondrial cytochrome oxidase I sequences.

KEY WORDS: Chewing lice, *Myrsidea*, Phthiraptera, Menoponidae, Philepittidae, Madagascar

Philepittidae, one of only three families of Old World suboscine passerine birds, is indigenous to Madagascar. This family contains two genera and four species, with chewing lice from only one of these species, *Philepitta castanea* (Statius Müller), having been recorded previously. We have studied lice in the genus *Myrsidea* Waterston from each of the two species of asities of the genus *Philepitta* I. Geoffroy Saint-Hilaire. One of these series represents the previously described species and the other a new species, both of which are described and illustrated here. In addition, we report on the level of genetic distinctiveness between these two species using partial mitochondrial cytochrome oxidase I (COI) sequences.

In the following descriptions, all measurements are in millimeters. Tergal setal counts include the postspiracular setae and all setae between them. The setal counts for sternite II do not include the large heavy aster setae. Host classification follows that of Dickinson (2003). The holotype of the new species is deposited in the Field Museum of Natural History, Chicago; paratypes are in that collection and that of the U.S. National Museum of Natural History, Washington, DC and the Illinois Natural History Survey, Champaign. New material of *Myrsidea minuscula* is also deposited in these three collections.

Systematics

Myrsidea minuscula (Piaget)

(Figs. 1–4)

Menopon minusculum Piaget, 1885:104. Type host: "*Philepitta jala* de Madagascar" = *Philepitta castanea* (Statius Müller), the Velvet Asity.

DESCRIPTION: **Male**. As in Fig. 1. Metanotal margin with 13–14 setae; metasternal plate with 6–7 setae. Tergal setae: I, 13–16; II, 18–19; III, 20–21; IV, 18; V, 17–20; VI, 16–19; VII, 15–18; VIII, 11–12. All tergites of essentially similar size. Postspiracular setae very long on I–II, IV, and VII–VIII, shorter on III and V–VI. Sternal setae: II, 22–25, each aster with 4; III, 18–20; IV–VI, 23–28; VII, 16–17; VIII, 6–7. Genitalia (Fig. 3) with straight slender parameres, lightly spiculate sac with sclerite shaped as shown (Fig. 2). Dimensions: temple width, 0.38; head length, 0.25–0.28; prothorax width, 0.23–0.25;

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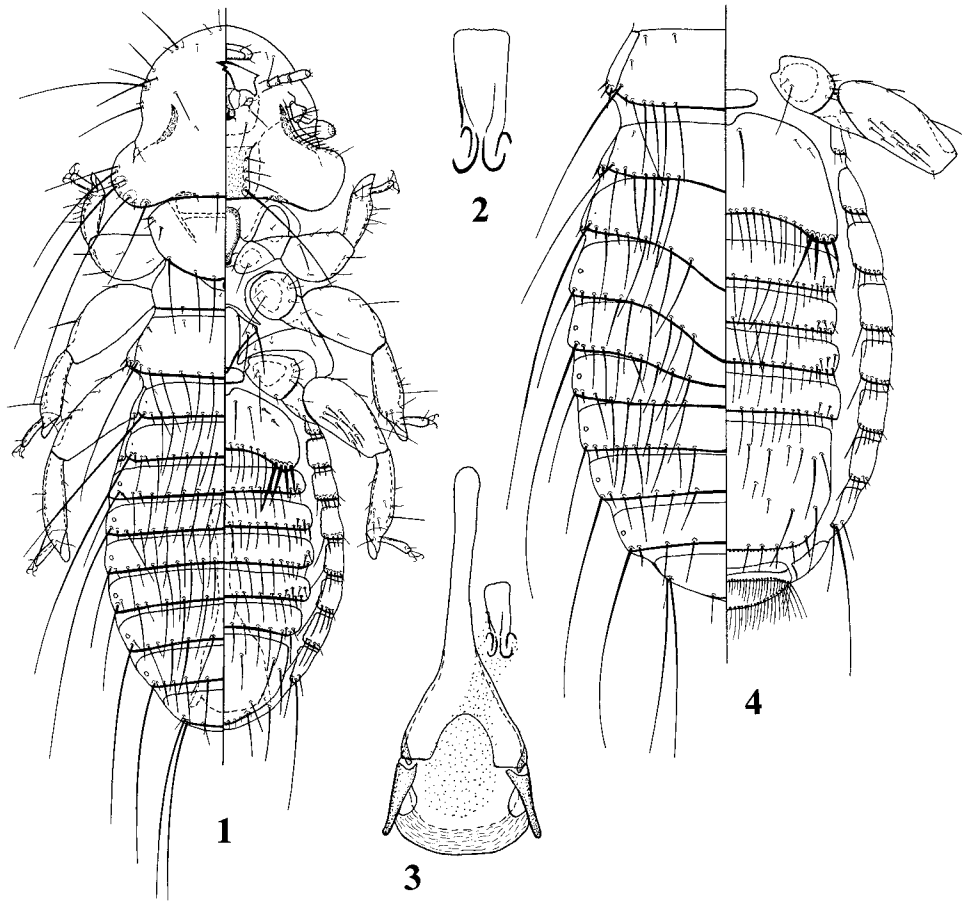


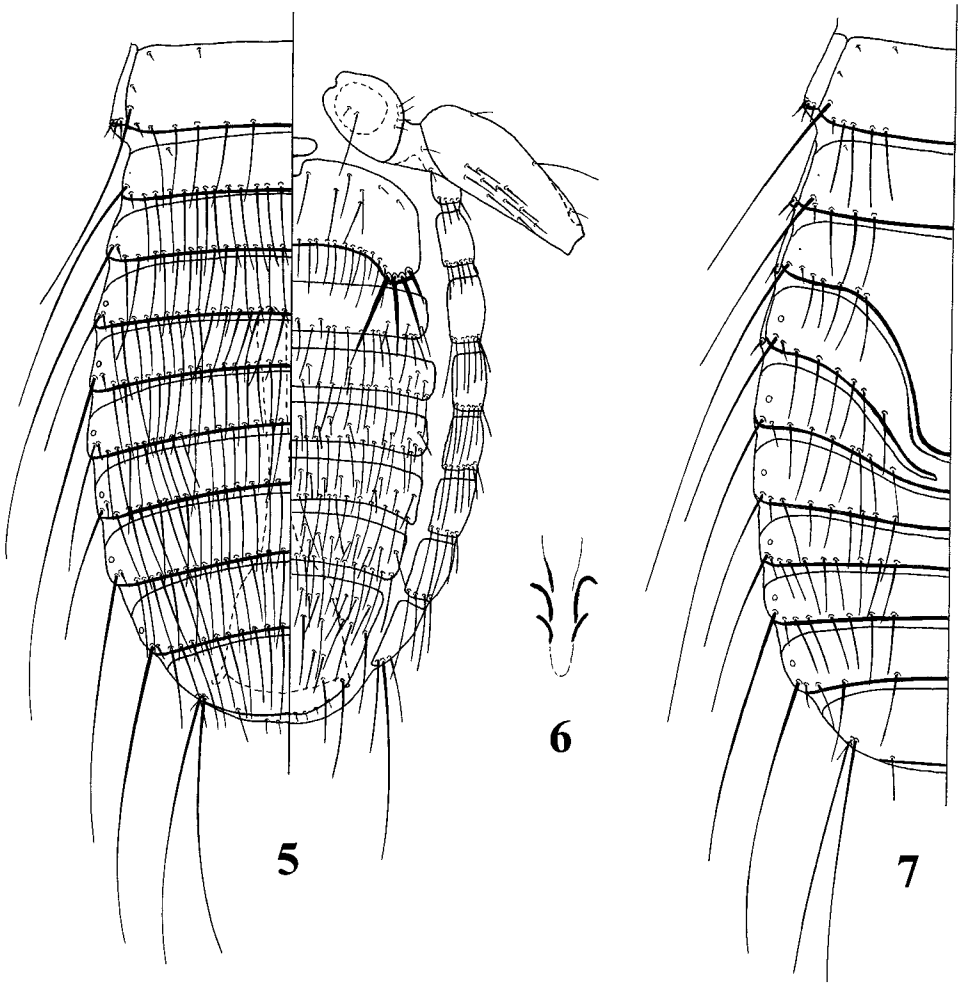
Figs. 1–4. *Myrsidea minuscula*. 1. dorsoventral whole male. 2. male genital sac sclerite. 3. male genitalia. 4. female metanotum and dorsoventral abdomen.

metathorax width, 0.33–0.34; abdomen width at IV, 0.38–0.41; total length, 1.13–1.16; genitalia length, 0.35–0.38.

Female. Metanotum and abdomen as in Fig. 4. Metanotal margin with 14–15 setae; metasternal plate with 6–8 setae. Tergal setae: I, 15–18; II, 17–20; III–VI, 19–22; VII, 15–18; VIII, 8. Tergite I slightly enlarged medially, II with pronounced medial expansion, III–VIII as shown. Postspiracular setae as for male. Sternal setae: II, 26–30, each aster with 4; III, 29–31; IV–V, 32–39; VI, 27–34; VII, 12–14; subgenital plate with 10–13 marginal, 8–9 anterior setae. Anus with 39–51 dorsal fringe setae, 43–50 ventral. Dimensions: temple width, 0.42–0.45; head length, 0.29–0.31; prothorax width, 0.27–0.30; metathorax width, 0.41–0.47; abdomen width at IV, 0.56–0.60; total length, 1.47–1.55; anus width, 0.21–0.23.

MATERIAL: Ex *P. castanea*, 3 females, 3 males, **MADAGASCAR:** Antsiranana (from three host individuals collected in 2001; field catalog numbers SMG12150, SMG12151, SMG12161); 3 males, entire type series of *Menopon minusculum* (on slide no. 826 in The Natural History Museum, London), Madagascar (1 collection).

DIAGNOSIS: This species is recognized by the female with only a modest enlargement of the anterior abdominal tergites (Fig. 4), the male by its relatively small number of tergal



Figs. 5–7. *Myrsidea willardi* n. sp. 5. male metanotum and dorsoventral abdomen. 6. male genital sac sclerite. 7. female metanotum and dorsal abdomen.

and sternal setae (Fig. 1) and its characteristic genital sac sclerite (Fig. 2), and both sexes by their small dimensions.

Clay (1949) discussed the status of *Menopon minusculum* that had been described by Piaget (1885) on the basis of three males from *P. castanea* and one male from *Rhipidura* sp.(?). She concluded that "In the absence of specific determination of the *Rhipidura* host, one of the [3] males on slide no. 826 will be designated as lectotype, thus fixing the type host of *minusculum* as *Philepitta castanea* (Müller)."

Myrsidea willardi Price and Johnson, new species

(Figs. 5–7)

TYPE HOST: *Philepitta schlegeli* Schlegel, the Schlegel's Asity.

DESCRIPTION: **Male.** Metanotum and abdomen as in Fig. 5. Metanotal margin with 14–17 setae; metasternal plate with 6–7 setae. Tergal setae: I, 23–28; II, 32–35; III, 29–39;

IV–VI, 34–39; VII, 32–37; VIII, 21–28. All tergites of essentially similar size. Postspiracular setae very long on I–II, IV, and VII–VIII, shorter on III and V–VI. Sternal setae: II, 31–37, each aster with 4; III, 29–35; IV–VI, 35–46; VII, 37–42; VIII, 22–26. Genitalia with sclerite shaped as shown (Fig. 6). Dimensions: temple width, 0.40–0.43; head length, 0.28–0.30; prothorax width, 0.28–0.29; metathorax width, 0.37–0.40; abdomen width at IV, 0.43–0.46; total length, 1.25–1.31; genitalia length, 0.39–0.42.

Female. Metanotum and dorsal abdomen as in Fig. 7. Metanotal margin with 12–13 setae; metasternal plate with 6 setae. Tergal setae: I, 11–12; II, 14–15; III, 15–19; IV–VI, 17–23; VII, 16–20; VIII, 9–10. Tergite II with large medioposterior expansion, III–IV with partial median fusion and compression as shown. Postspiracular setae as for male. Sternal setae: II, 26–31, each aster with 4; III, 25–38; IV, 32–38; V, 32–42; VI, 33–45; VII, 19–27; subgenital plate with 10–15 marginal, 9–15 anterior setae. Anus with 39–52 dorsal fringe setae, 44–50 ventral. Dimensions: temple width, 0.45–0.47; head length, 0.32; prothorax width, 0.31; metathorax width, 0.43–0.46; abdomen width at IV, 0.58–0.62; total length, 1.61–1.63; anus width, 0.24–0.27.

TYPE MATERIAL: Holotype female, ex *P. schlegeli*, **MADAGASCAR:** Toliara, 3 Dec. 2001, D. Willard, DW 5358. Paratypes, all ex *P. schlegeli*: 1 male, same as holotype; 2 females, 4 males, same except 1 Dec. 2001, DW 5339.

DIAGNOSIS: This species is recognized by the female with a much enlarged abdominal tergite II and medially compressed and partially fused tergites III–IV (Fig. 7), the male by its large number of tergal and sternal setae (Fig. 5) and its characteristic genital sac sclerite (Fig. 6), and both sexes by their large dimensions.

ETYMOLOGY: This species is named for David Willard, Field Museum of Natural History, in recognition of his tremendous contributions in collecting birds and chewing lice and his having been the collector of the specimens used for this description.

Discussion

The avian family Philepittidae, the asities, includes only four species recognized by Dickinson (2003), all restricted to Madagascar. The genus *Neodrepanis* Sharpe contains two species and no lice have yet been recorded from this genus (Price *et al.*, 2003). The genus *Philepitta* also has two species, both of which have *Myrsidea* that are the subject of this paper. With such a paucity of hosts and lice, little can be said about the relationships. Both *Myrsidea* species from the Philepittidae, while exhibiting similarities, are easily separated on a morphological basis.

In addition, these two louse species differ in a 379 base pair portion of the mitochondrial COI gene by 20.6% uncorrected sequence divergence (GenBank Accession Numbers pending acceptance). This level of sequence divergence is larger than most divergences between closely related species of chewing lice (Johnson *et al.*, 2002; Page *et al.*, 1998, 2004). Thus, these two species are substantially divergent from each other, even though their hosts are in the same genus. More work is needed to identify the phylogenetic placement of these two species within *Myrsidea*.

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