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The genus *Myrsidea* Waterston (Phthiraptera: Menoponidae) from bulbuls (Passeriformes: Pycnonotidae), with descriptions of 16 new species

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Abstract

We redescribe the only previously known species of *Myrsidea* from bulbuls, *M. pycnonoti* Eichler. Sixteen new species are described; they and their type hosts are: *M. phillipsi* ex *Pycnonotus goiavier goiavier* (Scopoli), *M. gieferi* ex *P. goiavier suluensis* Mearns, *M. kulpai* ex *P. flavescens* Blyth, *M. finlaysoni* ex *P. finlaysoni* Strickland, *M. kathleenae* ex *P. cafer* (L.), *M. warwicki* ex *Ixos philippinus* (J. R. Forster), *M. mcclurei* ex *Microscelis amaurotis* (Temminck), *M. zeylanici* ex *P. zeylanicus* (Gmelin), *M. plumosi* ex *P. plumosus* Blyth, *M. eutiloti* ex *P. eutilotus* (Jardine and Selby), *M. adamsae* ex *P. urostictus* (Salvadori), *M. ochracei* ex *Criniger ochraceus* F. Moore, *M. borbonici* ex *Hypsipetes borbonicus* (J. R. Forster), *M. johnsoni* ex *P. atriceps* (Temminck), *M. palmai* ex *C. ochraceus*, and *M. claytoni* ex *P. eutilotus*. A key is provided for the identification of these 17 species.

Key words: chewing lice, *Myrsidea*, Phthiraptera, Menoponidae, bulbuls, Pycnonotidae

Introduction

While compiling the world checklist of chewing lice (Price *et al.* 2003), we noticed that the passerine family Pycnonotidae, with 118 described species, had only *Myrsidea pycnonoti* Eichler listed for it. This single louse species, originally described from the type host *Pycnonotus analis* (Horsfield) (= *P. goiavier analis*), had a suspiciously long list of additional host taxa. Limited to this as the only louse name available in the host family, identifiers apparently applied it generously without benefit of a detailed study of the lice themselves. Examination of over 800 slides of pycnonotid *Myrsidea* in the collections at Washington, D.C., and Stillwater, Oklahoma, many identified as *M. pycnonoti*, convinced

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us that several undescribed *Myrsidea* species were present. We here report the results of our study of these lice.

In the following descriptions, all measurements are in millimeters. Abbreviations are TW, temple width; HL, head length at midline; PW, prothorax width; MW, metathorax width; AWIV, abdomen width at segment IV; LSVII, length of longer inner tergal seta on abdominal segment VII (Fig. 9: arrow); ANW, female anus width; TL, total length; GL, male genitalia length; and GSW, width of male genital sac sclerite at level of lateral spines. Tergal setal counts include the postspiracular setae and all setae between them. Host classification follows that of Dickinson (2003). We do not provide mean values for the various quantitative characters, as the mean is usually intermediate between the lower and upper limits of the range. Also, parenthetically after "Male" and "Female" for each description, we include the number of specimens from which quantified characters were taken. Where no etymology is given the species is named for the type host

The holotypes of all new species in this study are at the National Museum of Natural History, Smithsonian Institution, Washington, D.C. Paratypes are distributed between that collection and the K. C. Emerson Museum, Oklahoma State University, Stillwater.

Genus *Myrsidea* Waterston

Myrsidea Waterston 1915: 12. Type species: *Myrsidea victrix* Waterston by original designation.

This genus contains 208 recognized species, primarily from hosts in the avian order Passeriformes and, to a much lesser extent, from the orders Piciformes and Apodiformes. Only 40 of these *Myrsidea* species are recorded from more than a single host species and, with one exception, the multiple hosts for each of these are within the same host family (Price *et al.* 2003).

A thorough characterization of the genus *Myrsidea* is given by Clay (1966). We repeat here only features that are of principal significance in defining the genus as it pertains to the pycnonotid bulbul lice.

The whole male and female terminalia are much as in Figs. 1 and 3, respectively. Head without lateral notch or slit; inner occipital setae long, outer very short; without ventral sclerotized spinous processes; gula with heavier longer posterior pair of setae; hypopharyngeal sclerites well developed.

Thorax with pronotum having 6 long medioposterior marginal setae and 3 short setae at each lateral corner; mesonotum well defined with only 2 minute medioanterior setae adjacent to postnotum. Prosternal plate well developed, elongate, with 2 minute anterior setae; mesothorax with notum, pleura, and sternum fused to form strongly sclerotized ring; venter of femur III with brush of sparse setae.

Abdomen with undivided tergites; without anterior tergal or pleural setae; sternite I small, without setae; sternite II enlarged, with aster of 4–5 heavy setae at each lateroposte-

rior corner and total of 17–38 additional slender setae elsewhere. Female anus oval, without inner setae; subgenital plate of fused sternites VII–IX, with lightly serrated posterior margin. Male subgenital plate of fused sternites VIII–IX; genitalia of characteristic shape (Fig. 4), with spinous sac having small associated sclerite.

Sexual dimorphism is limited to males having smaller dimensions, sparser abdominal chaetotaxy, and differences associated with genitalic features at the posterior abdomen. Some females further may have gross enlargement of a metanotal or abdominal tergal plate.

In our treatment of the *Myrsidea* of bulbuls, we divide the lice into 3 groups of 9, 6, and 2 species, respectively. This separation is based primarily on the male genital sac sclerite and the state of development of the female metanotum or abdominal tergites. For brevity, we will not repeat the generic or group characters in discussing each species.

pycnonoti species group

The 9 species of this group are characterized by the male genital sac sclerite having a straight to slightly concave posterior margin (Figs. 5, 6, 8) and the female without significant enlargement of the metanotum or abdominal tergites (Figs. 3, 9). Additional features are gula with 2–4 setae on each side, metanotum with 6 marginal setae, metasternum with 4 setae, postspiracular setae very long on I–VIII, and tergite I with 6 (less often 7 or 8) marginal setae.

Myrsidea pycnonoti Eichler (Figs. 1–5)

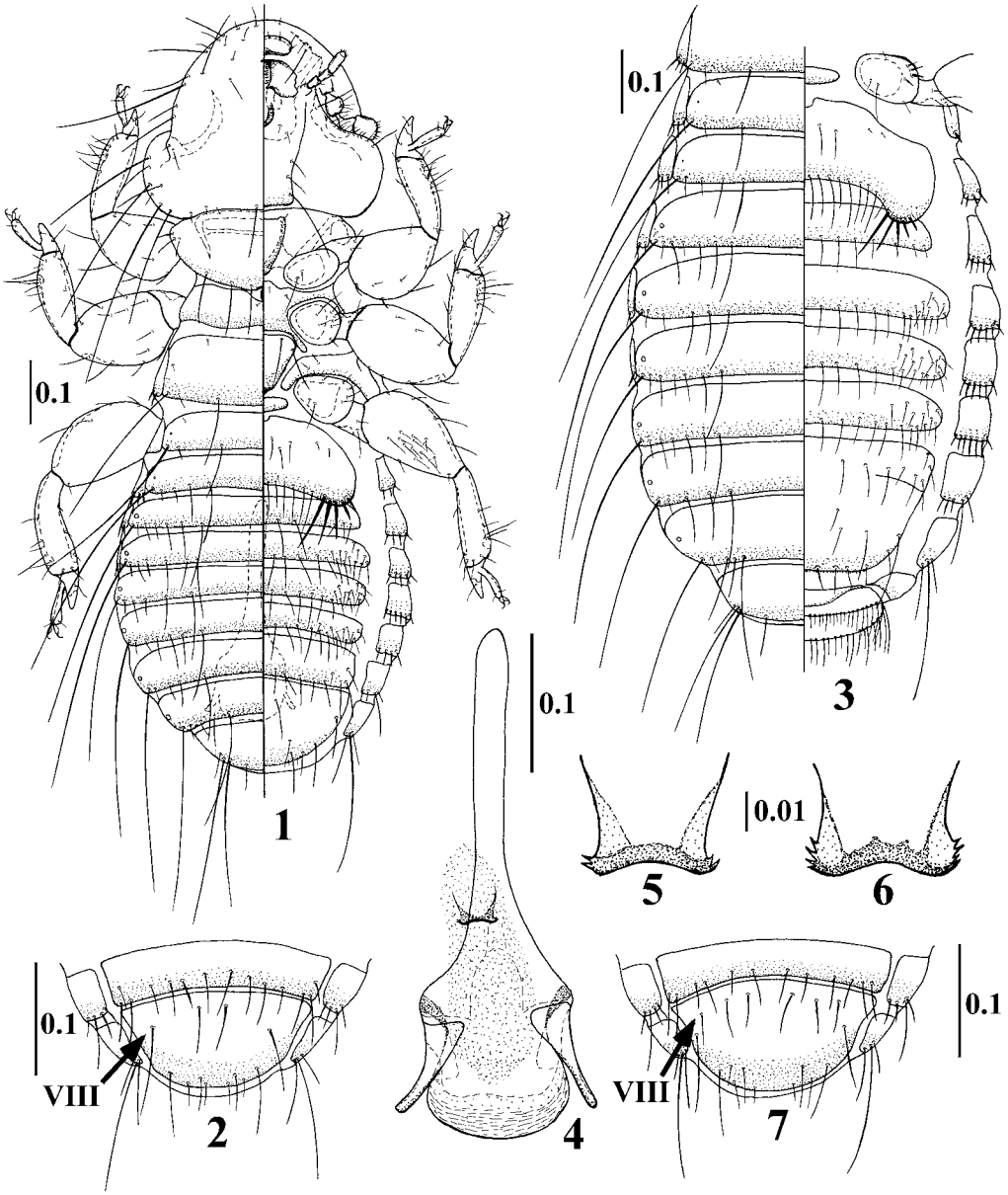
Myrsidea pycnonoti Eichler 1947: 18. Type host: "*Pycnonotus analis* Horsf." = *Pycnonotus goiavier analis* Horsfield.

Male (53). As in Fig. 1. Tergal setae: II, 8–12; III–V, 10–16; VI, 8–15; VII, 8–12; VIII, 8–10. Sternal setae: III, 6–13; IV–V, 24–39; VI, 20–34; VII, 11–20; VIII, 3–5 (Fig. 2: arrow). Genitalia as in Fig. 4, with genital sac sclerite as in Fig. 5. Dimensions: TW, 0.37–0.42; HL, 0.27–0.31; PW, 0.24–0.28; MW, 0.33–0.39; AWIV, 0.43–0.50; LSVII, 0.09–0.128 (mean = 0.106); TL, 1.07–1.27; GL, 0.32–0.40; GSW, 0.020–0.036.

Female (46). Abdomen as in Fig. 3. Tergal setae: II, 10–16; III–V, 12–18; VI, 11–16; VII, 9–14; VIII, 9–12. Sternal setae: III, 10–19; IV–V, 29–47; VI, 25–46; VII, 11–20; VIII, 14–24. Anal fringe with 33–46 ventral, 28–40 dorsal setae. Dimensions: TW, 0.42–0.46; HL, 0.29–0.34; PW, 0.27–0.30; MW, 0.40–0.48; AWIV, 0.56–0.66; LSVII, 0.12–0.22; ANW, 0.21–0.25; TL, 1.38–1.57.

Material. Ex *P. g. analis* and *P. g. jambu* Deignan, subspecies of the Yellow-vented Bulbul, 156 males, 147 females, **MALAYA** (100 collections), **W. JAVA** (10 collections),

THAILAND (8 collections), **SARAWAK** (17 collections). Ex *P. blanfordi* Jerdon, the Streak-eared Bulbul, 15 males, 6 females, **THAILAND** (11 collections). Ex *P. jocosus* (L.), the Red-whiskered Bulbul, 22 males, 15 females, **THAILAND** (14 collections), **HONG KONG** (1 collection), **INDIA** (1 collection). Ex *Tricholestes criniger* (Blyth), the Hairy-backed Bulbul, 5 males, 1 female, **MALAYA** (5 collections). Ex *Cerasophila thompsoni* Bingham, the White-headed Bulbul, 1 male, **THAILAND**.



FIGURES 1–7. 1–5, *Myrsidea pycnonoti*. 1, Dorsoventral male. 2, Ventral male terminalia. 3, Female metanotal margin and dorsoventral abdomen. 4, Male genitalia. 5, Male genital sac sclerite. 6, *M. phillipsi* male genital sac sclerite. 7, *M. gieferi* male ventral terminalia.

Remarks. The over 350 specimens of *M. pycnonoti* represent a far larger series than for any other species in this study. This species is recognized by its male genital sac sclerite structure and the dimensions and features of chaetotaxy of both sexes. The homogeneity of the lice off the subspecies of *P. goiavier* from Malaya, Java, Thailand, and Sarawak has convinced us of their conspecificity with what Eichler (1947) described as *M. pycnonoti*. Unfortunately, Eichler's description is brief, without illustrations, and of little value in characterizing species. However, a number of slides bear "det. T. Clay" on the label, reinforcing the fact that Clay had satisfied herself of the correctness of the identification. We see no reason to believe otherwise.

Myrsidea phillipsi Hellenthal and Price, new species (Fig. 6)

Type host. *Pycnonotus goiavier goiavier* (Scopoli).

Male (5). As for *M. pycnonoti*, except as follows. Tergal setae: II, 12–14; III–V, 13–16; VI, 12–14; VII, 9–14. Sternal setae: III, 9–12; IV–V, 31–35; VI, 26–33. Genital sac sclerite as in Fig. 6, with more extensive lateroposterior spinous area. Dimensions: TW, 0.40–0.42; HL, 0.29–0.31; PW, 0.27–0.29; MW, 0.36–0.40; AWIV, 0.49–0.51; TL, 1.20–1.27; GSW, 0.031–0.041.

Female (5). As for *M. pycnonoti*, except as follows. Tergal setae: II, 12–17; III–V, 14–18; VI, 13–15; VII, 10–16. Sternal setae: IV–V, 30–45. Dimensions: PW, 0.29–0.31; AWIV, 0.60–0.69; LSVII, 0.24–0.29; TL, 1.52–1.60.

Type material. Ex *P. g. goiavier*, holotype male, Siaton, Negros Oriental, **PHILIPPINES**, 6 Feb. 1965, H. E. McClure, 5E-1755. Paratypes, all ex *P. g. goiavier* in **PHILIPPINES**: 1 male, 3 females, same as holotype; 1 male, 2 females, same except 18 Feb.–2 Mar. 1965, 5E-1771, 5E-2081; 1 male, 1 female, Calatagan, Batangas, Luzon, 16 Sept. 1964, H. E. McClure, 5E-136, 5E-1599; 1 male, 1 female, Balian, Pangil, Laguna, 4 Nov. 1964, 5E-105.

Remarks. Both sexes of this species are very close to *M. pycnonoti*. However, the different structure of the male genital sac sclerite and the consistently longer inner tergal VII setae for the female will separate them. The hosts involved are all of northern and central Philippine origin, setting them geographically apart from all hosts for *M. pycnonoti*.

Etymology. This species is named for Chris Phillips, Illinois Natural History Survey, Champaign, in recognition of his encouragement and support for the publication of our world checklist of chewing lice.

Myrsidea gieferi Hellenthal and Price, new species (Fig. 7)

Type host. *Pycnonotus goiavier suluensis* Mearns.

Male (15). As for *M. pycnonoti*, except as follows. Sternal setae: III, 8–16; VII, 14–

21; VIII, 6–11 (Fig. 7: arrow). Genital sac sclerite as in Fig. 6, similar to that of *M. phillipsi*. Dimensions: LSVII, 0.10–0.26.

Female (17). Apparently indistinguishable from *M. phillipsi*.

Type material. Ex *P. g. suluensis*, holotype male, Tambo, Munai, Mindanao, **PHILIPPINES**, 28 Apr.1965, 5E-2210. Paratypes, all ex *P. g. suluensis* in **PHILIPPINES**: 1 male, same except 29 Apr.1965, 5E-2212; 4 males, 2 females, Balintad, Munai, Mindanao, 6 June 1965, 5E-2204, 5E-2206, 5E-2208; 1 male, Limot, Mati Davao, Mindanao, 20 June 1965, 5E-2369.

Other material. Ex *P. sinensis* (Gmelin), the Light-vented Bulbul, 11 males, 8 females, **HONG KONG** (10 collections), **TAIWAN** (4 collections).

Remarks. *Myrsidea gieferi* is unique in the *pycnonoti* group in that it is the only species for which the male sternite VIII has 6–11 (mean = 7.9) setae. Its distribution in the southern Philippines, Hong Kong, and Taiwan places it in close proximity with the hosts for the closely-related *M. phillipsi*, each of these louse species having a different subspecies of *P. goiavier* as the type host and having different geographic distributions from those taxa with *M. pycnonoti*.

Etymology. This species is named for Matthew Giefer in appreciation of his tireless efforts in the preparation of our world checklist of chewing lice.

Myrsidea kulpai Hellenthal and Price, new species

Type host. *Pycnonotus flavescens* Blyth.

Male (10). As for *M. pycnonoti*, except as follows. Tergal setae: II, 7–8; VI, 12–15; VII, 8–13. Sternal setae: VII, 10–14. Genital sac sclerite as in Fig. 6. Dimensions: GSW, 0.031–0.041.

Female (5). As for *M. pycnonoti*, except as follows. Tergal setae: II, 8; III–IV, 17–20; V, 15–19; VI, 15–18; VIII, 10–15.

Type material. Ex *P. flavescens*, the Flavescent Bulbul, holotype male, Doi Pui, Chieng Mai, **THAILAND**, 10 Feb. 1965, H. E. McClure, 5E-1852. Paratypes, all ex *P. flavescens* in **THAILAND**: 7 males, 2 females, same except 9–20 Feb. 1965, 5E-1885 to 5E-1934 (7 collections); 1 male, 1 female, same except 25 Sept. 1966, 6E-1677; 1 male, 2 females, Doi Inthanon, Chieng Mai, 10 Dec. 1964, H. E. McClure, 5E-1876.

Remarks. *Myrsidea kulpai* is separated from other species of this group by the size and shape of the male genital sac sclerite coupled with, for both sexes, the length of the inner seta on tergite VII and only 7–8 setae on tergite II. The type host, *P. flavescens*, also is unique.

Etymology. This species is named for Charles Kulpa, University of Notre Dame, Notre Dame, Indiana, in recognition of his interest in and support of our work on the chewing lice.

Myrsidea finlaysoni Hellenthal and Price, new species

Type host. *Pycnonotus finlaysoni* Strickland.

Male (6). Extremely close to that of *M. pycnonoti*, with only feature for separation being length of LSVII, 0.133–0.24 (mean = 0.173).

Female (2). Also close to *M. pycnonoti*, except as follows. Tergal setae: VIII, 6–10. Anal fringe with 45–48 ventral, 42–46 dorsal setae. Dimensions: LSVII, 0.23–0.27; ANW, 0.26–0.27.

Type material. Ex *P. finlaysoni*, the Stripe-throated Bulbul, holotype female, Muang Ban Bang Non, Ranang, **THAILAND**, 26 Aug. 1967, 7E-1503. Paratypes, all ex *P. finlaysoni* in **THAILAND**: 1 male, same as holotype; 3 males, same except 24 Aug. 1967, 7E-1510; 1 male, 1 female, Narathiwat, 4 Sept. 1964, H. E. McClure, H-0950; 1 male, Khao Soi Dao Tai, Chanthaburi, 10 Apr. 1966.

Remarks. The male is recognized by its relatively small dimensions, the longer inner seta on tergite VII, and the structure of the genital sac sclerite. The female is unique with its combination of wide anus, larger number of anal fringe setae, and the modest length of the inner seta on tergite VII. *Myrsidea finlaysoni* is the only member of this genus known from *P. finlaysoni*.

Myrsidea kathleenae Hellenthal and Price, new species (Fig. 8)

Type host. *Pycnonotus cafer* (L.).

Male (10). Much as in Fig. 1. Tergal setae: II, 10–16; III, 15–16; IV, 13–17; V, 13–15; VI, 12–14; VII, 10–13; VIII, 8–9. Sternal setae: III, 10–16; IV, 33–41; V, 35–45; VI, 29–38; VII, 17–21; VIII, 4–5 (Fig. 2: arrow). Genitalia much as in Fig. 4, but with wide genital sac sclerite as in Fig. 8. Dimensions: TW, 0.40–0.44; HL, 0.28–0.31; PW, 0.27–0.30; MW, 0.40–0.43; AWIV, 0.55–0.59; LSVII, 0.13–0.21; TL, 1.28–1.38; GL, 0.40–0.46; GSW, 0.046–0.056.

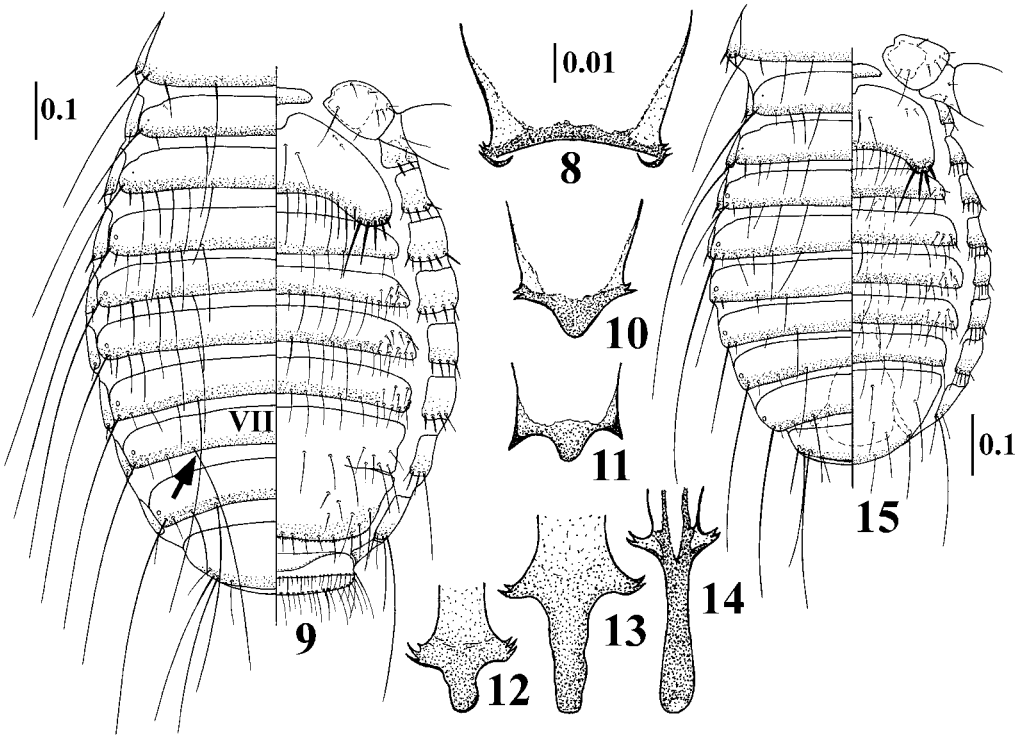
Female (10). Abdomen as in Fig. 3. Tergal setae: II, 13–16; III–V, 14–17; VI, 13–16; VII, 12–14; VIII, 10–12. Sternal setae: III, 15–20; IV–V, 33–49; VI, 29–41; VII, 13–22; VIII, 18–23. Anal fringe with 39–44 ventral, 35–43 dorsal setae. Dimensions: TW, 0.45–0.48; HL, 0.29–0.32; PW, 0.29–0.31; MW, 0.45–0.50; AWIV, 0.64–0.76; LSVII, 0.20–0.28; ANW, 0.25–0.27; TL, 1.53–1.71.

Type material. Ex *P. cafer*, the Red-vented Bulbul, holotype male, Bogor, **W. JAVA**, 30 Nov. 1967, 8E-0335. Paratypes, all ex *P. cafer* in **W. JAVA**: 7 males, 3 females, same as holotype; 4 males, 4 females, same except 6–30 Nov. 1967, 8E-0325, 8E-0327, 8E-0340; 18 males, 10 females, Botanical Garden, Bogor, 5 Feb. 1967–6 Feb. 1970, 8E-0338 to 8E-0820 (8 collections), 9E-0609, X1E-195.

Remarks. The male of *M. kathleenae* is distinguished from all other males by the shape and very wide size of the genital sac sclerite (Fig. 8). The wide anus and relatively

long inner seta on tergite VII enable female separation. This species is the only known *Myrsidea* on *P. cafer.*

Etymology. This species is named for Kathleen A. Hartman, Minneapolis, Minnesota, the elder daughter of the junior author.



FIGURES 8–15. 8, *Myrsidea kathleenae* male genital sac sclerite. 9, *M. warwicki* female metanotal margin and dorsoventral abdomen. 10–14, Male genital sac sclerite. 10, *M. plumosi*. 11, *M. adamsae*. 12, *M. ochracei*. 13, *M. borbonici*. 14, *M. johnsoni*. 15, *M. palmai* male metanotal margin and dorsoventral abdomen.

Myrsidea warwicki Hellenthal and Price, new species (Fig. 9)

Type host. *Ixos philippinus* (J. R. Forster).

Male (20). Head and thorax as in Fig. 1. Tergal setae: II, 10–15; III–IV, 12–17; V, 9–16; VI, 8–13; VII, 7–9; VIII, 7–9. Sternal setae: III, 7–12; IV–VI, 23–35; VII, 11–18; VIII, 4–5 (Fig. 2: arrow). Genitalia much as in Fig. 4, but with genital sac sclerite as in Fig. 6. Dimensions: TW, 0.41–0.46; HL, 0.28–0.31; PW, 0.26–0.30; MW, 0.36–0.40; AWIV, 0.48–0.51; LSVII, 0.28–0.38; TL, 1.13–1.27; GL, 0.35–0.42; GSW, 0.026–0.036.

Female (16). Abdomen as in Fig. 9. Tergal setae: II, 13–18; III–IV, 12–21; V, 11–18; VI, 9–14; VII, 7–14; VIII, 8–11. Sternal setae: III, 9–15; IV–V, 29–45; VI, 25–36; VII, 12–18; VIII, 16–27. Anal fringe with 34–42 ventral, 28–36 dorsal setae. Dimensions: TW,

0.46–0.51; HL, 0.31–0.35; PW, 0.28–0.31; MW, 0.41–0.48; AWIV, 0.58–0.67; LSVII, 0.27–0.46; ANW, 0.19–0.24; TL, 1.40–1.64.

Type material. Ex *I. philippinus*, the Philippine Bulbul, holotype male, Camp Lookout, Negros Oriental, **PHILIPPINES**, 8 Feb.1965, H. E. McClure, 5E-1766. Paratypes, all ex *I. philippinus* in **PHILIPPINES**: 2 males, same as holotype; 4 males, same except 5E-1765, 5E-1769; 5 males, 5 females, Siaton, Negros Oriental, 6 Feb. 1965, H. E. McClure, 5E-1757, 5E-1764; 1 female, Mahaplaq, 11 June 1964, H. E. McClure, 5E-1677; 1 male, 2 females, Pasi, Mindoro, 10 July 1964, H-0192, H-0240; 1 male, Balian, Laguna, 16 July 1964, H. E. McClure, H-0100; 1 male, 1 female, Mt. Makiling, Luzon, 13 Aug. 1964, H. E. McClure, H-0014; 1 female, Mt. Pinatabo, Zambales, Luzon, 3 Oct. 1966, #95.

Other material. Ex *I. siquijorensis* (Steere), the Streak-breasted Bulbul, 13 males, 8 females, **PHILIPPINES** (11 collections).

Remarks. Both sexes are recognized by their large size and very long inner seta on tergite VII, along with the male sternite VIII with only 4, less often 5, setae and its genital sac sclerite as in Fig. 6.

Etymology. This species is named for Charles Warwick, Illinois Natural History Survey, Champaign, in recognition of his encouragement and assistance in the publication of our world checklist of chewing lice.

Myrsidea mcclurei Hellenthal and Price, new species

Type host. *Microscelis amaurotis* (Temminck).

Male (4). Close to *M. warwicki*, differing as follows. Tergal setae: II–VII, respectively, 15, 18, 20, 18, 15, 8. Sternal setae: III, 15; IV, 35. Genitalia much as in Fig. 4; genital sac sclerite as in Fig. 5. Dimensions: TW, 0.42–0.48; AWIV, 0.45–0.52; TL, 1.23–1.29; GL, 0.41–0.44.

Female (5). Close to *M. warwicki*, differing as follows. Tergal setae: VI, 13–16; VII, 8–10. Sternal setae: III, 19–21; IV–V, 39–46; VI, 30–36. Anal fringe with 40–44 ventral, 32–39 dorsal setae. Dimensions: TW, 0.47–0.52; HL, 0.32–0.36; PW, 0.30–0.33; MW, 0.45–0.51; AWIV, 0.63–0.66; ANW, 0.25–0.26; TL, 1.56–1.73.

Type material. Ex *M. amaurotis*, the Brown-eared Bulbul, holotype female, Orchid Island, **TAIWAN**, 3 May 1969, 9E-0773. Paratypes, all ex *M. amaurotis* in **TAIWAN**: 1 female, same as holotype; 2 males, 2 females, same except 3–8 May 1968, 9E-0786, 9E-0793; 2 males, 6 females, Hungtou, Taitung, 1 May 1969, 9E-0788, 9E-0796.

Remarks. Both sexes are very close to *M. warwicki*, but the male has more setae on sternite III and tergite IV, and the female also has more setae on sternite III as well as a wider anus.

Etymology. This species is named for the late H. Elliott McClure, ornithologist, entomologist, and conservationist, the collector of many of the hosts yielding lice used for our study.

Myrsidea zeylanici Hellenthal and Price, new species

Type host. *Pycnonotus zeylanicus* (Gmelin).

Male (10). Close to *M. warwicki*, differing as follows. Tergal setae: II, 9–14; V, 14–17; VI, 13–16; VII, 10–13; VIII, 8–10. Sternal setae: III, 10–13; IV–V, 32–42; VI, 29–36; VII, 14–19; VIII, 4. Genitalia much as in Fig. 4, genital sac sclerite as in Fig. 5. Dimensions: HL, 0.30–0.33; PW, 0.29–0.31; MW, 0.39–0.41; AWIV, 0.51–0.54; LSVII, 0.09–0.12; TL, 1.25–1.33.

Female (8). Close to *M. warwicki*, differing as follows. Tergal setae: II, 13–16; III–V, 15–19; VI, 14–17; VII, 11–14; VIII, 10–12. Sternal setae: III, 15–20; VI, 31–37; VIII, 19–24. Anal fringe with 39–46 ventral, 32–45 dorsal setae. Dimensions: PW, 0.32–0.34; MW, 0.46–0.50; AWIV, 0.65–0.72; LSVII, 0.12–0.16; ANW, 0.26–0.27; TL, 1.61–1.69.

Type material. Ex *P. zeylanicus*, the Straw-headed Bulbul, holotype male, R. Panjang, **MALAYA**, 28 Dec. 1961, M-00823. Paratypes, all ex *P. zeylanicus* in **MALAYA**: 1 male, same as holotype; 6 males, 7 females, same except 5 Apr. 1962, M-01266; 2 males, 1 female, Ulu Gombala, 10 Jan. 1964, H. E. McClure, H-0990.

Remarks. Both sexes are close to *M. warwicki*, but differ in having shorter inner setae on tergite VII. The separation of the male is further supported by the genital sac sclerite of the type in Fig. 5 and by the large dimensions.

plumosi species group

The 6 species of this group are characterized by the male genital sac sclerite having a distinct medioposterior convexity (Figs. 10–14), the female without significant enlargement of the metanotum or abdominal tergites (Figs. 3, 9), and the remaining characters as for the *pycnonoti* species group.

Myrsidea plumosi Hellenthal and Price, new species (Fig. 10)

Type host. *Pycnonotus plumosus* Blyth.

Male (20). Much as in Fig. 1. Tergal setae: II, 8–11; III–V, 11–16; VI, 10–13; VII, 8–12; VIII, 8–11. Sternal setae: III, 8–15; IV, 24–39; V, 26–45; VI, 19–35; VII, 8–19; VIII, 4–5 (Fig. 2: arrow). Genitalia as in Fig. 4, but with genital sac sclerite as in Fig. 10. Dimensions: TW, 0.41–0.44; HL, 0.27–0.31; PW, 0.24–0.28; MW, 0.34–0.39; AWIV, 0.44–0.51; LSVII, 0.18–0.28; TL, 1.11–1.26; GL, 0.35–0.39; GSW, 0.026–0.036.

Female (18). Abdomen much as in Fig. 3. Tergal setae: II, 10–14; III–IV, 13–20; V–VI, 12–17; VII, 9–14; VIII, 10–16. Sternal setae: III, 14–22; IV–V, 33–45; VI, 26–36; VII, 9–14; VIII, 16–24. Anal fringe with 33–42 ventral, 31–43 dorsal setae. Dimensions: TW, 0.47–0.50; HL, 0.30–0.33; PW, 0.28–0.32; MW, 0.41–0.47; AWIV, 0.59–0.67; LSVII, 0.22–0.35; ANW, 0.22–0.26; TL, 1.43–1.64.

Type material. Ex *P. plumosus*, the Olive-winged Bulbul, holotype male, R. Panjang, **MALAYA**, 22 Dec. 1961, M-00780. Paratypes, all ex *P. plumosus* in **MALAYA**: 1 male, 1 female, same as holotype; 27 males, 26 females, same except 1 Dec. 1961-22 Nov. 1962, M-00568 to M-01926 (22 collections).

Other material. Ex *P. melanicterus* (J. F. Gmelin), the Black-crested Bulbul, 9 males, 9 females, **THAILAND** (11 collections). Ex *P. brunneus* Blyth, the Red-eyed Bulbul, 4 males, 2 females, **MALAYA** (3 collections). Ex *P. simplex* Lesson, the Cream-vented Bulbul, 2 males, 2 females, **MALAYA** (3 collections).

Remarks. The shape of the genital sac sclerite and the large dimensions separate the male of this species from others of the group. The female apparently is inseparable from those of *M. phillipsi* and *M. gieferi* other than by host association, with those of *M. plumosi* being found only in Thailand and Malaya and those of the other 2 species found primarily in the Philippines.

Myrsidea eutiloti Hellenthal and Price, new species

Type host. *Pycnonotus eutilotus* (Jardine and Selby).

Male (11). Close to *M. plumosi*, differing as follows. Tergal setae: II, 8–9; III–V, 10–14. Sternal setae: III, 7–12; IV, 19–36; V, 24–36; VI, 17–28; VII, 9–12; VIII, 4. Dimensions: TW, 0.38–0.40; HL, 0.24–0.29; PW, 0.23–0.26; MW, 0.30–0.34; AWIV, 0.40–0.44; LSVII, 0.12–0.22; TL, 0.96–1.10; GL, 0.31–0.37.

Female (11). Close to *M. plumosi*, differing as follows. Tergal setae: II, 8–13; V–VI, 12–19; VII, 10–16; VIII, 11–18. Sternal setae: III, 12–18; IV–V, 28–42; VI, 24–32; VII, 10–16. Anal fringe with 31–37 ventral, 25–33 dorsal setae. Dimensions: TW, 0.41–0.46; HL, 0.28–0.31; PW, 0.25–0.28; MW, 0.36–0.40; AWIV, 0.51–0.58; LSVII, 0.20–0.30; ANW, 0.19–0.22; TL, 1.23–1.39.

Type material. Ex *P. eutilotus*, the Puff-backed Bulbul, holotype male, Semengo, **SARAWAK**, 14 Aug. 1966, 7E-0722. Paratypes, all ex *P. eutilotus*: 1 female, same as holotype; 2 males, 4 females, same except 8 Sept. 1966, 7E-0724; 3 males, 3 females, Pengkalanlobang Niah, **SARAWAK**, 28 Feb. 1967, 7E-1454; 9 males, 7 females, Subang, **MALAYA**, 19 Apr.-2 May 1962, M-01339 to M-01364 (4 collections).

Other material. Ex *P. erythropthalmus* (Hume), the Spectacled Bulbul, 3 males, 2 females, **MALAYA** (3 collections), **THAILAND** (2 collections). Ex *P. cyaniventris* Blyth, the Grey-bellied Bulbul, 1 male, 1 female, **THAILAND** (1 collection).

Remarks. Both sexes of *M. eutiloti* are separated from those of *M. plumosi* by consistently being smaller in all dimensions. There also is a tendency for *M. eutiloti* to have reduced numbers of abdominal setae.

Myrsidea adamsae Hellenthal and Price, new species (Fig. 11)

Type host. *Pycnonotus urostictus* (Salvadori).

Male (10). Much as in Fig. 1. Tergal setae: II, 7–9; III–VI, 16–22; VII, 13–16; VIII, 9–13. Sternal setae: III, 9–14; IV–V, 31–44; VI, 29–37; VII, 18–22; VIII, 7–9 (Fig. 7: arrow). Genitalia as in Fig. 4, but with genital sac sclerite as in Fig. 11, with lateroposterior corners evenly tapered to point. Dimensions: TW, 0.39–0.42; HL, 0.26–0.29; PW, 0.26–0.28; MW, 0.31–0.37; AWIV, 0.41–0.46; LSVII, 0.09–0.12; TL, 1.01–1.23; GL, 0.31–0.40; GSW, 0.026–0.031.

Female (8). Abdomen much as in Fig. 3. Tergal setae: II, 8–10; III–IV, 21–25; V, 19–27; VI, 19–22; VII, 15–18; VIII, 13–16. Sternal setae: III, 18–20; IV–V, 38–56; VI, 32–43; VII, 13–18; VIII, 24–33. Anal fringe with 39–42 ventral, 31–39 dorsal setae. Dimensions: TW, 0.45–0.48; HL, 0.28–0.31; PW, 0.28–0.30; MW, 0.41–0.44; AWIV, 0.58–0.62; LSVII, 0.08–0.11; ANW, 0.22–0.24; TL, 1.38–1.53.

Type material. Ex *P. urostictus*, the Yellow-wattled Bulbul, holotype male, Tambo, Monai, Mindanao, **PHILIPPINES**, 30 Apr. 1965, 5E-2191. Paratypes, all ex *P. urostictus* in **PHILIPPINES**: 3 males, 1 female, same as holotype; 4 males, 3 females, same except 23 Apr. 1965, 5E-2189; 2 males, Balintad, Monai, Mindanao, 7–8 May 1965, 5E-2092, 5E-2187; 1 male, Mt. Makiling, Laguna, 1 May 1966, 6E-0587; 4 males, 4 females, Balian, Pangil, Laguna, 5 Nov. 1964, H. E. McClure, 5E-066, 5E-108; 3 males, 1 female, Balian, Laguna, 27 Aug. 1964, H-0153.

Remarks. The male of *M. adamsae* is unique by the shape of its genital sac sclerite coupled with the presence of 7–9 setae on sternite VIII. In addition, both sexes generally have more tergal and sternal setae, as well as a quite short inner seta on tergite VII.

Etymology. This species is named for Nancy E. Adams, Washington, D.C., in appreciation of her continuing generous help in lending us valuable louse specimens from the National Museum of Natural History collection.

Myrsidea ochracei Hellenthal and Price, new species (Fig. 12)

Type host. *Criniger ochraceus* F. Moore.

Male (31). Much as in Fig. 1. Tergal setae: II, 8–11; III–V, 10–17; VI, 10–15; VII, 8–14; VIII, 8–11. Sternal setae: III, 6–14; IV, 21–41; V, 26–45; VI, 20–37; VII, 10–18; VIII, 4 (Fig. 2: arrow). Genitalia as in Fig. 4, but with genital sac sclerite as in Fig. 12. Dimensions: TW, 0.41–0.46; HL, 0.28–0.32; PW, 0.25–0.29; MW, 0.35–0.41; AWIV, 0.45–0.53; LSVII, 0.12–0.26; TL, 1.11–1.28; GL, 0.34–0.41; GSW, 0.026–0.036.

Female (31). Abdomen much as in Fig. 3. Tergal setae: II, 8–14; III–IV, 12–21; V, 13–18; VI, 12–17; VII, 9–15; VIII, 10–15. Sternal setae: III, 11–18; IV–V, 26–47; VI, 24–35; VII, 10–17; VIII, 17–26. Anal fringe with 31–39 ventral, 25–36 dorsal setae. Dimensions: TW, 0.44–0.50; HL, 0.30–0.33; PW, 0.27–0.31; MW, 0.40–0.48; AWIV, 0.56–0.70; LSVII, 0.16–0.31; ANW, 0.20–0.23; TL, 1.34–1.65.

Type material. Ex *C. ochraceus*, the Ochraceous Bulbul, holotype male, Chanthabari, Khao Soi Dao Tai, **THAILAND**, 12 Apr. 1966, MAPS-5095. Paratypes, all ex *C. ochraceus* in **THAILAND**: 19 males, 18 females, same except 11 Mar.–21 Apr. 1966, MAPS-4289 to MAPS-5259 (33 collections, not including MAPS-4300, 4510, or 4693); 1 female, Ranong, Muang Ban, 1 Dec. 1966, 7E-0533; 5 males, 3 females, Nakornsithamonaraj, Khao Luang, 14–28 May 1965, MAPS-143, MAPS-268 to MAPS-533 (5 collections).

Other material. Ex *C. bres* (Lesson), the Gray-cheeked Bulbul, 7 males, 8 females, **MALAYA** (7 collections), **SARAWAK** (2 collections), **THAILAND** (1 collection). Ex *C. pallidus* Swinhoe, the Puff-throated Bulbul, 7 males, 7 females, **THAILAND** (8 collections). Ex *Ixos mcclellandii* (Horsfield), the Mountain Bulbul, 6 males, 10 females, **THAILAND** (6 collections), **MALAYA** (6 collections). Ex *Hemixos flavala* Blyth, the Ashy Bulbul, 1 male, **THAILAND**.

Remarks. The unique shape of the male genital sac sclerite (Fig. 12) sets this species apart from all others; quantitative features also support this separation. The female is only tenuously separable, with host association being the only certain feature of recognition.

Myrsidea borbonici Hellenthal and Price, new species (Fig. 13)

Type host. *Hypsipetes borbonicus* (J. R. Forster).

Male (3). Close to *M. ochracei*, differing as follows. Sternal setae: III, 12–14. Genitalia as in Fig. 4, but with genital sac sclerite as in Fig. 13. Dimensions: TW, 0.44–0.46; HL, 0.31–0.32; LSVII, 0.10–0.13; TL, 1.33–1.37; GL, 0.39–0.42; GSW, 0.036.

Female (5). Close to *M. ochracei*, differing as follows. Tergal setae: III, 19–23; IV, 20–26; V, 19–21; VI, 17–20; VII, 13–17; VIII, 15–18. Sternal setae: III, 22–27; VIII, 24–32. Dimensions: TW, 0.49–0.53; HL, 0.33–0.35; PW, 0.31–0.33; MW, 0.46–0.50; AWIV, 0.64–0.70; TL, 1.65–1.77.

Type material. Ex *H. borbonicus*, the Olivaceous Bulbul, holotype male, Tokomoko, **REUNION**, 15 Mar. 1981, N. Barré. Paratypes, all ex *H. borbonicus* in **REUNION**: 2 males, 2 females, same as holotype; 3 females, same except 15 Aug. 1981.

Remarks. While both sexes of *M. borbonici* are morphologically close to those of *M. ochracei*, they may be separated by the unique male genital sac sclerite and the female with larger dimensions and more tergal and sternal setae.

Myrsidea johnsoni Hellenthal and Price, new species (Fig. 14)

Type host. *Pycnonotus atriceps* (Temminck).

Male (16). Much as in Fig. 1. Tergal setae: II, 8–10; III–VI, 12–16; VII, 10–14; VIII, 8–12. Sternal setae: III, 6–12; IV–VI, 21–37; VII, 12–16; VIII, 4–5 (Fig. 2: arrow). Geni-

talia as in Fig. 4, but with genital sac sclerite as in Fig. 14. Dimensions: TW, 0.36–0.40; HL, 0.26–0.28; PW, 0.23–0.26; MW, 0.30–0.34; AWIV, 0.40–0.44; LSVII, 0.09–0.16; TL, 1.04–1.15; GL, 0.33–0.39; GSW, 0.026–0.031.

Female (12). Abdomen much as in Fig. 3. Tergal setae: II, 9–15; III–IV, 17–22; V, 14–21; VI, 14–19; VII, 12–16; VIII, 16–19. Sternal setae: III, 13–19; IV–V, 32–42; VI, 26–33; VII, 9–14; VIII, 18–24. Anal fringe with 33–40 ventral, 27–36 dorsal setae. Dimensions: TW, 0.42–0.46; HL, 0.28–0.31; PW, 0.26–0.29; MW, 0.39–0.43; AWIV, 0.55–0.59; LSVII, 0.13–0.22; ANW, 0.20–0.22; TL, 1.38–1.50.

Type material. Ex *P. atriceps*, the Black-headed Bulbul, holotype male, Bukit & Lagang F. R., **MALAYA**, 18 Apr. 1955, M-02116. Paratypes, all ex *P. atriceps*: **MALAYA**, 1 male, 1 female, same as holotype except 14 Apr. 1955, M-2114, M-2115; 4 males, 3 females, Subang, 26 Jan. 1962, M-00857; 1 female, Gombak, 17 Apr. 1963, M-02116. **THAILAND**, 6 males, 2 females, Ranang, Muang Ban Bangua, 21–26 Aug. 1967, 7E-1507, 7E-1508, 7E-1516; 1 male, 3 females, Narathiwat, 4 Sept. 1964, H. E. McClure, H-0956; 6 males, 3 females, Ban Nang Nom, Ranong, 20–25 Oct. 1966, 6E-1790, 7E-0019, 7E-0043; 2 males, Khao Sa Bap, Nam Tok Phriu, Apr. 1966; 1 male, Phathalung, Muang, 21 Nov. 1966, 7E-0512. **PHILIPPINES**, 4 males, 1 female, Kabigaan, Aborlan, Palawan, 3 Aug. 1964, H. E. McClure, H-0054, H-0055; 2 males, 1 female, same except 11 Feb. 1965, 5E-1805; 1 female, Quezon, Palawan, 27 July 1964, H. E. McClure, H-0045; 3 males, 1 female, Brookes Point, Palawan, 30–31 Mar. 1962, M. Thompson, BBM-PI 721, BBM-PI 800; 1 male, 1 female, Iwahig, Palawan, 1967, G. L. Alcarid, 7E-1238; 1 male, 1 female, same except 6–8 May 1968, 8E-1382, 8E-1393.

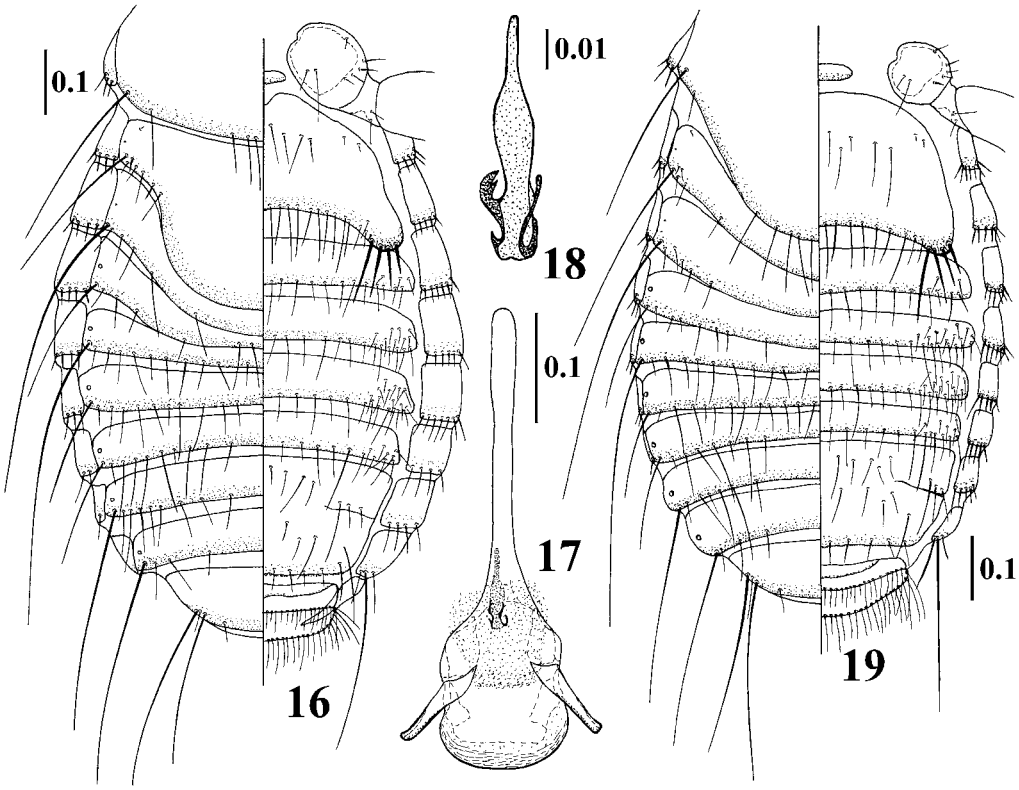
Other material. Ex *P. melanoleucos* (Eyton), the Black-and-white Bulbul, 2 males, **SARAWAK** (1 collection).

Remarks. The male genital sac sclerite of this species is unique, but of the general type for *M. borbonici* and *M. ochracei*; the smaller temple and metathorax width will further separate its male from these last 2 species. The female is tenuously separable by its larger number of setae on tergite III along with smaller dimensions.

Etymology. This species is named for Kevin P. Johnson, Illinois Natural History Survey, Champaign, in recognition of his outstanding genetic work on chewing lice and his association with us in the production of the world checklist.

palmai species group

The 2 species of this group are characterized by the male genital sac sclerite being of an unusual type (Figs. 17, 18) and the female with a pronounced enlargement of the metanotum or an abdominal tergite (Figs. 16, 19). Additional features are the gula with 5 (much less often 4 or 6) setae on each side, female metanotum with 8–12 marginal setae and male with 6–10, metasternum with 6–8 setae, postspiracular setae shorter on III and V–VI than on other segments, and tergite I with 9–14 marginal setae.



FIGURES 16–19. 16–18, *Myrsidea palmai*. 16, Female metanotal margin and dorsoventral abdomen. 17, Male genitalia. 18, Male genital sac sclerite. 19, *M. claytoni* female metanotal margin and dorsoventral abdomen.

Myrsidea palmai Hellenthal and Price, new species (Figs. 15–18)

Type host. *Criniger ochraceus* F. Moore.

Male (4). Much as in Fig. 15. Tergal setae: II–IV, 11–13; V, 8–10; VI, 8–9; VII, 8; VIII, 7–8. Sternal setae: III, 17–21; IV, 20–25; V, 28–36; VI, 24–31; VII, 12–15; VIII, 4 (Fig. 2: arrow). Dimensions: TW, 0.41–0.45; HL, 0.31–0.32; PW, 0.27–0.30; MW, 0.38–0.41; AWIV, 0.47–0.52; LSVII, 0.09–0.13; TL, 1.32–1.44; GL, 0.37–0.45; GSW, 0.020–0.026.

Female (5). Metanotum and abdomen as in Fig. 16. Tergite I greatly enlarged. Tergal setae: II, 11–16; III, 15–20; IV–V, 21–29; VI, 16–21; VII, 12–18; VIII, 8. Sternal setae: III, 22–37; IV, 39–50; V, 43–57; VI, 28–33; VII, 13–14; VIII, 20–27. Anal fringe with 35–39 ventral, 36–46 dorsal setae. Dimensions: TW, 0.49–0.50; HL, 0.34–0.35; PW, 0.31–0.32; MW, 0.49–0.53; AWIV, 0.60–0.69; LSVII, 0.04–0.06; ANW, 0.24–0.26; TL, 1.65–1.71.

Type material. Ex *C. ochraceus*, holotype female, Khao Luang, Nakornsithamonraj,

THAILAND, 14 May 1965, MAPS-148. Paratypes, all ex *C. ochraceus* in **THAILAND**: 1 male, 1 female, same as holotype; 3 females, same except 12 May 1965, MAPS-121; 3 males, Chanthabari, Khao Soi Dao Tai, 11–23 Mar. 1966, MAPS-4300, MAPS-4510, MAPS-4693.

Remarks. The unique male genital sac sclerite and the greatly enlarged female tergite I readily distinguish this species from all of the preceding 15 species. Other features, as given in the group characterization, further add to this separation.

Etymology. This species is named for Ricardo L. Palma, Museum of New Zealand Te Papa Tongarewa, Wellington, in recognition of his outstanding contributions to chewing louse taxonomy and his association with us in the production of the world checklist.

Myrsidea claytoni Hellenthal and Price, new species (Fig. 19)

Type host. *Pycnonotus eutilotus* (Jardine and Selby).

Male (6). Close to *M. palmai*, differing as follows. Tergal setae: II–III, 12–14; IV, 10–15; V, 8–12; VI, 8–11. Sternal setae: IV, 26–32; V, 34–40; VI, 30–35; VII, 14–19. Dimensions: HL, 0.27–0.30; PW, 0.26–0.28; MW, 0.34–0.39; AWIV, 0.44–0.48; TL, 1.19–1.29; GL, 0.40–0.45.

Female (3). Close to *M. palmai*, differing as follows. Metanotum and abdomen as in Fig. 19, with metanotum greatly enlarged. Sternal setae: VI, 31–38; VII, 13–15; VIII, 19–20. Anal fringe with 32–35 ventral, 36–39 dorsal setae. Dimensions: TW, 0.46–0.49; HL, 0.30–0.33; PW, 0.30–0.31; MW, 0.45–0.49; AWIV, 0.58–0.65; TL, 1.45–1.67.

Type material. Ex *P. eutilotus*, holotype female, Semengo, **SARAWAK**, 8 Sept. 1966, 7E-0724. Paratypes: 4 males, 3 females, same as holotype.

Other material. Ex *P. sinensis*, 3 males, **HONG KONG** (2 collections).

Remarks. The female of this species is unique by having the enlarged metanotum. The male is tenuously separable by its smaller head length and total length.

Etymology. This species is named for Dale H. Clayton, University of Utah, Salt Lake City, in recognition of his outstanding contributions to chewing louse biology and his association with us in the production of our world checklist.

Key to the Species of *Myrsidea* from the Bulbuls

In the following key, the male is much more precisely identified than the female. The details of the male genital sac sclerite are very important, supplemented by dimensions and chaetotaxy differences. Contrasted to this, the female is much more difficult to identify. Since character separations for the female are not always well defined, host association may be added to supplement the morphology.

1 Postspiracular setae much shorter on III and V–VI than on other tergites. Female with greatly enlarged metanotum or tergite I. Male genitalia (Fig. 17) with genital sac sclerite as in Fig. 18 2
- Postspiracular setae very long on I–VIII. Female without any grossly enlarged metanotum or tergite I. Male genital sac sclerite otherwise 3
2 Female with greatly enlarged tergite I (Fig. 16). Male total length >1.30; head length >0.30 *palmai* **n.sp**.
- Female with greatly enlarged metanotum (Fig. 19). Male total length <1.30; head length <0.31 ..... *claytoni* **n.sp.**
3 Male 4
- Female 18
4 Sternite VIII with 6–11 (mean = 8.0) setae (Fig. 7: arrow) 5
- Sternite VIII with only 4, less often 5 (mean = 4.1) setae (Fig. 2: arrow) 6
5 Genital sac sclerite as in Fig. 11; tergite IV with at least 17 setae ..... *adamsae* **n.sp.**
- Genital sac sclerite as in Fig. 6; tergite IV with <17 setae ..... *gieferi* **n.sp.**
6 Genital sac sclerite with medioposterior convexity or process (Figs. 10, 12–14) 7
- Genital sac sclerite with flattened to concave posterior margin (Figs. 5, 6, 8) 11
7 Genital sac sclerite with small rounded medioposterior convexity (Fig. 10)..... 8
- Genital sac sclerite with prominent medioposterior process (Figs. 12–14) 9
8 Temple width <0.41; total length <1.11; mesothorax width <0.35 ..... *eutiloti* **n.sp.**
- Temple width at least 0.41; total length at least 1.11; mesothorax width at least 0.34 ... . *plumosi* **n.sp**
9 Temple width <0.41; metathorax width <0.35; genital sac sclerite as in Fig. 14 .... *johnsoni* **n.sp.**
- Temple width >0.40; metathorax width at least 0.35; genital sac sclerite as in Fig. 12 or 13 10
10 Total length >1.30; genital sac sclerite as in Fig. 13 .....*borbonici* **n.sp.**
- Total length <1.30; genital sac sclerite as in Fig. 12 ..... *ochracei* **n.sp.**
11 Genital sac sclerite at least 0.045 wide, shaped as in Fig. 8 ..... *kathleenae* **n.sp.**
- Genital sac sclerite <0.045 wide, shaped otherwise (Figs. 5 or 6)..... 12
12 Inner seta on tergite VII >0.27 long (Fig. 9: arrow) 13
- Inner seta on tergite VII <0.25 long 14
13 Sternite III with >13 setae; tergite IV with >18 setae ..... *mcclurei* **n.sp.**
- Sternite III with <13 setae; tergite IV with <18 setae ..... *warwicki* **n.sp.**
14 Genital sac sclerite as in Fig. 6 15
- Genital sac sclerite as in Fig. 5 16
15 Tergite II with 7–8 setae ..... *kulpai* **n.sp.**
- Tergite II with 12–14 setae ..... *phillipsi* **n.sp.**
16 Temple width at least 0.42; prothorax width at least 0.29..... *zeylanici* **n.sp.**
- Temple width <0.42; prothorax width <0.29 17

17 Inner seta on tergite VII >0.13 (mean = 0.173) long ..... *finlaysoni* **n.sp.**
- Inner seta on tergite VII not >0.13 (mean = 0.106) long ..... *pycnonoti* Eichler
18 Anus width > 0.25, with > 44 ventral anal setae, and inner tergal seta on VII >0.22 long; ex *Pycnonotus finlaysoni* ..... *finlaysoni* **n.sp.**
- Anus <0.26 wide or <45 ventral anal setae or inner tergal seta on VII <0.22 long; ex other species 19
19 Inner seta on tergite VII < 0.12 long; tergite VIII with > 12 setae; anus width <0.250; ex *P. urostictus* ..... *adamsae* **n.sp.**
- Inner seta on tergite VII >0.11 long or tergite VIII with <13 setae or anus width >0.250; ex other species 20
20 Tergite II with 8 setae; ex *P. flavescens* ..... *kulpai* **n.sp.**
- Tergite II with >8 setae or ex other species 21
21 Inner seta on tergite VII > 0.26 long; tergite VIII with <12 setae; ex *Ixos* or *Microscelis* 22
- Inner seta on tergite VII <0.27 long or tergite VIII with >11 setae or ex other genera 23
22 Sternite III with <17 setae; anus width <0.25; ex *Ixos*..... *warwicki* **n.sp.**
- Sternite III with >17 setae; anus width >0.24; ex *Microscelis*..... *mcclurei* **n.sp.**
23 Inner seta on tergite VII <0.17 long; ex *P. zeylanicus* ..... *zeylanici* **n.sp.**
- Inner seta on tergite VII >0.16 long or ex other species 24
24 Anus width >0.24; ex *P. cafer* ..... *kathleenae* **n.sp.**
- Anus width <0.24 or ex other species 25
25 Temple width >0.49; total length >1.65; ex *H. borbonicus* .....*borbonici* **n.sp.**
- Temple width <0.49 or total length <1.65 or ex other species..... 26
26 Tergite VIII with >15 setae; ex *P. atriceps* or *P. melanoleucos* ..... *johnsoni* **n.sp.**
- Tergite VIII with <16 setae or ex other species 27
27 Metathoraxwidth<0.41;totallength<1.40;ex*P.eutilotus*,*P.erythropthalmus*or*P.cyaniventris eutiloti* **n.sp.**
- Metathorax width at least 0.41 or total length at least 1.39 or ex other species 28
28 Inner seta on tergite VII <0.24 long (Fig. 3); temple width <0.47..... *pycnonoti* Eichler
- Inner seta on tergite VII often >0.23 long (Fig. 9); temple width variable 29
29 Anus <0.24 wide; hosts in *Criniger, Ixos,* or *Hemixos* ..... *ochracei* **n.sp.**
- Anus variable; all hosts in *Pycnonotus* 30
30 Temple width at least 0.47; ex *P. plumosus, P. melanicterus, P. brunneus,* or *P. simplex* ..... *plumosi* **n.sp.**
- Temple width <0.48; ex *P. sinensis* (Taiwan, Hong Kong) or *P. goiavier* (Philippines) ..... *phillipsi* **n.sp.**; *gieferi* **n.sp.**

Discussion

The spectrum of host distribution for the *Myrsidea* of the Pycnonotidae has proven to be most interesting. When we began this study, we anticipated that it would deal with all of this louse genus from the entire avian family. After receiving the loan of slides from the National Museum of Natural History and from Oklahoma State University, it became obvious that virtually all specimens were from the hosts known as bulbuls. The family Pycnonotidae, according to Dickinson (2003), has 22 genera, 13 of which contain birds known as bulbuls. Yet, material we included in this study represents 29 species of bulbuls in 8 genera and none of the 9 genera (finchbills, greenbuls, brownbuls, bristle-bills, and the leaf-love) that comprise the remainder of the family. From the material available for study, we are unable to determine whether *Myrsidea* from these other hosts simply have not been collected or whether they are restricted to the genera known as bulbuls.

An examination of the data in the world checklist (Price *et al.* 2003) shows that a number of other genera of lice (i.e., *Ricinus* De Geer, *Menacanthus* Neumann, *Brueelia* Kéler, *Philopterus* Nitzsch, and *Sturnidoecus* Eichler) normally found on passerines have been recorded from hosts in the Pycnonotidae. However, all of these hosts, except for 3, are within the bulbuls. Again, this raises the issue as to whether collecting from these other hosts presents unusual difficulties or whether they simply are not as blessed with lice as the species of bulbuls or whether the lice are lying in collections awaiting their turn for a taxonomic study.

The expansion of the known *Myrsidea* species in the Pycnonotidae from the single species previously known to the current 17 raises several concerns. It is presumptive to assume that, when only a single species is known from a passerine host family, all lice are of that species. Of the 16 series described as new species in this paper, 12 included some previously determined specimens labeled *M. pycnonoti*. This is especially worrisome to us as the differences among lice labeled as "*M. pycnonoti*" were conspicuous. In discussing useful features in *Myrsidea* taxonomy, Clay (1966) states "...the most useful character...is the form of the sclerite in the genital sac." We agree with this, our only concern being that this sclerite is often difficult to discern, especially in poorly prepared slide mounts. Those who applied "*M. pycnonoti*" so freely had no appreciation of the taxonomic importance of this sclerite. Also, if the taxonomic diversity within the pycnonotid *Myrsidea* is typical of what would be expected in other passerine families, then there may be an abundance of as yet undescribed species.

We found only 1 instance in which the same host individual had more than a single species of *Myrsidea*. This involved 8 specimens representing the type material of *M. claytoni* being from a specimen of *P. eutilotus* that also had 6 specimens of *M. eutiloti*. The occurrences of *M. gieferi* and *M. claytoni* on *P. sinensis* in Hong Kong and of *M. ochracei* and *M. palmai* on *C. ochraceus* in Thailand are further instances of the co-occurrence of 2 *Myrsidea* species on a single host taxon from the same locality. However, in all of these cases, no single individual host specimen had more than 1 *Myrsidea* species.

The distribution of *M. pycnonoti*, *M. phillipsi*, and *M. gieferi* on *P. goiavier* presents a different picture of host/louse association. Dickinson (2003) recognizes 6 subspecies of *P. goiavier*, with 2 of these, *P. g. jambu* and *P. g. analis*, found in Thailand, Malaysia, Sumatra, Java, and associated areas. Our findings support the occurrence of *M. pycnonoti* on these host subspecies. We suspect that *M. pycnonoti* is likely to be the species on the third host subspecies, *P. g. gourdini* G. R. Gray, in Borneo, once they are collected. Dickinson (2003) lists the other 3 host subspecies from the Philippines, with *P. g. goiavier* being in the north and north central Philippines, *P. g. suluensis* in the south Philippines, and *P. g. samarensis* Rand and Rabor in the east central Philippines. We have used this distribution in assigning *P. g. goiavier* as the type host of *M. phillipsi* and *P. g. suluensis* as the type host of *M. gieferi*. We have seen no material from *P. g. samarensis.*

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