THE MENACANTHUS (MALLOPHAGA: MENOPONIDAE) OF THE PASSERIFORMES (AVES)\textsuperscript{1}

By Roger D. Price\textsuperscript{2}

Abstract: Twenty-eight species of Menacanthus are recognized, discussed, and keyed. These include 7 new species with the following type-hosts: M. sternellae from Sturnella magna, M. quiscalis from Quiscalus quiscula, M. tyranni from Tyrannus verticalis, M. obsoleti from Salpinetes obsoletus, M. aedonis from Tragopobes aedon, M. dendroicae from Dendroica discolor, and M. geothyris from Geothlypis trichas. There are 23 new synonyms and 6 names listed as nomina dubia. Neotypes are erected for Pediculus curvipes Schrank and Menopon pusillum Nitzsch; lectotypes are designated for Colpocephalum chrysophananum Kellogg and Menopon distinctum Kellogg & Chapman.

To date, 94 specific and subspecific names of the genus Menacanthus Neumann have been applied to lice whose type-host is within the perching-bird order Passeriformes. Since there has been no critical review of these lice, other than that by Price (1975) of those in the M. eurytemnus complex, I have studied these Menacanthus to determine the status of the existing names, to redescribe as necessary 21 previously recognized species, to describe 7 new species, and to provide a key for the identification of these 28 species.

In the following descriptions, morphological terminology and numbers of certain head and prothoracic setae are essentially as given by Clay (1969). Measurements are in millimeters. Unless stated to the contrary, reference to tergites, pleurites, and sternites pertains to the abdomen and illustrations are prepared from type-host material. Abbreviations for dimensions are POW (preocular width), TW (temple width), PW (prothorax width), MW (metathorax width), TL (total length), GL (genitalia length), GW (genitalia width), and GSL (genital sac sclerite length). Descriptive features

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\textsuperscript{2}Department of Entomology, Fisheries, and Wildlife, University of Minnesota, St. Paul, Minnesota 55108, U.S.A.
for the male are restricted only to those differing from the female. The host nomenclature for the most part follows that of J. L. Peters’ *Check-list of the Birds of the World* for the volumes issued to date, and other sources for portions not covered therein.

The species treated here share the following characteristics and these will not be repeated for the individual descriptions.

**Head.** Widest across temples, with rounded anterior margin; with preocular slit; noda moderately developed, associated carinæ weak. Alveoli of marginal temple setae 26 and 27 closely associated, with seta 26 finer and shorter than 27 (Fig. 11); long occipital setae 21, 22, and 23, with alveoli in straight line; long to very long marginal temple setae 24, 27, 29, and 31; dorsal seta 16 mediad to medioanterior to setae 14 and 15 and sensillum $e$; inner middorsal seta 17 slightly longer than and medioanterior to minute outer middorsal seta 18. Antenna with slightly expanded pedicel, and undivided terminal segment, mostly concealed beneath head. Several widely spaced subocular setae preceding comb row (Fig. 16); hypopharyngeal sclerites weakly developed, with variable “holes” (Fig. 9, 10). Each side with ventral spinous process, usually sharply pointed, arising near base of maxillary palpus. Thorax. Pronotal margin typically with 12 long, 4 short setae; prosternal plate moderately developed, usually without setae other than 1 $+ 1$ anterior to it. Normal vertically oblong postnotum. Metathorax not as scle- rotized ring; 4 medioanterior mesoanterior setae, alveoli of pair close together on each side. Metanotum with 2 medioanterior setae. Ventral femur III with sparse brush. *Abdomen.* Tergites I–II with short seta lateral to postspiracular seta; postspiracular setae very long on II–VIII, somewhat shorter on I; tergites I–VIII of equal lengths, undivided, and usually without anterior setae. Pleurites without prolonged ventroposterior corners or internal thickenings. Anus of $\gamma$ essentially oval, without inner setae; sternites VII–VIII not fused; without evident genital chamber structure. $\delta$ genitalia essentially symmetrical, with broad expanded basal apodeme and spiculate sac with significantly variable associated sclerites.

Price (1975, 1976) has treated 4 species—*M. eurysternus* (Burmeister), *M. merisowi* Eichler, *M. nelsoni* Price, and *M. elbeli* Price—and the reader is referred to those papers for descriptions, synonymies, and a host listing. With 39 names placed in synonymy with *M. eurysternus*, this group of 4 species accounts for 43 total names. The present paper deals with the status of the remaining 51 names.

**Menacanthus menura** (LeSouëf & Bullen)  


$\delta$. Ventral spinous head process 0.06–0.07 long (length=k; Fig. 25). Metanotum with 4–5 lateroanterior setae (LS: Fig. 2) on each side and 12 marginal setae; mesosomal and metasomal plates with 11–13 setae. Tergal setae: I, 16–18; II, 18–28; III–VII, 20–26; VIII, 14–16; IX (last tergite), 21–24. Pleurites with anterior setae. Sternal setae: I, 2–4; II, 26–33; III, 45–60; IV–V, 66–68; VI, 55–68; VII, 45–56; subgenital plate, 36–47, with smooth medioposterior margin. Ventral and dorsal anal fringes of 63–76 setae. Dimensions: POW 0.45–0.46; TW 0.61–0.63; PW 0.47–0.51; MW 0.58–0.63; TL 1.94–2.25.

$\gamma$. Last tergite (IX) with 16–19 setae. Sternite VIII with 26–28 setae, subgenital plate with 20. Genitalia (Fig. 1) long, slender, with relatively straight pointed parameres, evenly rounded endomeral plate, and 2 long, slender sclerites associated with sac. Dimensions: GL 0.56–0.63; GW 0.07–0.10; GSL 0.15–0.16.

Material examined: 8 $\varphi$, 15 $\delta\delta$, ex *M. novaehollandiae* Latham, New South Wales.

**Menacanthus gonophaeus** (Burmeister)  


$\delta$. Tergal setae: I, 17–24; II–VII, 19–33; VIII, 15–20; IX, 15–18. Sternal setae: I, 3–7; II, 33–44; III–VI, 52–97; VII, 39–60; VIII, 20–33; subgenital plate, 21–27. Terminalia as in Fig. 4; genitalia as in Fig. 3. Dimensions: POW 0.47–0.54; TW 0.59–0.69; PW 0.45–0.52; MW 0.52–0.60; TL 1.79–2.23; GL 0.54–0.64; GW 0.10–0.13; GSL 0.16–0.21.

Material examined: 1 $\varphi$, 1 $\delta\delta$, ex *C. corus*, Morocco; 6 $\varphi\varphi$, 4 $\delta\delta$, ex *C. albus*, Liberia, Mozambique; 2 $\varphi\varphi$, 2 $\delta\delta$, ex *C. coronoides* Vigors & Horsfield, Australia; 2 $\varphi\varphi$, 1 $\delta\delta$, ex *C. frugilegus*, England; 2 $\varphi\varphi$, 1 $\delta\delta$, ex *C. macrorchynchos*, Taiwan, Thailand; 40 $\varphi\varphi$, 15 $\delta\delta$, ex *Pyrhocorax pyrrhocorax* (Linnaeus), Nepal.

The following 12 species have (1) only 2 lateroanterior setae on each side of the metanotum; (2)
FIG. 1–14. *Menacanthus menura*: (1) ♂ genitalia. *M. gonaphaeus* (ex *Pyrhocorax pyrrhocorax*): (2) ♀; (3) ♂ genitalia; (4) ♀ terminalia. *M. distinctus*: (5) ♂ medioventral head; (6) ♂ genitalia. *M. camelinus*: (7) ♂ genital sac sclerite (ex *Lanius collurioideus*); (8) ♀ ventral spinous head process (ex *L. collurio*); (9) ♀ hypopharyngeal sclerites (ex *L. collurio*). *M. alaudae*: (10) ♀ hypopharyngeal sclerites; (11) ♀ left temple margin; (12) ♂; (13) ♂ genitalia, sac extruded; (14) ♂ genitalia (ex *Eremophila alpestris*).
pleurites typically with several anterior setae distributed over the surface of the plate; (3) ♀ subgenital plate with smooth medioposterior margin (SGP: fig. 19); and (4) ♂ genitalia with apical portion of parameres gently curved outwardly and endosomal plate bluntly rounded (figs. 6, 13, 14, 21, 22, 30). Most species close to fig. 6 unless stated to the contrary.

**Menacanthus camelinus** (Nitzsch)  
Fig. 7–9  
*Menopus camelinus* Nitzsch, 1874, Insecta epizo: 288.  
Type-host: *Lanius excubitor* Linnaeus.

*Menopus inaequale* Piaget, 1880, Pediculines: 443.  
Type-host: *Lanius collurio* Linnaeus. **New synonymy.**

*Menopus setosum* Piaget, 1885, Pediculines Suppl.: 103.  
Type-host: “*Coccothraustes vulgaris*” = *C. c. coccotnaureus* (Linnaeus)—probably error. Most likely *Lanius*. **New synonymy.**

Type-host: *Lanius minor* Gmelin. **New synonymy.**

Type-host: “*Moltastes cafer intermedius*” = *Pyenotonus cafer intermedius* Jerdon—probably error. Most likely *Lanius*. **New synonymy.**

Type-host: *Lanius excubitor altaoro* (Sykes).

Type-host: *Lanius collurio* collurio. **New synonymy.**

♀. With small, blunt ventral spinous head process (fig. 8), only 0.03–0.04 long. Ocular seta 19 (fig. 2) slender, 0.03–0.04 long. Metanotum with 10 marginal setae; mesosternal plate with 11–15 setae, metasternal with 8–13. Tergal setae: I, 11–13; II–III, 12–16; IV, 12–18; V–VII, 13–17; VIII, 8–12; IX, 13–18. Sternal setae: I, 2–3; II, 14–22; III, 29–36; IV–V, 34–47; VI, 29–42; VII, 20–27; subgenital plate, 19–26. Ventral anal fringe of 30–43 setae, dorsal of 25–32. Dimensions: POW 0.41–0.43; TW 0.50–0.56; PW 0.35–0.41; MW 0.41–0.49; TL 1.59–1.90.

♂. Tergal setae: II–VII, 11–14; VIII, 8–10; IX, 10–11. Sternal setae: III, 18–29; IV–V, 23–35; VI, 19–29; VII, 11–18; VIII, 9–14; subgenital plate, 4–9. Genitalia much as in fig. 13 or 14, except sac sclerite as in fig. 7. Dimensions: POW 0.38–0.41; TW 0.45–0.50; PW 0.32–0.35; MW 0.35–0.40; TL 1.33–1.54; GL 0.35–0.41; GW 0.08–0.09; GSH 0.10.

**Material examined**: 2 ♀, 1 ♂, L. excubitor, India; 7 ♀, 3 ♂, L. collario, Egypt; 23 ♀, 9 ♂, L. collarioidees Lesson, Thailand; 47 ♀, 13 ♂, L. cristatus Linnaeus, India, Philippines Is., Taiwan, Thailand; 52 ♀, 31 ♂, L. ludovicianus Linnaeus, Canada, Mexico, U.S.A.; 3 ♀, 3 ♂, L. minor, Fair Isle, Roumania; 2 ♀, 3 ♂, L. nubicus Lichtenstein, Israel; 12 ♀, 12 ♂, L. schach Linnaeus, India, Nepal, Taiwan, Thailand; 1 ♀, 1 ♂, L. senator Linnaeus, Spain; 1 ♂, L. vitatus Valenciennes, India; 1 ♀, type of *M. guldum*, India; 2 ♀, lectotype and paratype of *M. setosum*, Piaget collection.

**Menacanthus alaudae** (Schrank)  
Fig. 10–19  
Type-host: “Feldlerchen” = Alauda arvensis arvensis Linnaeus.

Type-host: *Emberiza citrinella* Linnaeus. **New synonymy.**

Type-host: “Fringilla carduelis” = *Carduelis carduelis* britannicus (Hartert). **New synonymy.**

*Menopus parviceps* Piaget, 1880, Pediculines: 446.  
Type-host: Alauda arvensis.

*Menopus perforatum* Piaget, 1880, Pediculines: 454.  
Type-host: “*Eremophila chrysolemma*” = *E. alpesis chrysolemma* (Wagler). **New synonymy.**

Type-host: “*Cincillus mexicanus* & *Pincola enucleator*” = *C. m. unicolor* Bonaparte & *P. e. flammea* Homeyer. **New synonymy.**

♀. As in fig. 15. Ventral spinous head process sharply pointed, 0.035–0.06 long (fig. 17). Ocular seta 19 slender, 0.02–0.05 long. Gular plate weakly pigmented (fig. 17). Metanotum with 11–12 marginal setae; mesosternal and metasternal plates with 7–14 setae. Tergal setae: I, 12–17; II–III, 13–23; IV–V, 16–24; VI–VII, 14–22; VIII, 10–16; IX, 14–19. Sternal setae: I, 2–3; II, 13–24; III–VI, 20–41; VII, 17–27; subgenital plate, 24–31. Ventral anal fringe of 31–45 setae; dorsal of 19–33. Dimensions: POW 0.34–0.38; TW 0.40–0.47; PW 0.31–0.36; MW 0.39–0.44; TL 1.51–1.65.

♂. As in fig. 12. Tergal setae: II–VII, 12–19; VIII, 9–13; IX, 10–19. Terminalia as in fig. 18. Tergal setae: VII, 10–28; VIII, 9–15; subgenital plate, 12–28. Genitalia as in fig. 13 or 14. Dimensions: POW 0.32–0.36; TW 0.38–0.44; PW 0.28–0.33; MW 0.34–0.40; TL 1.18–1.52; GL 0.30–0.38; GW 0.07–0.10; GSH 0.09–0.13.

**Material examined**: 1 ♀, 1 ♂ (neoparatypes of *P. alaudae*), ex Alauda arvensis, England; 1 ♀ (type of *M. alasakensis*), ex Pincola enucleator (Linnaeus), Kodiak Is.; 12 ♀, 4 ♂, ex Acanthis flammea (Linnaeus), Alaska, Canada; 10 ♀, 7 ♂, ex Carduelis pinus (Wilson), U.S.A.; 10 ♀, 2 ♂, ex C. tristis (Linnaeus), Canada, U.S.A.; 1 ♀, 1 ♂, ex C. carduelis (Linnaeus), England; 3 ♀, 1 ♂, ex Carduelus roseus (Pallas), Korea; 2 ♀, 2 ♂, ex C. mexicanus (Muller), U.S.A.; 1 ♀, 1 ♂, ex C. erythrinus (Pallas), Nepal; 1 ♀, 1 ♂, ex Emberiza fucata Pallas, Korea; 9 ♀, 1 ♂, ex Eremophila alpesis (Bonaparte), U.S.A.; 5 ♀, 2 ♂, ex Galerida cristata (Linnaeus), Egypt, Hungary, Korea; 16 ♀, 7 ♂, ex Leucosticte arctoa
(Pallas), U.S.A.; 3 ♀, 3 ♂, ex Plectrophenax nivalis (Linnaeus), England, U.S.A.; 1 ♀, 2 ♂, ex Plocesperus mahali Smith, Mozambique; 1 ♀, 3 ♂, ex Sturnella neglecta Audubon, U.S.A.; 1 ♀, 1 ♂, ex S. magna (Linnaeus), U.S.A.

**Menacanthus exilis** (Nitzsch)

*Menopon exilis* Nitzsch, 1866, Z. Gesamten Naturwiss. 27: 121. Type-host: *“Sylvia oenanthe” = Oenanthe oenanthe oenanthe* (Linnaeus).

♀. As for *M. alaudae*, except for short ventral spinous head process, 0.035 long, with blunt tip, much as in FIG. 8.

♂. Unavailable.

**Material examined:** 4 ♀, ex *O. oenanthe*, Morocco.

**Menacanthus sturnellae** Price, n. sp.

**FIG. 20, 21**

Type-host: *Sturnella magna* (Linnaeus).

♀. Ventral spinous head process 0.04–0.05 long. Ocular seta 19 slender, about 0.05 long. Weak gular plate without evident pigmentation. Metanotum with 12 marginal setae; mesosternal plate with 11–13 setae, metasternal with 8–10. Tergal setae: I, 12–13; II, 15–18; III, 17–19; IV–VI, 18–22; VII, 16–19; VIII, 13–14; IX, 18–21. Sternal setae: I, 1, 2, 4; II, 18–26; III–VI, 34–53; VII, 27–43; subgenital plate, 34–42. Ventral anal fringe of 45–52 setae, dorsal of 34–45. Dimensions: POW 0.40–0.43; TW 0.53–0.57; MW 0.40–0.44; MW 0.51–0.56; TL 1.93–2.05.

♂. Tergal setae: III, 13–17; IV–V, 16–19; VI, 15–18; VII, 12–16; VIII, 9–12; IX, 13–15. Sternal setae: V, 33–45; VI, 26–36; VII, 18–24; VIII, 10–16; subgenital plate, 13–17. Genitalia (FIG. 21) with prominent, large, well-pigmented sac sclerite, in lateral view much as in FIG. 21, front view as in FIG. 20. Dimensions: POW 0.39–0.41; TW 0.50–0.53; MW 0.37–0.40; MW 0.45–0.48; TL 1.68–1.82; GL 0.44–0.51; GW 0.09–0.11; GSL 0.14–0.15.

**Material examined:** Holotype ♂, ex Meadow Lark (*S. magna*), Alachua Co., Florida, U.S.A., 22.II.1954, F. W. Mead, 543-96348; in collection of the U.S. National Museum of Natural History. Paratypes (all from *S. magna*): 69 ♀♀, 25 ♂♂, U.S.A.—Florida, Georgia, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, North Carolina, Ohio, Oklahoma, South Carolina, Tennessee, Texas. Other material: 18 ♀♀, 14 ♂♂, ex *S. neglecta*, U.S.A.

**Menacanthus quiscali** Price, n. sp.

**FIG. 22, 23**

Type-host: *Quiscalus quiscula* (Linnaeus).

♀. Close to *M. sturnellae*, except as follows. Gular plate pigmented, with large, lighter, completely enclosed central area (FIG. 23). Tergal setae: I, 16–22; II–VI, 18–27; VII, 16–24; VIII, 13–18; IX, 18–24. Sternal setae: II, 18–34; III–VI, 37–72; VII, 35–56; subgenital plate, 34–48. Ventral anal fringe of 38–50 setae, dorsal of 28–40. Dimensions: POW 0.40–0.42; TW 0.50–0.56; MW 0.39–0.44; MW 0.48–0.57; TL 1.75–2.28.

♂. Tergal setae: I, 16–19; II–VI, 15–22; VII, 13–18; VIII, 10–14; IX, 14–17. Sternal setae: III, 24–48; IV–V, 28–56; VI, 23–43; VII, 17–40; VIII, 6–25; subgenital plate, 10–16. Genitalia (FIG. 22) with much weaker delineation of sac sclerite. Dimensions: POW 0.37–0.39; TW 0.45–0.49; MW 0.38–0.42; TL 1.43–1.54; GL 0.38–0.48; GW 0.08–0.09; GSL 0.12–0.14.


**Menacanthus tyranni** Price, n. sp.

Type-host: *Tyrranus verticalis* Say.

♀. Ventral spinous head process 0.04–0.05 long. Ocular seta 19 slender, 0.04–0.06 long. Gular plate weakly pigmented. Metanotum with 12 marginal setae; mesosternal plate with 13–19 setae, metasternal with 9–17. Tergal setae: I, 16–18; II–VI, 21–28; VII, 19–24; VIII, 15–19; IX, 17–21. Sternal setae: I, 3–6; II, 29–39; III–IV, 50–85; V–VI, 46–76; VII, 38–57; subgenital plate, 34–55. Ventral anal fringe of 48–58 setae, dorsal of 44–53. Dimensions: POW 0.38–0.43; TW 0.49–0.54; MW 0.35–0.41; MW 0.46–0.52; TL 1.55–1.81.

♂. Tergal setae: II–VII, 17–25; VIII, 15; IX, 16–19. Sternal setae: III, 42–60; V–VI, 43–63; VII, 32–43; VIII, 16–20; subgenital plate, 17–21. Dimensions: POW 0.36–0.39; TW 0.46–0.49; MW 0.32–0.36; MW 0.38–0.43; TL 1.37–1.51; GL 0.41–0.47; GW 0.07–0.08; GSL 0.13–0.15.

**Material examined:** Holotype ♂, ex *T. verticalis*, Delta, Manitoba, Canada, 2.VIII.1961, D. Olson, 127; in collection of the University of Minnesota. Paratypes: 13 ♀♀, 3 ♂♂, same data as holotype. Other material: 2 ♀♀, 1 ♂, ex *T. tyrannus* (Linnaeus), U.S.A.; 4 ♀♀, ex *T. dominicensis* (Gmelin), Puerto Rico, West Indies.

**Menacanthus chrysophaeus** (Kellogg)


♀. Ventral spinous head process 0.03–0.04 long. Ocular seta 19 slender, 0.02–0.03 long. Gular plate weak to pigmented along lateral margins. Metanotum with 10–11 marginal setae; mesosternal and metasternal plates with 8–10 setae. Tergal setae: I, 12–15; II–VII, 15–21; VIII, 10–15; IX, 15–16, with both short and long inner posterior setae, much as in FIG. 27. Sternal setae: I, 2–3; II, 18–24; III–VI, 28–39; VII, 20–31; subgenital plate, 25–30. Ventral anal fringe of 36–40 setae, dorsal of 25–32. Dimensions: POW 0.37–0.38; TW 0.46–0.49; MW 0.33–0.35; MW 0.42–0.45; TL 1.46–1.58.

♂. Tergal setae: II–VII, 13–17; VIII, 9–11; IX, 12–13. Sternal setae: II, 17–18; III–VI, 20–30; VII, 14–18; VIII, 9–13; subgenital plate, 9–11. Dimensions: POW 0.33–0.35; TW 0.42–0.43; MW 0.29–0.30; MW 0.34–0.36; TL 1.09–1.18; GL 0.32–0.34; GW 0.07–0.08; GSL 0.10.
A ♀ from the type-series of *C. chrysophacaem* (ex *M. f. samuelis*, Palo Alto, Calif., V.L.K., Stanford, 1896, 364A, N.M. II) has been designated as lectotype and is in the collection of the University of California, Berkeley.

**Material examined:** 55 ♀, 13 ♂ (including lectotype ♀ and 2 ♀, 1 ♂ paralectotypes of *C. chrysophacaem*), ex *Z. melodia* (Wilson), U.S.A.; 6 ♀, 1 ♂, ex *Z. georgiana* (Latham), U.S.A.; 1 ♀, ex *Z. ilica* (Merrem), U.S.A.; 3 ♀, 3 ♂, ex *Spesella pusilla* (Wilson), U.S.A.; 1 ♀, 1 ♂, ex *S. arboria* (Wilson), U.S.A.

**Menacanthus nogoma** Uchida


♀. Ventral spinous head process 0.02–0.03 long. Ocular seta 19 slender, 0.02 long. Gular plate pigmented, with lighter central "hole." Metanotum with 10–11 marginal setae; mesosternal plate with 11–12 setae, metasternal with 6–8. Tergal setae: I, 12–13; II–VI, 13–17; VII, 12–14; VIII, 9–12; IX, 14–15, with inner posterior setae (IPS: Fig. 34) all subequally long. Sternal setae: I, 1–2; II, 14–18; III–VI, 23–31; VII, 18–24; subgenital plate, 23–30. Ventral anal fringe of 37–44 setae, dorsal of 23–28. Dimensions: POW 0.29–0.35; TW 0.41–0.43; MW 0.36–0.39; TL 1.39–1.40.

♂. Tergal setae: II–VI, 12–16; VII, 10–11; VIII, 9–10; IX, 10–12. Sternal setae: II, 11–18; III–VI, 18–29; VII, 12–17; VIII, 9–10; subgenital plate, 6–11. Dimensions: POW 0.30–0.33; TW 0.38–0.40; PW 0.27–0.29; MW 0.31–0.34; TL 1.14–1.22; GL 0.33–0.35; GW 0.07–0.08; GSI 0.10.

**Material examined:** 11 ♀, 7 ♂, ex *E. calliope*, Hong Kong, Philippines Is, Thailand; 6 ♀, 2 ♂, ex *E. cyane* (Pallas), Malaya; 2 ♂, ex *E. cyanurus* (Pallas), Formosa; 5 ♀, 6 ♂, ex *E. johnstoniae* (Ogilvie-Grant), Formosa; 1 ♀, ex *Cinclidium leucurum* (Hodgson), Thailand; 3 ♀, 1 ♂, ex *Motacilla alba* Linnaeus, Formosa.

**Menacanthus pusillus** (Nitzsch)

*Menopon pusillus* Nitzsch, 1866, Z. Gesammtten Naturwiss. 27: 120. Type-host: *Motacilla alba* Linnaeus.


♀. Ventral spinous head process 0.05–0.07 long. Ocular seta 19 slender, 0.02–0.03 long. Gular plate weak. Metanotum with 10 marginal setae; mesosternal plate with 10–12 setae, metasternal with 7–9. Tergal setae: I, 13–18; II, 17–22; VI–VII, 15–22; VIII, 10–14; IX, 14–15, with inner posterior setae subequally long. Sternal setae: I, 2–3; II, 19–27; III–VI, 29–60; VII, 27–35; subgenital plate, 21–28. Ventral anal fringe of 36–45 setae, dorsal of 21–27. Dimensions: POW 0.33–0.38; TW 0.43–0.48; PW 0.33–0.38; MW 0.40–0.46; TL 1.37–1.51.

♂. Tergal setae: I, 12; II–VI, 12–18; VII, 12–15; VIII, 8–10; IX, 12. Sternal setae: II, 14–20; III–VI, 19–39; VII, 8–16; VIII, 6–8; subgenital plate, 6–11. Dimensions: POW 0.34–0.35; TW 0.42–0.45; PW 0.31–0.35; MW 0.38–0.41; TL 1.28–1.30; GL 0.37–0.38; GW 0.06–0.07; GSI 0.07–0.08.

With the type of *Menopon pusillus* lost and with the apparent presence of 2 species of *Menacanthus* on *Motacilla alba*, it is advisable to erect a neotype to stabilize the identity of *M. pusillus*. I have selected as neotype the ♂ off *M. alba* from Switzerland; the European material with the long ventral spinous head process is most likely representative of that on which Nitzsch based his description, rather than the Asiatic species, *M. nogoma*, with the much shorter ventral spinous head process.

**Material examined:** Neotype ♂, ex *M. alba*, Meiringen, Switzerland, 20.V.1955, W. Bittiker, 1089, Br. Mus. 1966–575; in collection of the British Museum (Natural History). Neoparatypes (all from *M. alba*): 6 ♀, 2 ♂, England, Switzerland. Other material: 5 ♀, 2 ♂, ex *M. flava* Linnaeus, Egypt, Spain; 2 ♀, 4 ♂, ex *M. aguipp* Dumont, Mozambique; 8 ♀, 3 ♂, ex *Anthus trivialis*, Egypt; 9 ♀, 3 ♂, ex *A. hodgeon* Richmond, India, Korea, Thailand; 6 ♀, 3 ♂, ex *A. novaeselandiae* (Gmelin), South Africa, Thailand; 1 ♀, 1 ♂, ex *A. pratensis* (Linnaeus), England; 4 ♀, 3 ♂, ex *A. spinellata* (Linnaeus), Canada, U.S.A.

**Menacanthus distinctus** (Kellogg & Chapman)

**Fig. 5, 6**


♀. Ventral spinous head process very small, 0.015–0.025 long. Ocular seta 19 slender, 0.04–0.05 long. Gular plate with dark pigmentation laterally and anteriorly, as inverted "U" (Fig. 5). Metanotum with 11–12 marginal setae; mesosternal plate with 11–14 setae, metasternal with 9–10. Tergal setae: I, 13–16; II–IV, 16–22; V–VI, 21–25; VII, 18–22; VIII, 14–15; IX, 18–21. Sternal setae: I, 2–3; II, 20–24; III–VI, 31–48; VII, 26–34; subgenital plate, 27–30. Ventral anal fringe of 41–47 setae, dorsal of 36–44. Dimensions: POW 0.34–0.35; TW 0.44–0.45; PW 0.31–0.32; MW 0.38–0.41; TL 1.36–1.48.

♂. Tergal setae: I, 12–14; II–VI, 16–20; VII–IX, 12–15. Sternal setae: VII, 23–28; VIII, 10–14; subgenital plate, 15–18. Genitalia as in Fig. 6. Dimensions: POW 0.33–0.35; TW 0.42–0.43; PW 0.29–0.30; MW 0.32–0.37; TL 1.22–1.33; GL 0.37–0.39; GW 0.07–0.08; GSI 0.10–0.11.

A ♀ from the type-series of *Menopon distinctum* (ex *Myiarchus cinerasces*, Palo Alto, Stanford 97, B.C., 665c, N.M. III) has been designated as lectotype and is in the collection of the University of California, Berkeley. This thereby establishes *M. cinerasces* as the type-host.

**Material examined:** 22 ♀ (including lectotype ♀
FIG. 28–40. Menacanthus aurusae: (28) ♂; (29) ♀ ventral terminalia. M. obsleti: (30) ♂ genitalia. M. takayamai: (31) ♀ medioventral head (ex Phylloscopus sp.); (32) ♀ ventral terminalia (ex Achoroeothus echotensis); (33) ♀ ventral terminalia (ex Phylloscopus sp.). M. aurecapillus: (34) ♀ terminalia; (35) ♂ medioventral head, prothorax; (36) ♂ genitalia; (37) ♂. M. agilis (ex Phylloscopus trochilus): (38) ♀ ocular seta; (39) ♀ central pronotal setae; (40) ♀ gular plate.
and 4 ♀ paralecotypes of *M. distinctum*, 17 ♂♂, ex *M. cinerascens*, U.S.A.; 1 ♀, ex *M. tuberculifer* (Lafresnaye & D’Orbigny), U.S.A.; 3 ♀♀, 3 ♂♂, ex *M. tyrannulus* (Müller), Cuba, U.S.A.; 1 ♀, ex *M. lauroceras* (Giraud), Costa Rica; 1 ♀, ex *M. ferox* (Gmelin), Peru; 1 ♀, ex *Nuttalliorius borealis* (Swainson), U.S.A.

**Menacanthus obsoleti** Price, n. sp.  

Type-host: *Salpininctes obsoletus* (Say).


♂. Tergal setae on IX, 10–13. Sternal setae: I, 18–21; III–VI, 25–36; VII, 18–24; VIII, 15–16; subgenital plate, 13–15. Dimensions: POW 0.32–0.34; TW 0.40–0.41; PW 0.29–0.30; MW 0.36; TL 1.14; GL 0.36; GW 0.07; GSL 0.10–0.11.


**Menacanthus aedonis** Price, n. sp.  

Type-host: *Troglydotes aedon* Vieillot.


♂. Tergal setae: I, 12–13; II–VI, 13–15; VII, 11–13; VIII, 8–10; IX, 11–12. Sternal setae: II, 17–20; III–VI, 20–27; VII–VIII, 14–19; subgenital plate, 14–16. Dimensions: POW 0.30–0.32; TW 0.37–0.40; PW 0.28–0.29; MW 0.34–0.37; TL 1.04–1.12; GL 0.35–0.41; GW 0.07; GSL 0.08–0.10.


The following 10 species have (1) at least 3 lateroanterior setae on each side of the metanotum; (2) pleurites either without anterior setae or with 1–3 anterior setae only along the mediobasal margin; (3) ♀ subgenital plate usually with strong serrations, less often with only light spiculation, along the medioposterior margin (SGP: fig. 29); and (4) ♂ genitalia with apical portion of parameres abruptly curved outwardly and endomeral plate with subapical constriction (fig. 26, 36), without much by way of significant differentiating structures for included species.

**Menacanthus curuciae** (Schrank)  

Fig. 25–29


♀. As in fig. 27. Ventral spinous head process 0.04–0.08 long. Ocular seta 19 slender, 0.015–0.02 long. Gular plate well pigmented, with 1 to several small, lighter central “holes” (fig. 25). Metanotum with 12–13 marginal setae; meso- and metapleural plates with 6–12 setae. Tergal setae: I, 13–22; II–VI, 18–27; VII, 13–23; VIII, 9–14; IX, 15–20, including only 1 very long on each side extending beyond ends of anal fringe setae. Without anterior pleural setae. Sternal setae: I 2–3; II, 17–27; III–VI, 25–42; VII, 17–27; subgenital plate, 20–34. Both anal fringes of 25–44 setae. Dimensions: POW 0.36–0.39; TW 0.44–0.49; PW 0.32–0.36; MW 0.38–0.48; TL 1.25–1.66.

♂. As in fig. 28. Tergal setae: I, 14–15; II–VI, 15–20; VII, 13–15; VIII, 9–10; IX, 10–12. Sternal setae: I, 0–3; II, 15–20; III–V, 17–32; VI, 13–26; VII, 9–12; VIII, 6–8; subgenital plate, 10–18. Genitalia as in fig. 26. Dimensions: POW 0.34–0.35; TW 0.40–0.42; PW 0.38–0.30; MW 0.32–0.37; TL 1.01–1.32; GL 0.34–0.42; GW 0.07–0.09; GSL 0.06–0.09.

Clay & Hopkins (1954) called attention to the need for erection of a neotype for *P. curuciae* once material becomes available from the type-host. Therefore, I designate as neotype the single ♂ I studied from *S. curuciae*.

Material examined: Neotype ♂, ex *S. curuciae*, Bahig, Egypt, 20.IX.1966, 854; in collection of the U.S. National Museum of Natural History. Neotype-paratypes: 3 ♀♀, ex *S. curuciae*, Egypt. Other material: 3 ♀♀, 1 ♂, ex *S. atricapilla*, Egypt; 13 ♀♀, 2 ♂♂, ex *S. borin*, Egypt, Spain; 9 ♀♀♀, 1 ♂, ex *S. communis* Latham, Egypt, England; 2 ♀♀, ex *Aerocephalus arundinaceus* (Gmelin), Egypt, Malaya; 24 ♀♀, 12 ♂♂, ex *A. schoenobaenus* (Linnaeus), Egypt; 10 ♀♀, 1 ♂, ex *Phyllococcus trochilis* (Linnaeus), Egypt; 28 ♀♀, 2 ♂♂, ex *Vireo flavifrons* Vieillot, U.S.A.; 3 ♀♀, ex *V. grisescens* (Boddart), U.S.A.; 5 ♀♀♀, 4 ♂♂, ex
V. olivaceus (Linnaeus), U.S.A.; 5 ♀, ex V. solitarius (Wilson), Canada, U.S.A.

**Menacanthus takayamaui** Uchida \[Fig. 31–33\]


♀. Close to *M. curaccae*, differing as follows. Medioventral head as in Fig. 31. Metanotum with 11–13 marginal setae. Tergite I with as few as 14 setae; IX with 20–22, including 2 on each side very long and extending well beyond ends of anal fringe setae (Fig. 32, 33). Sternal setae as few as 16 on II, 22 on III–VI, 18 on subgenital plate; subgenital plate variable with few medioposterior setae (Fig. 32) to none (Fig. 33). Both anal fringes of 38–48 setae. Dimensions slightly smaller: POW 0.35–0.38; TW 0.43–0.48; PW 0.31–0.34; MW 0.37–0.43.

♂. Also close to *M. curaccae*. Tergal setae up to 16 on VII. Sternal setae as few as 14 on II, up to 13 on VII and 22 on subgenital plate.

Material examined: 8 ♀, 1 ♂ (including 2 ♀, 1 ♂ from Uchida collection, identified as *M. takayamaui*), ex *C. diphone* (Kittlitz), Japan, Korea, Taiwan; 19 ♀, 3 ♂, ex *C. canturieus* (Swinhoe), Taiwan; 5 ♀, 1 ♂, ex *Achrophagus ochotensis* (Middendorf), Philippine Is.; 3 ♀, 4 ♂, ex *Locustella fasciata* (Gray), Korea; 1 ♀, ex *L. lanceolata* (Temminck), Philippine Is.; 7 ♀, ex *Phyllocoptus* sp., Thailand.

**Menacanthus agilis** (Nitzsch) \[Fig. 38–40\]

*Menopon agile* Nitzsch, 1866, Z. Gesammten Naturwiss. 27: 120. Type-host: "*Sylvia titthyde*" = *Phoenicurus ochrurus* gibraltariensis (Gmelin).


♀. Ventral spinous head process 0.05–0.08 long. Ocular seta 19 stout (Fig. 38), 0.015–0.02 long, much like outer central proronal seta 1 (Fig. 39). Gula well pigmented, with lighter deep, open posterior indentation (Fig. 40). Metanotum with 12–13 marginal setae; mesosternal plate with 8–12 setae, metasternal with 6–8. Tergal setae: I, 13–15; II–VI, 20–25; VII, 19–20; VIII, 10–11; IX, 16–21. Without anterior pleural setae. Sternal setae: I, 2; II, 20–27; III–V, 25–38; VI, 21–27; VII, 16–21; subgenital plate, 20–25. Both anal fringes of 35–44 setae. Dimensions: POW 0.35; TW 0.41–0.44; PW 0.32–0.33; MW 0.40–0.41; TL 1.46–1.50.

♂. Tergal setae: II–VI, 17–22; VII, 14–15; IX, 10. Sternal setae: II–VI, 11–16; VII–VIII, 7–9; subgenital plate, 13–21. Dimensions: POW 0.31–0.32; TW 0.36–0.37; PW 0.26–0.27; MW 0.30–0.31; TL 1.07–1.10; GL 0.35–0.37; GW 0.06–0.08; GSL 0.07.

Material examined: 15 ♀, 2 ♂, ex *Phoenicurus phoenicurus* (Linnaeus), Egypt; 9 ♀, ex *Phyllocoptus collybita* (Vieillot), Egypt, Spain; 3 ♀, ex *P. subaffinis* (Grant), Thailand; 56 ♀, 3 ♂, ex *P. trochilis*, Egypt; 13 ♀, ex *Muscaopa striata* (Pallas), Egypt.

**Menacanthus dendroicae** Price, n. sp.

Type-host: *Dendroica discolor* (Vieillot).

♀. Ventral spinous head process 0.04 long. Ocular seta 19 stout, 0.02 long. Gular plate pigmented, with large, lighter, completely enclosed central area. Metanotum with 11–13 marginal setae; mesosternal plate with 9–12 setae, metasternal with 8–9. Tergal setae: I, 14; II–V, 17–21; VI, 16–18; VII, 13–18; VIII, 10–11; IX, 18–20; most to all of tergites II–VI with series of several spiniform setae medially of postspiracular setae. Pleurites without anterior setae. Sternal setae: I, 2; II, 16–22; III–VI, 21–30; VII, 17–20; subgenital plate, 21–28, with only weak medioposterior spiculations and with latero-posterior setae heavier than medioposterior ones. Both anal fringes of 32–35 setae. Dimensions: POW 0.33–0.34; TW 0.40–0.42; PW 0.28–0.30; MW 0.34–0.37; TL 1.18–1.26.

♂. Tergal setae: VIII, 8–10; IX, 10. Sternal setae: II, 17; III, 18–19; IV, 20–21; V–VI, 16–18; VII, 10–11; VIII, 9–8; subgenital plate, 15–16. Dimensions: POW 0.31–0.32; TW 0.37–0.38; PW 0.26–0.27; MW 0.29–0.32; TL 1.04–1.09; GL 0.33; GW 0.07; GSL 0.06–0.07.


**Menacanthus geothalpis** Price, n. sp.

Type-host: *Geothlypis trichas* (Linnaeus).

♀. Close to *M. dendroicae*, differing as follows. Ventral spinous head process 0.03–0.05 long. Fewer tergal setae: II–III, 13–15; IV–VI, 13–17; VII, 11–16; each of tergites II–VI with only single spiniform seta medially of postspiracular seta. Sternal setae: I, 16–19; III–VI, 21–31; VII, 18–25; subgenital plate with all posterior setae more or less equally slender. Ventral anal fringe of 36–41 setae, dorsal of 35–37. Dimensions: POW 0.31–0.33; TW 0.38–0.41; PW 0.27–0.30; TL 1.07–1.22.

♂. Likewise close to *M. dendroicae*. Fewer tergal setae: II–VI, 12–14; VII, 11; IX, 15. Sternal setae: II, 15; IV, 18; VI, 14; subgenital plate, 10. Dimensions: POW 0.29–0.31; TW 0.34–0.37; PW 0.24–0.28; MW 0.28–0.31; TL 0.82–0.96; GL 0.31–0.32; GW 0.05–0.06.


**Menacanthus aurocapillus** Carriker

\[Fig. 34–37\]


♀. Ventral spinous head process 0.03–0.05 long. Ocular
senta 19 slender, 0.02 long. Gular plate pigmented, with lighter central "hole." Metanotum with 17–19 marginal setae; mesosternal and metasternal plates with 13–15 setae. Tergal setae: I, 24–27; II–VI, 27–32; VII, 23–26; VIII, 15–19; IX, 32–33. Some pleurites with 1–3 anterior setae near medial ventral margin. Sternal setae: I, 4; II, 39–49; III–IV, 60–65; V–VI, 51–56; VII, 44–46; subgenital plate, 57–58, with strong serrations medioposteriorly. Each anal fringe of 51–54 setae. Dimensions: POW 0.44–0.45; TW 0.58–0.60; PW 0.43–0.45; MW 0.57–0.59; TL 1.79–1.81.

Material examined: 4 ♀ (including type of M. robustum), ex P. minimus, U.S.A.

Menacanthus tenuifrons
Blagoveshchensky

Menacanthus tenuifrons Blagoveshchensky, 1940, Mag. Parasitol., Leningr. 8: 37. Type-host: Trogloidytes troglodytes hyrcanus Zarudny & Loudon.

♀ Ventral spinous head process 0.06–0.09 long. Ocular seta 19 slender, 0.02–0.03 long. Gular plate pigmented, with small central lighter "hole." Metanotum with 15–17 marginal setae; mesosternal and metasternal plates with 9–13 setae. Tergal setae: I, 22–24; II–VI, 23–31; VII, 22–25; VIII, 16–18; IX, 25–28. Some pleurites with 1–3 anterior setae near medial ventral margin. Sternal setae: I, 2–6; II, 36–41; III–IV, 55–64; V–VI, 47–56; VII, 34–36; subgenital plate, 40–49, with strong medioposterior serrations. Each anal fringe of 41–50 setae. Dimensions: POW 0.42–0.43; TW 0.54–0.55; PW 0.39–0.41; MW 0.51–0.53; TL 1.43–1.60.

♂ Metanotum with only 12–13 marginal setae. Tergal setae: I, 14–16; II–VI, 18–22; VII, 16–17; VIII–IX, 10–11. Sternal setae: II, 26–30; III–IV, 32–42; V, 29–35; VI, 29–25; VII, 13–16; VIII, 9; subgenital plate, 14–19. Dimensions: POW 0.38–0.39; TW 0.46–0.48; PW 0.32–0.34; MW 0.39–0.42; TL 1.14–1.21; GL 0.36–0.41; GW 0.09–0.10; GSL 0.09–0.10.

Material examined: 1 ♀, 1 ♂, ex T. troglodytes (Linnaeus), Shetland; 2 ♂, ex Cistothorax palustris (Wilson), U.S.A.; 2 ♀, ex C. platensis (Latham), U.S.A.

Menacanthus sinuatus (Burmeister)

Menopon sinuatum Burmeister, 1838, Handb. Entomol.: 440. Type-host: Parus major Linnaeus.

Menopon minutum Giebel, 1874, Insecta epizoa: 286. Type-host: Parus major.


♂ Close to M. tenuifrons, except as follows. Gula occasionally lacking lighter "hole." Metanotum with 11–14 marginal setae. Tergal setae: I, 17–22; II–VI, 22–30; VII, 17–24; VIII–IX, 11–16. Sternal setae: II, 22–26; III, 31–33; IV, 37–41; V–VI, 30–35; VII, 23–29; subgenital plate, 22–27. Ventral anal fringe of 40–42 setae, dorsal of 37. Dimensions: POW 0.40–0.43; TW 0.50–0.54; PW 0.35–0.39; MW 0.45–0.49; TL 1.36–1.66.
Likewise near *M. tenaxi*. Tergal setae: II–VI, 14–17; VII, 14–16; IX, 12. Sternal setae: II, 19–21; III–IV, 26–29; V, 24–26; VI, 19–21; VII, 12–14; VIII, 9; subgenital plate, 11–12. Dimensions: POW 0.37–0.39; TW 0.45–0.47; PW 0.31–0.32; MW 0.36–0.39; TL 1.23–1.26.

**Material examined:** 6 ♀, 5 ♂, ex *P. major*, England, Korea; 1 ♀, 1 ♂, ex *P. caeruleus* Linnaeus, England; 1 ♂, ex *P. ater*, Korea; 14 ♀, 2 ♂, ex *P. atricapillus* Linnaeus, U.S.A.; 1 ♀, 1 ♂, ex *P. bicolor* Linnaeus, U.S.A.; 5 ♀, ex *P. gambeli* Ridgway, U.S.A.; 2 ♀, 2 ♀, ex *P. rufescens* Townsend, U.S.A.

**Nomina dubia**

For various reasons, such as grossly inadequate descriptions, absence of type material or specimens from the type-host (or, in some cases, even from the family or genus of type-host), or poor condition of available specimens, the following 6 names are currently unplaceable.


*Menopon* *hilenisi* Kellogg & Chapman, 1902, J. N. Y. Entomol. Soc. 10: 166. Type-host: *Vestaria cocinea* (Forster) — Drepanidae.

*Menacanthus* *mamola* Ansari, 1957, Indian J. Entomol. 18 (1956): 433. Type-host: *Eunicaris maculata* maculata (Vigors) — Muscicapidae.

*Menacanthus* *remizae* Blagoveshchensky, 1940, Mag. Parasitol., Leningr. 8: 34. Type-host: *Remiza pendulina* pendulina (Linnaeus) — Remizidae.


**Key to passerine *Menacanthus***

1. Sternite I without setae; postmentum with 2 short spiniform setae; from Artiandiidae (*Artiandus*) ... 2
2. Sternite I with at least 1 seta, usually 2 or more; postmental setae (PMS: FIG. 5) all fine ... 3
3. Metanotum with only up to 12 marginal setae .... *elbeli*
   Metanotum with at least 14 marginal setae ... *nelsoni* 
   ♀ with over 60 setae in each anal fringe and prothorax width over 0.45; ♀ genitalia as in FIG. 1; from *Menuridae* (*Menura*) ... *menura* 
   ♀ with under 60 setae in at least 1 anal fringe, usually both, or prothorax width under 0.45; ♀ genitalia otherwise ... 4
4. Marginal temple seta 24 at least 0.30 long (FIG. 2); ♀ precocular width at least 0.49, prothorax width at least 0.48; from Corvidae (*Corvus*, *Pyrrhocorax*), ... *gonophaeus*
   Marginal temple seta 24 under 0.30 long; ♀ precocular width not over 0.48, prothorax width not over 0.47 ... 5
5. Each side of metanotum with only 2 lateroanterior setae; ♀ subgenital plate medioposteriorly smooth (SGP: FIG. 19) to lightly spicate, without strong serrations; ♀ genitalia with parameres and endo-
   meral plate much as in FIG. 6 ... 6
6. Precocular width at least 0.39 and temple width at least 0.49; ♀ precocular width at least 0.37 and temple width at least 0.45 ... 7
   Precocular width under 0.39 and/or temple width under 0.49; ♀ precocular width under 0.37 and/or temple width under 0.45 ... 10
7. Margin of metanotum with not more than 10 setae; most to all of tergites III–VI of ♀ with under 18 setae, of ♀ under 15; from *Laniidae* (*Lanius*) ...
   ... *camelinus*
   Margin of metanotum with 12 or more setae; ♀ with strongly developed apically blunt sac sclerite ...
   ... *sturnellae*, n. sp.
8. Tergite I with only up to 15 marginal setae; ♀ genitalia with weaker apically tapered sac sclerite not deve-
   loped more than as in FIG. 22 ... 9
9. ♀ dorsal anal fringe of over 42 setae; ♀ sternite II with over 27 setae; from *Tyranisidae* (*Tyranus*) ...
   ... *tyranni*, n. sp. (in part)
   ♀ dorsal anal fringe of under 42 setae; ♀ sternite II with under 26 setae; from *Icteridae* (*Icterus*, *Molothrus*, *Euphagus*) ...
   ... *quiscalii*, n. sp.
10. Metanotum marginally with not over 11 setae ... 11
   Metanotum marginally with at least 12 setae ... 17
11. Small ventral spinous head process, not over 0.03 long ... 12
   Larger ventral spinous head process, longer than 0.03 ... 14
12. Ocular seta 19 at least 0.04 long; sternite IV with over 36 setae, V over 40; ♀ with at least 18 setae along margin of last tergite, ♀ with at least 13; from *Tyranisidae* (*Myiarchus*, *Nuttallarius*) ...
   ... *distinctus* (in part)
   Ocular seta 19 not over 0.03 long; sternite IV with under 37 setae, V under 40; ♀ with under 18 setae along margin of last tergite, ♀ usually with under 13 ... 13
13. Gular plate with dark, even pigmentation, except for small central lighter "hole"; ♀ inner posterior setae (IPS) all subequally long, much as in FIG. 34; ♀ temple width under 0.44, ♀ under 0.41; from *Moticellidae* (*Motacilla*) and *Muscicapidae* (*Erithacus*, *Cinclidium*) ...
   ... *nogoma*
   Gular plate pigmented otherwise, without central lighter "hole"; ♀ with both short and long inner posterior setae, much as in FIG. 27; ♀ temple width over 0.45, ♀ over 0.41; from *Emberizidae* (*Zonotrichia*, *Spizella*) ...
   ... *chrysophaeus* (in part)
14. Inner central pronotal seta 2 minute, much finer than outer seta 1, and less than 0.01 long ... 15
   Inner central pronotal seta 2 stout, much like outer seta 1, and usually at least 0.01 long ... 16
15. Ventral spinous head process 0.035–0.06 long, tapered to sharp point; from 12 genera in *Alaudidae*, *Emberizidae*, *Fringillidae*, *Icteridae*, *Ploceidae* ...
   ... *alaudae* (in part)
   Ventral spinous head process only 0.035 long, with
blunt tip much as in FIG. 8; from Muscicapidae (Oenanthe)..........................exilis (in part)
16. Ventral spinous head process only up to 0.04 long; ♀ with both short and long inner posterior setae; ♂ prothorax width only up to 0.30, metathorax width under 0.37; from Emberizidae (Zonotrichia, Spizella)..............................................chrysophaeus (in part)
   Ventral spinous head process at least 0.05 long; ♀ inner posterior setae all subequally long; ♂ prothorax width at least 0.31, metathorax width over 0.37; from Motacillidae (Motacilla, Anthus).............pusillus
17. Small ventral spinous head process, not over 0.03 long...........................................18
   Larger ventral spinous head process, over 0.03 long........19
18. Ocular seta 19 at least 0.04 long; ♀ with over 35 setae in dorsal anal fringe; ♂ with over 16 setae on each of tergites III–VI; from Tyrannidae (Myiarchus, Nuttallorius).........................distinctus (in part)
   Ocular seta 19 shorter, under 0.03 long; ♀ with under 35 setae in dorsal anal fringe; ♂ with under 16 setae on each of tergites III–VI; from Trogloidyidae..............19
19. ♀ tergite V with over 17 setae, VII with over 11; ♂ sternite V with under 29 setae, VI with under 25; from Troglydetes, Thryomanes.............aedonis, n. sp.
   ♀ tergite V with under 17 setae, VII with under 11; ♂ sternite V with over 29 setae, VI with at least 25; from Saltipes..........................obsoleti, n. sp.
20. Sternite IV with over 50 setae and ♀ temple width over 0.48, ♂ over 0.45; from Tyrannidae (Tyrannus)..............................tyranni, n. sp. (in part)
   Sternite IV with under 45 setae and/or ♀ temple width under 0.48, ♂ under 0.45 (♂ of M. exilis unavailable)........21
21. Ventral spinous head process 0.035–0.06 long, tapered to sharp point; from 12 genera in Alaudidae, Emberizidae, Fringillidae, Icteridae, Ploceidae,.............................alaudae (in part)
   Ventral spinous head process only 0.035 long, with blunt tip much as in FIG. 8; from Muscicapidae (Oenanthe)..........................exilis (in part)
22. Gular plate shaped as in FIG. 24, with setae inserted in clear lateral area and with small unpigmented central "hole"; ventral spinous head process 0.07–0.14 long..........................23
   Gular plate shaped and/or pigmented otherwise; ventral spinous head process variably shorter to up to 0.09 long..........................24
23. Some tergites with groups of short, stout setae laterally; widespread on many families..................eurysternus
   Tergites without such groups of short, stout setae laterally; from Corvidae (Nuciferaga, Corvus, Denrocitta, Urocissa).................................mersiusoi
24. Ocular seta 19 and outer central pronotal seta 1 similar and stout (FIG. 38, 39), and without anterior setae on pleurites; pigmentation of gular plate either with deep posterior indentation (FIG. 40) or with very large enclosed lighter central area, much as in FIG. 23..................................................25
   Ocular seta 19 usually finer than outer central pronotal seta 1; often several pleurites with at least 1 anterior seta, especially if ocular seta stout; pigmentation of gular plate variable..................................27
25. Pigmentation of gular plate with deep, open posterior indentation (FIG. 40); ♀ with medioposterior margin of subgenital plate strongly serrated; from Muscicapidae (Phoenicurus, Muscicapa) and Sylvidae (Phylloscopus)..............................agilis
   Pigmentation of gular plate with very large enclosed central lighter area (FIG. 23); ♀ with medioposterior margin of subgenital plate at most only lightly specular; from Parulidae..................................26
26. Each of tergites II–VI with only single spiniform seta medially of postspiracular seta; ♀ subgenital plate with all posterior setae more or less equally slender; from Geothlypis..................................................geothlypis, n. sp.
   Most to all of tergites II–VI with series of several spiniform setae medially of postspiracular seta; ♀ subgenital plate with lateroposterior setae heavier than medioposterior setae; from Dendroica..........................28
27. ♀ ..................................................29
   ♂ (M. robustus unavailable)..................................34
28. Temple width at least 0.57, metathorax width at least 0.56; both anal fringes of over 50 setae; at least 30 setae on last tergite; ventral spinous head process at least 0.08 long; from Aegithalidae (Psaltriparus).....................robustus
   Temple width not over 0.56, metathorax width not over 0.55; either or both anal fringes of under 50 setae; under 30 setae on last tergite; ventral spinous head process shorter to as long as above.................29
29. Subgenital plate only lightly spiculated medioposteriorly; from Oriolidae (Oriolus) and Pycnonotidae (Criniger, Pycnonotus)..........................orioli
   Subgenital plate with prominent deep serrations medioposteriorly..................................30
30. Each of sternites III–VI with at least 45 setae; from Trogloidyidae (Troglodytes, Cistothorax)..................tenuifrons
   Each of sternites III–VI with under 45 setae..................31
31. Each side of last segment with only 1 very long seta extending beyond ends of anal fringe setae; from Sylvidae (Sylvia, Acrocephalus, Phylloscopus) and Vireonidae (Vireo)..........................curucceae
   Each side of last segment with 2 very long setae extending beyond ends of anal fringe setae..............32
32. Temple width over 0.49, metathorax width over 0.44; ventral spinous head process at least 0.07 long; from Paridae (Parus)..........................sinatus
   Temple width under 0.49, metathorax width under 0.44; variable ventral spinous head process, often shorter but up to 0.09 long..................33
33. Weakly pigmented gular plate, except for laterally..................35
   Weakly pigmented gular plate, except laterally..................35
   Weakly pigmented gular plate, except darker laterally..................36
34. Temple width at least 0.45..................................35
   Temple width under 0.45..................................36
35. Stermites III–IV each with over 30 setae; subgenital plate with at least 14 setae; from Trogloidyidae (Troglodytes, Cistothorax)..........................tenuifrons
   Stermites III–IV each with under 30 setae; subgenital plate with only up to 12 setae; from Paridae (Parus)..................................................sinatus
36. Gular plate weakly pigmented, except darker laterally (FIG. 35); marginal temple seta 25 present, up to 0.025 long; from Sylvidae (Sylvia, Minioptila, Vermivora)..........................aurocipillus
   Gular plate well pigmented, with light central "hole" (FIG. 31); marginal temple seta 25 present, 0.01–0.025 long..................37
37. Most to all of tergites II–V with 14–16 setae; from
Oriolidae (Oriolus) and Pycnonotidae (Criniger, Pycnonotus) .................................................. orioli

Most to all of tergites II–V usually with 17–20 setae;
from Sylviidae and Vireonidae......................... 38

38. From Sylvia, Aecoccephalus, Phylloscopus and Vireo........
........................................................................... curuccae

From Cettia, Aecoccephalus, Locustella, Phylloscopus........
.......................................................................... takayamai

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