

# Review of the mite subfamily Arctoseiinae Evans with a key to its genera and description of a new genus and species from Siberia (Parasitiformes, Mesostigmata, Ascidae)

Evert E. Lindquist<sup>1,†</sup>, Olga L. Makarova<sup>2,‡</sup>

**1** *Invertebrate Biodiversity, Research Branch, Agriculture & Agri-Food Canada, Ottawa, Ontario K1A 0C6, Canada* **2** *Severtsov Institute of Ecology and Evolution, Russian Academy of Sciences, Leninski pr. 33, Moscow 119071, Russia*

† [urn:lsid:zoobank.org:author:7798EFA3-0480-415F-969F-E2C5814DF2C8](https://zoobank.org/urn:lsid:zoobank.org:author:7798EFA3-0480-415F-969F-E2C5814DF2C8)

‡ [urn:lsid:zoobank.org:author:0EF0FE00-AE3F-4F89-8772-D6BE75D3838F](https://zoobank.org/urn:lsid:zoobank.org:author:0EF0FE00-AE3F-4F89-8772-D6BE75D3838F)

Corresponding author: *Olga L. Makarova* ([ol\\_makarova@mail.ru](mailto:ol_makarova@mail.ru))

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## Abstract

We redefine the subfamily Arctoseiinae of the family Ascidae, and describe a new genus, *Maxinia* **gen. n.**, based on a new species, *Maxinia arctomontana* **sp. n.**, whose adults display a combination of attributes uniquely different from other genera of the subfamily. The geographical range of *M. arctomontana* is limited by arctic and mountain landscapes of Siberia. This description provides further data on the arctic distribution and morphological diversity of the subfamily Arctoseiinae, which is unusually well represented in that region (26–83% in local gamasid mite faunas). Conceptual problems with the genus *Iphidonopsis* Gwiazdowicz, 2004 are reviewed, and a new combination, *Iphidonopsis magnanalis* (Ma & Yin, 1999) **comb. n.**, is presented for *Iphidozercon magnanalis* Ma & Yin, 1999 from China. The genus *Diseius* Lindquist & Evans, 1965 is provisionally moved from the family Ascidae to the Digamasellidae. A new key to the genera of Arctoseiinae is presented.

## Keywords

Gamasid mites, *Maxinia arctomontana*, genus nova, species nova, Arctoseiinae, generic identification key, Arctic, geographical range, *Iphidonopsis* Gwiazdowicz, 2004; *Diseius* Lindquist & Evans, 1965

## Introduction

The subfamily Arctoseiinae at present numbers ca 90 species (including 19 undescribed species at hand of the genus *Arctoseius* Thor, 1930), among which approximately one-third (30 species, 26 – *Arctoseius*) inhabit Arctic landscapes (Makarova 1999, in press). The separate local faunas within the Arctic include 5–16 arctoseiine species which constitute 26–83 % of the local gamasid mite diversity (Makarova 2012, in press). In this communication we account for a recently discovered, undescribed species with a unique combination of attributes that defies its placement in any of the five, currently recognized genera of Arctoseiinae Evans, 1963. We present a diagnosis of the subfamily, which argues for placement of the new genus in it, a description of the new genus, and detailed descriptions and illustrations of adult female and male of the new species. Previous confusion and disparity concerning the genus *Iphidonopsis* Gwiazdowicz, 2004 is considered. The monobasic genus *Diseius* Lindquist & Evans, 1965, previously allocated by various authors to either the Arctoseiinae or the Ascinae of the family Ascidae, is tentatively moved to the Digamasellidae.

## Material and methods

Setal notation for the idiosoma follows Lindquist and Evans (1965), with some modification (Lindquist 1994). The leg and palpal chaetotaxy complies with Evans (1963, 1964). The poroidotaxy and adenotaxy are given according to Johnston and Moraza 1991, with small modification (Makarova 2003). The length of all shields was measured along the mid-line, and the width at the broadest part (in case of sternal/sternitigenital shield, the width was accepted as the distance between gland openings *gvb*; see Fig. 15). The length of the epigynal shield was measured to include the anterior flap, and the greatest width at the posterolateral corners. The length of all legs and tarsi are given excluding the ambulacrum, and also its pedicel on leg I. The subcapitulum length was measured from its anterior margin excluding projections (internal malae, corniculi). The measurements were carried out on all available specimens and their limits are stated in micrometers ( $\mu\text{m}$ ). The following ratios were used in the description (Makarova 2000):

- ID/wD*** the length-to-width ratio of the dorsal shield;  
***ISt/wSt, IVA/wVA*** the length-to-width ratios of the sternal (in females) and ventrianal (in females and males) shields respectively;  
***ICb/ID*** the ratio of the lengths of the movable cheliceral digit and the dorsal shield, %;  
***ICb/ICo*** the ratio of the lengths of the movable cheliceral digit and the corniculus.

In the male description, the features common with the female are omitted.

Holotype and most of paratypes are deposited in Zoological Institute, Russian Academy of Sciences (ZIRAS), St.-Petersburg; part of paratype series (6 females and 1 male from Suntar-Khayata Range) in Canadian National Collection of Insects and Arachnids, Ottawa (CNC).

## Taxonomy / Systematics

### Subfamily Arctoseiinae Evans, 1963

The Arctoseiinae was first proposed by Evans (1963) in a rather informal manner, based on the results of his observations on the chaetotaxy of the legs among a wide variety of free-living Gamasina. It was based on a reduced chaetotaxy of the genu and tibia of legs II to IV, and “the nature of the chaetotaxy of the opisthonotal region of the dorsal shield in the female.” A formal and more detailed description of the subfamily, including a key to its genera was presented by Lindquist and Evans (1965). From that description, the subfamily may be based on the following apomorphic characteristics within the family Ascidae:

Dorsal shield of adults entire, with or without lateral incisions; opisthonotal region usually with maximum of four pairs of lateral *S* setae, *S*<sub>2</sub> usually not added in change from larva to protonymph. Marginal (*r-R*) series of setae lacking *r*<sub>6</sub> in podonotal region and often *R*<sub>6</sub> posteriorly; marginal *R* setae on lateral soft cuticle on female, but variably on dorsal shield margin on male. Submarginal (*UR*) setae absent. Female sternal shield with third pair of lyrifissures on its posterior margin; fourth pair of sternal setae on soft cuticle. Sternal setae *st*<sub>5</sub> usually on soft cuticle flanking female epigynal shield. Male sternitigenital shield free from, but sometimes abutting ventrianal shield, and often not fully integrated with endopodal strips alongside coxae III–IV. Maximum number of setae on genua I–II–III–IV, respectively, 12–10–8–7; on tibiae, 12–9–7–7; in change from protonymph to deutonymph, seta *pd*-3 not added to genu and tibia I, *pl*-2 not added to genu and tibia II, and *al*-2 not added to genua and tibiae III–IV.

Plesiomorphic attributes of the Arctoseiinae include the following:

Gnathotectum basically bi- or tri-ramous, each process simple or denticulate; cheliceral movable digit bidentate in female, unidentate in male, without pointed process on mid-ventral surface, and with fringed arthrodial envelope basally; cheliceral fixed digit with small, setiform pilus dentilis, with usually few teeth restricted to apical half of masticatory surface, and without hyaline serrate rim near base on paraxial surface. Tarsus I usually with a conspicuously lanceolate-tipped seta dorsodistally. In change from protonymph to deutonymph, seta *ad*-3 added to genua I–II and tibia I, *ad*-2 added to tibia II, and *al*-2 added to tibia II.

#### ***Maxinia* gen. n.**

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<http://species-id.net/wiki/Maxinia>

**Type species.** *Maxinia arctomontana* new species. Monotypic. Genus based on adult female and male material representing one newly described species.

**Diagnosis.** Adults of *Maxinia* are immediately distinguished from those of other arctoseiinae genera by having a broad, robust dorsal shield; by the female having an

apomorphically expansive ventrianal shield that encompasses the metapodal plates anterolaterally and includes setae *JV1* anteriorly; and by the male having an expansive sternitigenital shield that is fully consolidated with the endopodal strips beside coxae III–IV and abuts an expansive ventrianal shield. In addition, apomorphically, the subcapitulum has a narrow deutosternal groove, and the opisthogaster lacks a setal pair *ZV1*. None of the setae on tarsi II to IV are conspicuously differentiated by thinness, elongation, or curved shape. As in *Arctoseius* Thor, 1930 and *Iphidozercon* Berlese, 1903, genu III carries only seven setae (lacking *pv-1*) on adults; however, adults of those genera have less robust, parallel-sided dorsal shields, retain opisthogastric setae *ZV1*, and their females have free metapodal plates and an anal shield. As in *Zerconopsis* Hull, 1918, adults have robustly sclerotized dorsal and ventral shields. However, adults of *Zerconopsis* have two to several pairs of dorsal shield setae (at least *s4* and *Z5*) uniquely paddle-like in form, retain opisthogastric setae *ZV1*, eight setae (including *pv-1*) on genu III, and the female ventrianal shield is never expansive enough to include the metapodal plates and setae *JV1*; also, their tarsi II to IV have dorsal proximal setae *ad-2*, *pd-2* conspicuously elongated and curved.

**Description.** *Idiosomal dorsum.* Dorsal shield relatively broad, entire, without lateral incisions, well sclerotized; surrounding soft integument smoothly striate; all dorsal shield setae simple, undifferentiated in form; opisthonotal region lacking setae *S2* (Fig. 9). Dorsal shield with complement of 20 pairs of discernible pore-like structures, of which 4 pairs superficially appear secretory (glandular). Marginal *r-R* series of setae on soft integument in female (Fig. 12), but on dorsal shield edge in male (Fig. 22); *r*-series lacking *r6*, *R*-series with *R1-6*; submarginal *UR*-setae absent. Peritrematal shields uniting with dorsal shield anteriorly and pericoxal strip beside coxa IV posteriorly (Fig. 10). Peritremes somewhat reduced in length.

*Idiosomal venter.* Tritosternum with laciniae free for most of length (Fig. 17). Ventral shields well sclerotized and ornamented (Figs 1, 2, 12, 22). Female sternal shield entire, continuous with well developed endopodal extensions between coxae I–II, but free from those between coxae II–III (Figs 13–16); endopodal extension between I–II with gland pore apically where approaching or abutting exopodal strip; sternal shield with three pairs of sternal setae and three pairs of poroids; setae *st4* isolated on soft cuticle. Female with well developed endopodal strips alongside coxae III–IV. Female epigynal shield widened behind level of setae *st5*, its posterior margin broadly convex and nearly abutting ventrianal shield; setae *st5* and paragenital poroids *iv5* on soft cuticle; postgenital furrow with two pairs of small platelets. Female with expansive ventrianal shield encompassing metapodal plates anterolaterally and including setae *JV1* anteriorly, along with other opisthogastric and circumanal setae, except *JV5*, *ZV4* on soft cuticle; ventrianal shield with paranal setae inserted at level of anterior margin of anus, with gland pores *gv3* on posterolateral margins, and with cribrum formed as partitioned strip behind level of postanal seta. Male with expansive sternitigenital shield consolidated with presternal platelets and endopodal strips alongside coxae I–IV and abutting expansive ventrianal shield. Male ventrianal shield similar in expansiveness, setation, and other structure to that of female (Fig. 22); setae *JV5*, *ZV4* on

soft cuticle, *ZV5* absent. Peritrematal shield consolidated with exopodal strips behind coxae IV, with two poroids and one gland pore in area behind stigma, and a gland pore and poroid at level between coxae II–III; exopodal strip alongside coxae II–III usually fragmented.

*Gnathosoma*. Gnathotectum with basically but variably triramous anterior margin (Figs 4–7, 26–28); dorsal face without punctate fields. Chelicerae without any conspicuous process along antiaxial or paraxial lateral surfaces basal to digits (Figs 19, 20, 23); fixed digit with small, setiform pilus dentilis and series of teeth along distal half of masticatory surface; movable cheliceral digit bidentate on female (Fig. 19), unidentate on male (Fig. 23), with arthrodial envelope margin fimbriate; male spermatodactyl simple, digit-like, not recurved basally. Deutosternal groove narrow (Fig. 8), with seven transverse rows of denticles of similar width, rows variably denticulate (2–7 denticles), all rows connected by lateral margins. Corniculi normal in form, parallel in anterior projection from base to apex; internal malae normal in form, similar in length with corniculi or somewhat longer. Subcapitular setae smooth, not greatly disparate in length, *hp1* not elongated. Palpi with normal setation as described for Gamasina by Evans (1964); palpfemoral seta *al* and palpgenual setae *al-1* and *al-2* more or less spatulate distally; palptarsal apotele two-tined.

*Legs*. Legs I to IV with ambulacrum bearing paired claws without basal swelling (Fig. 3), with paradactyli and rounded pulvilli, ambulacrum I smaller than ambulacra II–IV; legs I–IV similar in thickness, and not disparate in length. Legs II–IV with tarsus (excluding ambulacrum) less than twice as long as tibia. Tarsus I without a sensilla distinguishable as *s* by apically lanceolate form (as found in most other members of subfamily), and without markedly elongated setae apically, but with seven finger-shaped sensillae of different lengths. Tarsi II–IV with apical setal processes inconspicuous, shorter than ambulacrum (to base of claws), and with acutely triangular apical process ventrally. Complement of setae on segments of legs I–II–III–IV typical for *Arctoseiinae* as presented by Lindquist and Evans (1965): femora (2-5/3-2) (2-5/3-1) (1-3/1-1) (1-3/1-1) [Setation of femur III was mistakenly presented as 1-4/1-0 in Lindquist and Evans 1965 (see Evans 1963).]; genua (2-3/2, 2/1-2) (2-3/1, 2/1-1) (1-2/1, 2/0-1) (1-2/1, 2/0-1); tibiae (2-3/2, 2/1-2) (2-2/1, 2/1-1) (1-1/1, 2/1-1) (1-1/1, 2/1-1); in transformation from proto- to deutonymph, seta *pd-3* not added to genu and tibia I, *pv-1* but not *pl-2* added to genu II, and *al-2* not added to genua and tibiae III–IV (this combination of hypotrachy is apomorphic for subfamily). Leg setae collectively smooth; none of setae on tarsi II–IV conspicuously differentiated by thinness, elongation, or curved shape. Legs of male without dimorphically modified setae.

**Etymology.** The name of the genus is tribute to the first author's spouse, Maxine Lindquist. Together with him for 55 years, she supported his acarological endeavors, accompanied him in field work throughout North America, and hosted many visiting colleagues at home. The name is feminine in gender.

**Remarks.** Among some of the characteristics that distinguish them from other taxa of *Arctoseiinae*, adults of *Maxinia* resemble those of the genus *Neojordensia* Evans, 1957, *Ascinae*, e.g., the relatively broad, well sclerotized dorsal shield, expansive ven-

trianal shield encompassing the metapodal plates and insertions of setae *JV1*, absence of setae *ZV1*, expansive male sternitigenital shield, and the narrow rows of deutosternal denticles. However, adults of *Neojordensia* present dorsal shield setation and leg chaetotactic attributes typical of the subfamily Ascinae, and are characterized by different distinctive attributes, including absence of paravertical setae *z1*, absences of setae *av-2* on genu I and *ad-2* on tibia II, gnathotectum with convex, smooth anterior margin, female with most or all of *r-R* marginal series of setae on margins of dorsal shield, female sternal region with setae *st1* on separate presternal plates, and female epigynal shield apomorphically widened to include the paragenital poroids as well as setae *st5* (Lindquist and Evans 1965, Athias-Henriot 1973).

***Maxinia arctomontana* sp. n.**

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[http://species-id.net/wiki/Maxinia\\_arctomontana](http://species-id.net/wiki/Maxinia_arctomontana)

Figs 1–35

**Material.** Holotype, female: EAST SIBERIA, YAKUTIYA, Suntar-Khayata Range, upper reaches of Kybyume R., 63°13'N, 139°36'E, 1850 m a.s.l., SW slope, bird outlook with gramineous vegetation, 19.VII 2002, O.L. Makarova (ZIRAS).

Paratypes: 16 females, 3 males with same data as for holotype (ZIRAS); 6 females, 1 male, the same district, 1600 m a.s.l., snowbed, litter under *Rhododendron aureum*, 29.VII 2002, O.L. Makarova (CNC); MAGADAN REGION, 8 females, 2 males, 3 protonymphs, 1 larva, Olskoye Plateau, upper reaches of Ola R., 1149 m a.s.l., snowbed, litter under *Rhododendron redowskianum*, 10.VIII 2011, O.L. Makarova (ZIRAS).

Other material: YAKUTIYA, 3 females, vicinity of Ust-Nera settlement, 1400 m a.s.l., litter under *Pinus pumila*, 26.VII 1992, M.B. Potapov; 1 female, Khalerchinskaya Tundra, 69°24'N, 158°37'E, VIII 1991, O.V. Starikova; 4 females, mouth of Kolyma R., 69°32'N, 160°44'E, Pokhodskaya Yedoma, dwarf shrub (*Vaccinium vitis-idaea*, *Betula* sp.) thicket, 18–19.VII 1994, A.B. Babenko; 2 females, delta of Yana R., Shirokostan Peninsula, vicinity of Ledyanoye Lake, *Dryas* community on south slope of valley, 4–6.VIII 1994, A.B. Babenko; 2 females, the same district, date and collector, forb-grassy meadow; MAGADAN REGION, 6 females, 1 male, upper reaches of Kolyma R., Aborigen Mt., *Betula exilis* thicket within icing in valley, litter, 23.VIII 2006, A.A. Alfimov; TAYMYR PENINSULA, 1 female, vicinity of Pyasino Lake, Nyapan' Upland, *Dryas*-community on hill, 10.VII 1999, O.L. Makarova; 1 female, vicinity of Ragozinka R., 72°57'N, 80°56'E, "lemming hay" on slope, 10.VII 1983, A.B. Babenko; 1 female, mouth of Tareya R., hummocky tundra, 28.VII 2010, O.L. Makarova; 3 females, 3 protonymphs, 72°50'N, 101°15'E, bank of Zakharova Ras-sokha R., mossy tundra, 3.VII 2011, A.V. Barkalov; YAMAL PENINSULA, 2 females, Seyakha Lake, tundra, litter, 9.VII 1986, V.I. Bulavintsev; 1 female, Yakhadyakha R., 72°53'N, 70°56'E, lemming hill with *Poa arctica*, 21.VIII 1994, A.B. Babenko; VAIGATCH ISLAND, 1 female, VII 1984, V.I. Bulavintsev; SOUTH SIBERIA, 5

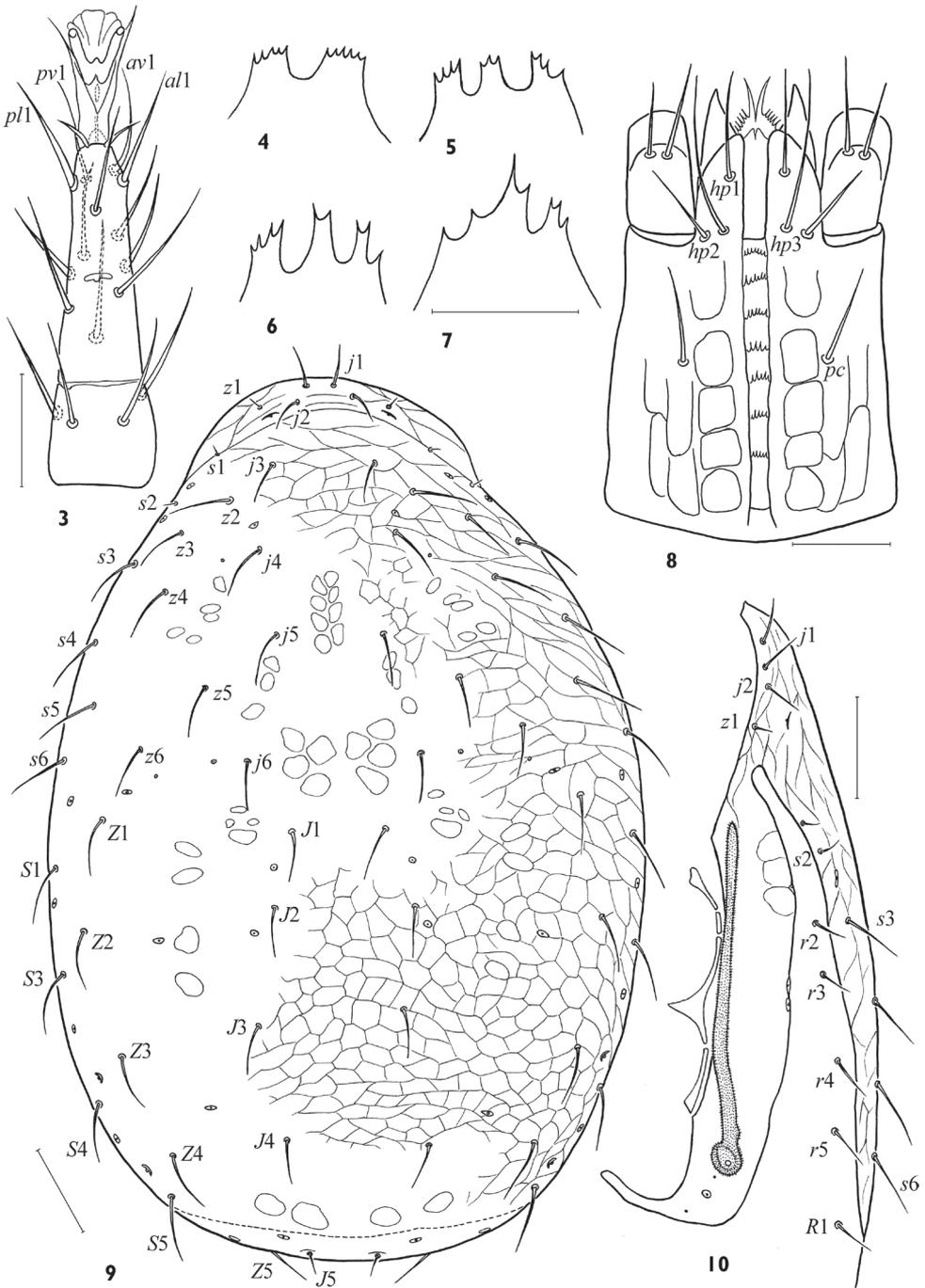


**Figures 1–2.** *Maxinia arctomontana* gen. et sp. n., ventral view **1** female **2** male.

females, Rudnyi Altai Mts., Ivanovskiy Belok Mt., 3.VII 1983, I.P. Vtorov; 1 female, West Sayan Mts., Alashskoye Upland, 2200 m a.s.l., *Dryas*-community, 20.VII 2001, S.K. Stebaeva; 2 females, the same region, vicinity of Sut-Khol Lake, *Larix-Vaccinium vitis-idaea*-mosses-community, 27.VII 2001, S.K. Stebaeva.

**Description.** Middle-sized dark-yellow or brownish mites with rather broad, somewhat pyri-form idiosoma (Figs 1, 2). Idiosomal shields well sclerotized, very finely punctate, with clearly reticulate ornamentation on nearly all surfaces except peritrematal plates. Many setae of body and appendages with fine, hair-like tips, which often are broken off. Dorsal shield rather broad, covering entire dorsal idiosoma, without lateral incisions.

**Female.** *Idiosomal dorsum.* Dorsal shield 448–520 × 296–356, moderately broad,  $LD/wD$  ca 1.34–1.62, its maximal width at level of setae  $S_1$  (Fig. 9). Podonotal region normally with 18 pairs of simple setae ( $s_1$ ,  $s_2$ ,  $z_1$  sometimes symmetrically or asymmetrically absent). Opisthonotal region with 14 pairs of setae ( $S_2$  always absent). Among podonotal setae  $z_1$ ,  $s_1$ ,  $s_2$  distinguished by much shorter length (7–11), length of  $j_{1,2}$  18–26, other setae 22–36. On opisthonotal region setae  $J_1$ – $J_4$  (20–28) shorter than others (30–44), and  $J_5$  clearly shortest (11–15). Dorsal shield with 4 pairs of cu-

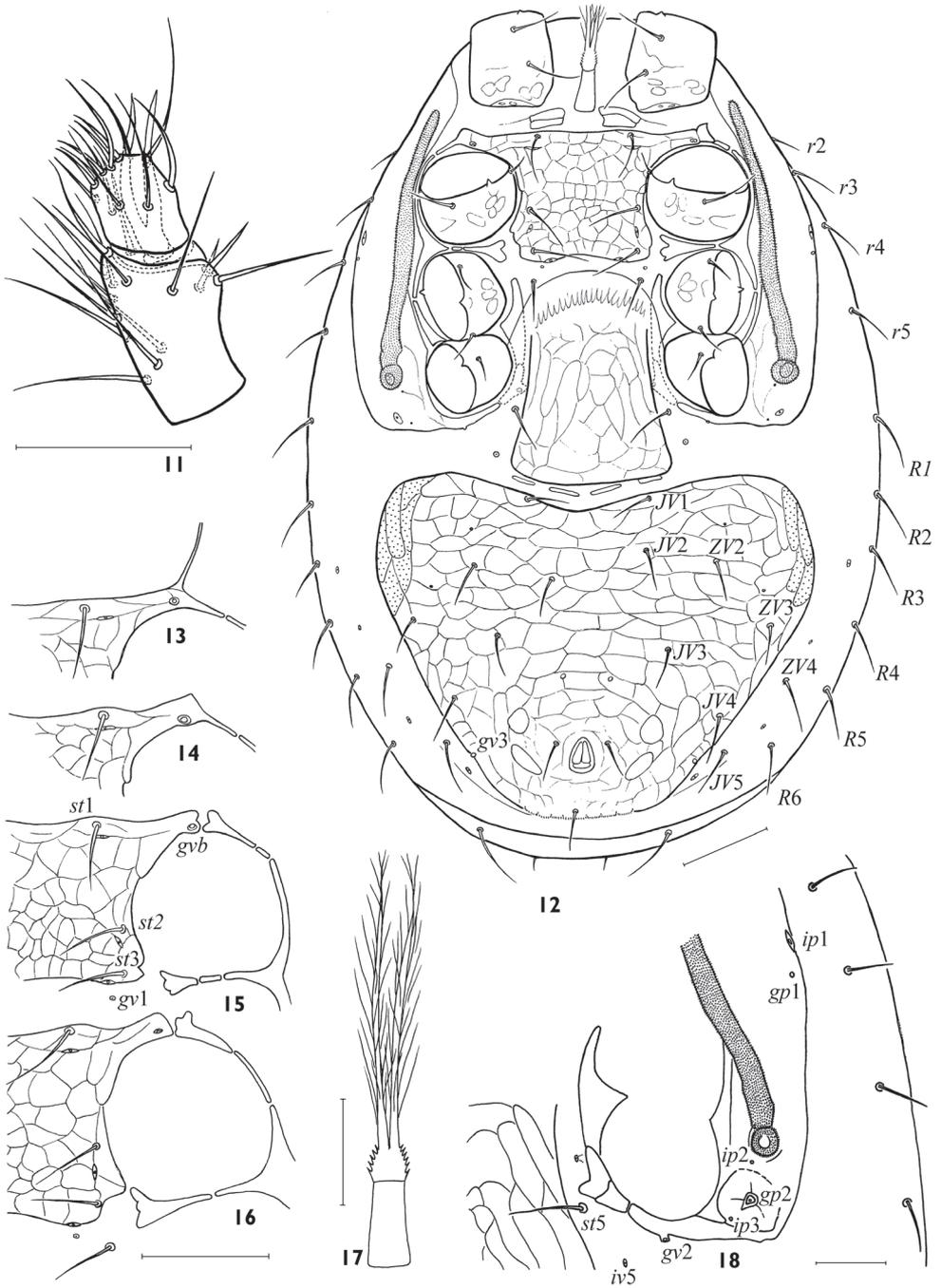


**Figures 3–10.** *Maxinia arctomontana* gen. et sp. n., female **3** tarsus II **4–7** gnathotectum **8** subcapitulum **9** dorsal shield **10** pretiternal shield. Scales: **3–8** – 25  $\mu$ m, **9, 10** – 50  $\mu$ m.

taneous glands *gdj4*, *gdz6*, *gdZ3* and *gdZ4*. All marginal setae on soft cuticle (Fig. 12); 4 setae in series *r* (their length 16–24), 6 setae in series *R* (22–38); marginal poroid *Rp* in usual position between setae *R3* and *R4*.

*Idiosomal venter*. Base of tritosternum narrow (18–22 × 11–14); laciniae with sparse large barbs, free for nearly entire length, fused basal area broadest, with short spicules (Fig. 17); length of lacinia free part 68–78. Presternal platelets 10–16 × 20–24, distinct, lineate, clearly separate from sternal shield (Fig. 12). Sternal shield wider (100–124) than long (60–72), *lSt/wSt* 0.48–0.64, minimal width between coxae II 62–74; consolidated with endopodal platelets between coxae I–II but not between coxae II–III. Endopodal projections between coxae I–II strong, nearly straight, their posterolateral margin concave, apices encompassing opening of gland *gvb*, and abutting or uniting with exopodal extensions (Figs 13–16). Sternal shield entirely reticulated; anterior margin straight or slightly concave; posterior margin straight or slightly concave. Sternal shield with typical setae *st1-3* (30–34) and lyrifissures *iv1-3*; rarely, vestiges of gland *gv1* present, off posterior margin of sternal shield. Setae *st4* (22–28) on soft cuticle. Free endopodal fragments between coxae II–III well sclerotized with angular inner margin. Endopodal strips between coxae III and IV free, well developed (Fig. 18), partly hidden under epigynal flap. Epigynal shield (116–132 × 80–116) distinctly reticulated (Fig. 12), broadly axe- or flask-shaped, with broadly convex hyaline flap not extending to sternal shield, and posterior margin broadly convex; lateral margins strongly widening behind level of setae *st5*, but *st5* (24–28) and paragenital poroids *iv5* remain on soft cuticle. Two openings of gland *gv2* medially to coxa IV and on posterior margin of exocoxal strip behind coxa IV usually poorly visible (Fig. 18). Two pairs of postgenital platelets in fold of soft cuticle. Ventrianal shield expansive, fully reticulated, wider (224–280) than long (165–192), *lVA/wVA* 0.63–0.82, consolidated with metapodal platelet sigillae laterally; anterior margin broadly concave, nearly abutting epigynal shield; posterior margin broadly convex, with cribrum a narrow band subdivided along 8 small festoons. Ventrianal shield with 6 (*JV1-4*, *ZV2*, *ZV3*) opisthogastric setae, plus the circumanal setae; setae similar in moderate length (22–30); paranal setae (20–26) inserted at level of anterior margin of anus, and nearly as long as postanal seta (24–32); opening of gland *gv3* inconspicuous. Setae *ZV1* absent, and *ZV4*, *JV5* on soft cuticle; *JV5* rather long (32–40). Exopodal strip usually fragmented alongside coxae II–III, mostly contiguous with peritrematal shield but ending freely from it, with extension that abuts or merged with endopodal extensions between coxae I–II (Figs 13–16). Peritrematal shield rather wide (Fig. 10), its anterior end united with dorsal shield, its posterior edge connecting with exopodal platelet enveloping coxa IV posteriorly; lyrifissures *ip1-3* and glands *gp1-2* present (Fig. 18). Peritreme slightly shortened (152–180 × 9–11), not extending beyond mid-level of coxa I anteriorly. Spermathecal apparatus of laelapoid form, without sclerotized sections (Fig. 21).

*Gnathosoma*. Gnathotectum basically triramous, with usually three short, denticulate processes (Figs 4–7), middle projection equal to or longer than lateral ones. Subcapitulum (Fig. 8) longer (98–116) than wide (71–80). Deutosternum with 7



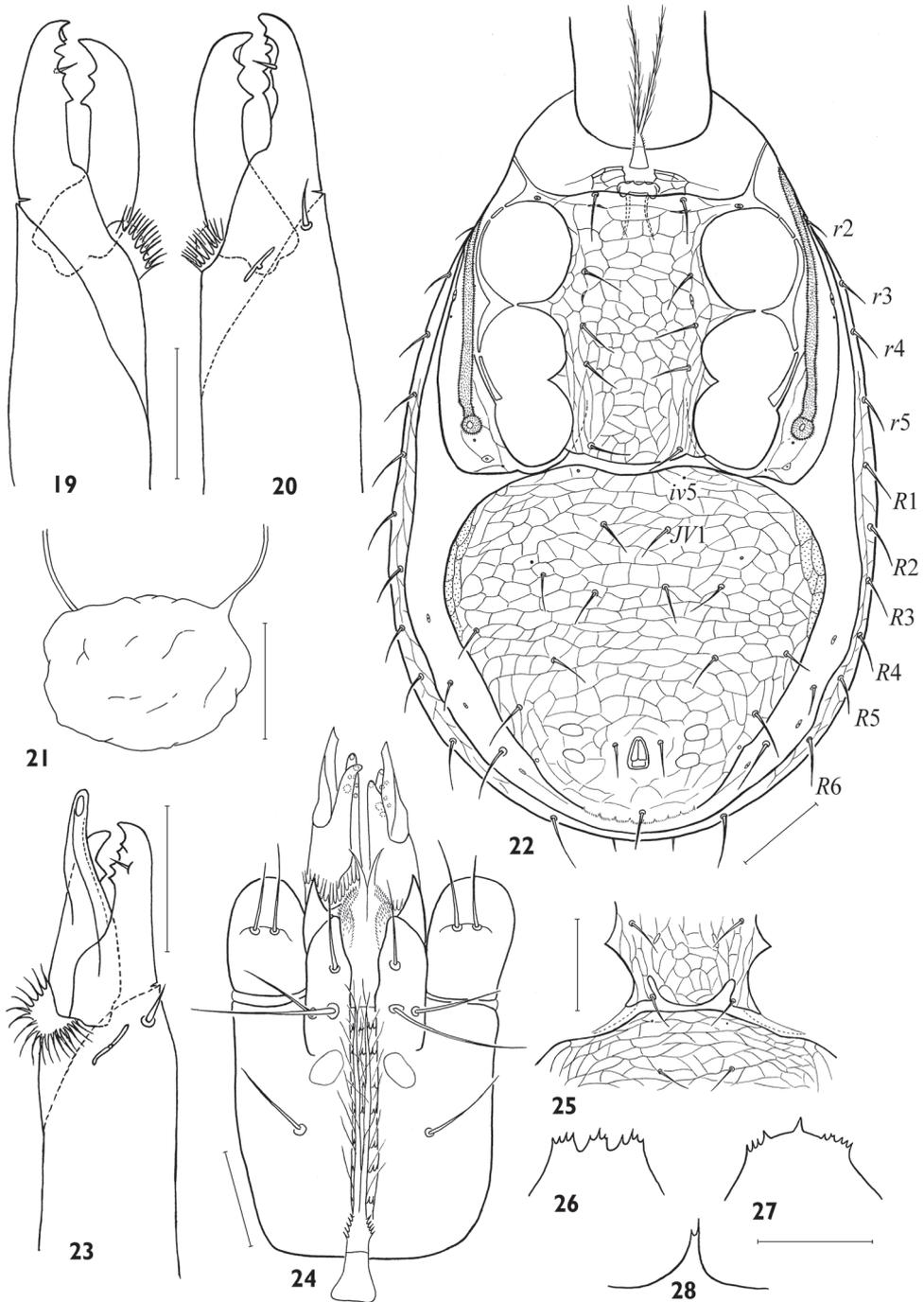
**Figures 11–18.** *Maxinia arctomontana* gen. et sp. n., female **11** antaxial view of palpal tarsus and tibia **12** idiosomal venter **13–16** variants of sclerotization of pericoxal region II **17** tritosternum **18** pericoxal region IV. Scales: **11, 17, 18** – 25  $\mu$ m, **12–16** – 50  $\mu$ m.

narrow, laterally adjoined rows of denticles (2–7 denticles in each row); groove width 8–9. Hypostomatic pair *hp3* (39–44) longer than other subcapitular setae (22–30); all setae simple, attenuate. Corniculi of moderate length and width, 30–36 × 11–13. Internal malae slightly longer than corniculi, gradually tapering to tip, with lateral margins fimbriated basally. Chelicera not large (Figs 19–20), its length without basal segment 128–139; cheliceral digits of moderate size (48–57, *lCh/lD* 9.5–12.1 %), one and a half longer than corniculus (*lCh/lCo* 1.48–1.75). Fixed digit of chela ending in apical hook, masticatory surface with one subapical tooth and pilus dentilis in antaxial position and four denticles in paraxial position. Movable digit (44–55) slightly shorter than fixed one, bidentate. Palp length 156–175; internal seta of trochanter (28–32) longer than external seta (19–26); palp with typically specialized setae on femur (*al*) and genu (*al1*, *al2*) thick with oblique tip; palp tarsus without macroseta (Fig. 11).

*Legs.* Legs of moderate length (I 340–396, II 272–304, III 264–296, IV 336–372); leg I shorter than dorsal shield. Length of tarsi I 92–106, II 80–90, III 84–89, IV 102–124. Leg chaetome as described for genus. Setae of legs simple, generally of moderate length; tarsi II–IV each with dorso-proximal setae *ad-2*, *pd-2* not elongated or curved, and with *al-1*, *pl-1* not thinner or more elongated than adjacent setae. Ambulacrum I on pedicellate base, claws I (8–10) smaller than claws II–IV (12–15). Tarsus I distally with 7 rod-like solenidia, 5 of them inserted apically. Ambulacra of legs II–IV (length 24–30) with moderately long paradactyli (9–11) extending clearly beyond apices of claws. Tarsi II–IV with apical setae *ad-1* and *pd-1* shorter (8–12) than claws (Fig. 3). Four subapical setae on tarsi II–IV evenly distant from apex, almost of equal length, ventral setae *av-1* and *pv-1* slightly weaker and shorter (18–23) than lateral setae *al-1* and *pl-1* (20–27).

**Male.** *Idiosomal dorsum.* Dorsal shield 396–424 × 236–276, narrower than in female (*lD/wD* ca 1.50–1.75), fully reticulated, with all *r-R* marginal setae (10 pairs) on shield, such that podonotal region with 22 pairs of setae, including *r2-5*, and opisthonotal region with 20 pairs of setae, including *R1-6* (*S2* always absent). Relative lengths of setae as on female.

*Idiosomal venter.* Tritosternum base (12–16 × 10–12) shorter than in female (Fig. 22). Presternal platelets connected with sternitigenital shield. Sternitigenital shield fully united with endopodal platelets developed between coxae I–II, coxae II–III, and coxae III–IV, its posterior margin sometimes with pair of indentations (Fig. 25); length of shield 136–158, width between *gvb* openings 92–110, width at midlevel of coxae II 64–72, width at midlevel of coxae IV 60–72. Sternitigenital shield fully reticulated, with setae *st1-3* (24–30) longer than setae *st4,5* (20–24), and with lyrifissures *iv1,2*; lyrifissures *iv3* and vestiges of glands *gv1* not discernible. Ventrianal shield abutting but free from sternitigenital and peritrematal shields, fully reticulated, expansive, slightly wider (194–224) than long (176–202), yet narrower than in female, *lVA/wVA* 0.82–0.98, consolidated with metapodal platelet sigillae laterally; anterior margin straight or slightly concave, posterior margin and cribrum formed as in female. Ventrianal shield with setation and form, placement, and lengths of setae as in female, except *JV1* more removed from anterior margin and poroids *iv5* present on shield. Setae *ZV1* absent, *ZV4* and *JV5* on soft cuticle.



**Figures 19–28.** *Maxinia arctomontana* gen. et sp. n., female (19–21) and male (22–28) **19** paraxial view of chelicera **20** antaxial view of chelicera **21** inner part of spermathecal apparatus **22** idiosomal venter **23** antaxial view of chelicera **24** subcapitulum **25** variant of form of posterior margin of sternitigenital shield **26–28** gnathotectum. Scales: **19, 20, 23, 24, 26–28** – 25  $\mu\text{m}$ , **21, 22, 25** – 50  $\mu\text{m}$ .

*Gnathosoma*. Apices of gnathotectum similar to female but sometimes variously shaped in different ways (Figs 26–28). Corniculi and internal malae as in female (Fig. 24). Cheliceral digits (38–43,  $lCh/lD$  9.1–10.7 %) longer than corniculus (30–32 × 11–12,  $lCh/lCo$  1.22–1.34). Fixed digit with dentition similar to female (Fig. 23) except smaller number of denticles in paraxial row (2–3). Movable digit with one large denticle and simple, closed, trough-like spermatodactyl (length of free part 22–24), protruding shortly beyond tip of digit.

*Legs*. Length of legs I–IV 344–376, 272–284, 256–264 and 320–340 respectively; length of tarsi I–IV 96–101, 78–80, 76–80 and 100–112 respectively. Legs without dimorphically modified setae.

***Deutonymph***. Unknown.

***Protonymph***. *Idiosomal dorsum*. Idiosoma 304–320 × 185–212. Podonotal shield 188–200 × 176–184, reticulate, with 11 pairs of setae (Fig. 29) and no less than 5 pairs of pore-like structures including opening of gland *gdj4*. Pygidial shield 54–76 × 160–164, reticulate, with 8 pairs of setae and openings of glands *gdZ3*, *gdZ4*. Interscutal soft cuticle with 7 pairs of setae and 3 pairs of mesonotal sclerites, anterior sclerites bearing gland pores *gdz6* and poroids *idz6*. Setae *r2*, *r3*, and *r5* on lateral soft cuticle beside podonotal shield. All dorsal setae needle-shaped, their length 14–35, except *J5* clearly shortest (7–8).

*Idiosomal venter*. Tritosternum as in adults (Fig. 31). Sternal shield poorly sclerotized, with 3 pairs of setae (20–24) and 3 pairs of lyrifissures; presternal platelets weakly developed. Seta *st5* absent, but poroid *iv5* distinct. Anal shield nearly circular, with paranal setae nearly as long as postanal seta, and usually with opening of gland *gv3*. Opisthogastric region with 2 pairs of fine medial sclerites, small (10–13 × 7–8) metapodal platelets, 4 pairs of setae and 5 pairs of poroids. Peritremes extending to posterior margins of coxae III.

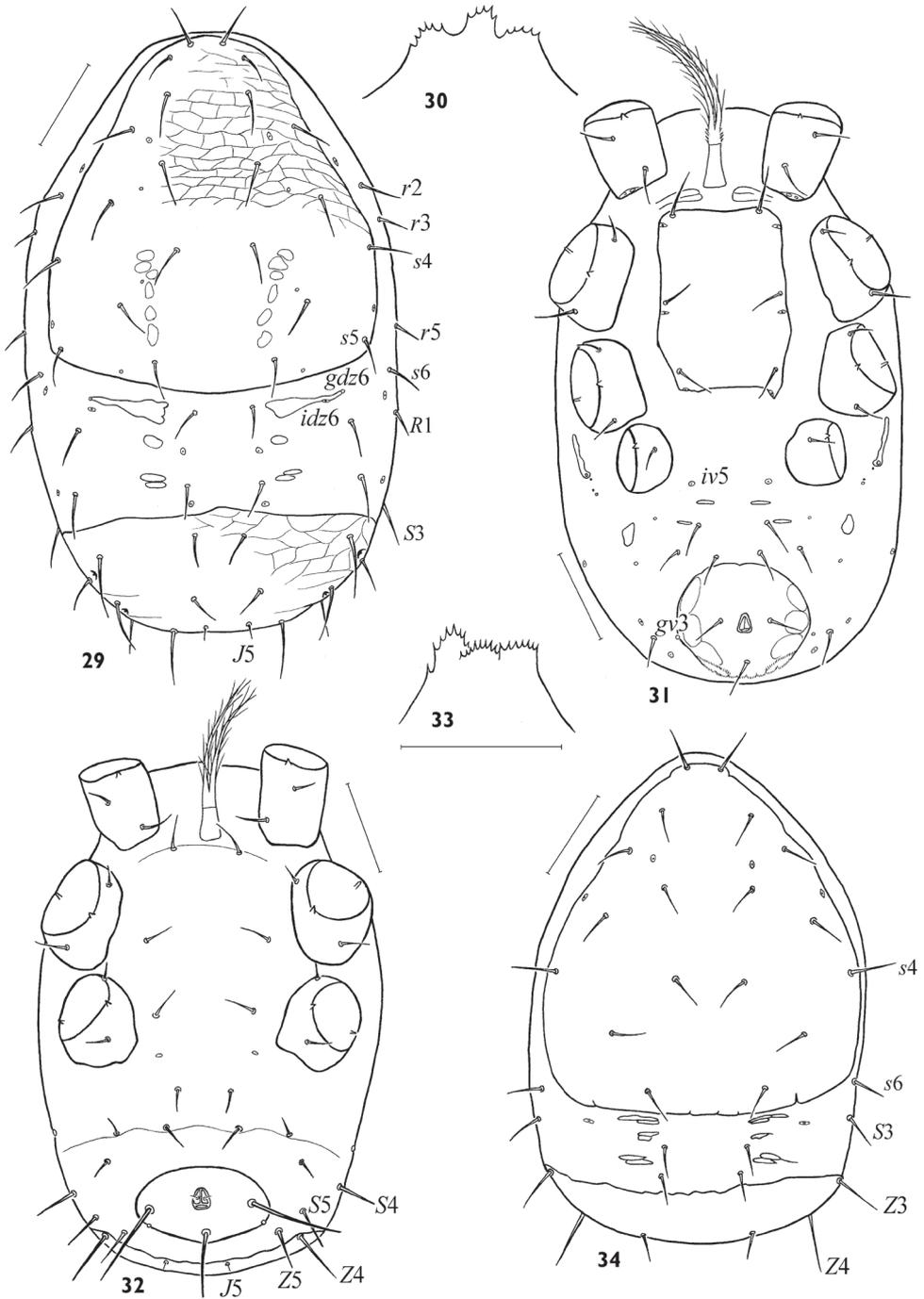
*Gnathosoma*. Gnathosomal structures in general as in adults, tectum as in Fig. 30.

*Legs*. Leg chaetotaxy typical for protonymphs of Ascidae (Lindquist and Evans 1965).

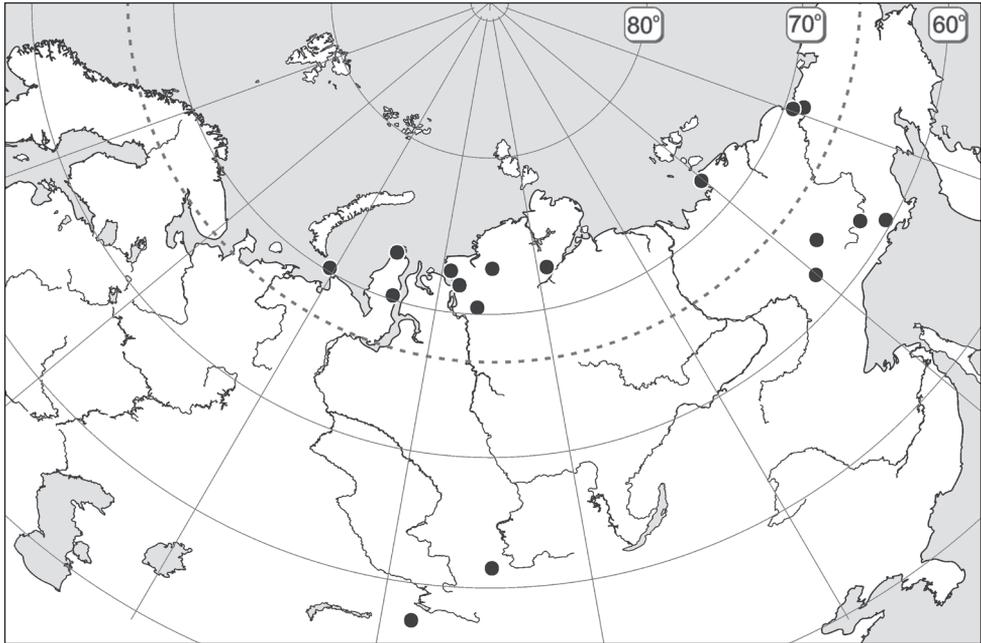
***Larva***. *Idiosomal dorsum*. Idiosoma 260 × 180. Podonotal and pygidial shields smooth, bearing 9 and 4 pairs of needle-shaped setae, respectively (Fig. 34). Interscutal soft cuticle with 3 pairs of narrow sclerites and 4 pairs of setae. Pygidial shield bent caudally, so setae *J5* and *Z4* inserted on ventral surface.

*Idiosomal venter*. Tritosternum in general as in adults (Fig. 32). Intercoxal region without delineated sternal shield, with 3 pairs of setae (17–18), lacking lyrifissures but with typical subdermal pair of structures between bases of legs III. Ventral soft cuticle with transverse fold nearly delineating podosomal from opisthogastric regions. Opisthogastric soft cuticle with typical 4 pairs of opisthogastric setae plus ventrolaterally displaced dorsal setae *S4*, *S5*, *Z5*. Anal shield (38 × 78), transversally oval, wider than long, with circumanal setae large, paranals (54) longer than postanal (36), and with gland opening *gv3* nearly posterior to paranal setae; anal valves with tiny euanal setae; cribrum undeveloped.

*Gnathosoma*. Hypostome, gnathotectum (Fig. 33), chelicera similar to adults, setae *hp-3* and *pc* absent.



**Figures 29–34.** *Maxinia arctomontana* gen. et sp. n., protonymph (29–31) and larva (32–34) 29 idiosomal dorsum 30 gnathotectum 31 idiosomal venter 32 idiosomal venter 33 gnathotectum 34 idiosomal dorsum. Scales: 29, 31, 32, 34 – 50  $\mu$ m, 30, 33 – 25  $\mu$ m.



**Figure 35.** Records of *Maxinia arctomontana* gen. et sp. n.

*Legs.* Leg chaetotaxy typical for larvae of Ascidae (Lindquist and Evans 1965).

**Etymology.** The species name indicates its geographical range.

**Distribution.** At present known from zonal and mountainous tundra landscapes of West, Middle and East Siberian sectors (Fig. 35).

**Ecology.** Recorded from dry and humid tundra sites, meadows including zoenogenic ones (e.g. bird of prey outlooks) and shrub (*Pinus pumila*, dwarf *Betula*, *Rhododendron*) communities.

**Variability.** The species is rather stable morphologically. The variability concerns mainly the form of gnathotectum (Figs 4–7, 26–28), the degree of coalescence of endocoxal and exocoxal elements around coxa II (Figs 13–16), sometimes the symmetrical or asymmetrical absence of setae  $s_1$ ,  $s_2$ ,  $z_1$ , and the numbers of denticles in the rows on the deutosternum (usually 2–5 or 3–7).

## Discussion

### Notes on two problematic genera of Arctoseiinae

#### Genus *Iphidonopsis*

In the following key, *Iphidonopsis* Gwiazdowicz, 2004 is treated in the original sense (Gwiazdowicz 2004) to include *I. sculptus* Gwiazdowicz, 2004 and *Iphidonopsis mag-*

*nanalis* (Ma & Yin, 1999) **comb. n.** Subsequently, Gwiazdowicz (2007) broadened his concept of *Iphidonopsis* to accommodate other species (e.g., *Lasioseius pulvisculus* Berlese, 1921, *Seiulus minutus* Halbert, 1915) and thereby distinguished his genus from *Arctoseius* Thor, 1930, primarily on the dorsal shield of adults having lateral incisions in *Arctoseius*, and these lacking in *Iphidonopsis*. However, not only is the lack of such incisions a plesiomorphic character state, as presented in some other genera of Arctoseiinae, but the presence of lateral incisions varies greatly among species, and is even subject to geographical variability and sexual dimorphism among some species, in *Arctoseius*. So, Athias-Henriot (1959, 1961) reported the lack of lateral incisions on females of *Arctoseius pannonicus* Willmann, 1949 from Corsica and Spain, although shallow ones are present in other parts of Europe. Observations by Lindquist (1964) also indicated these differences between some populations. Illustrations of *A. venustulus* (Berlese, 1917) by Bernhard (1963) show just the slightest of lateral incisions on females, and entire lateral margins on males. Also, since *Seiulus minutus* has been previously designated as type-species of the genus *Arctoseiopsis* by Evans (1954), Gwiazdowicz's placement of this species in *Iphidonopsis* would render this genus a junior synonym of *Arctoseiopsis*. With added phylogenetic perspective, we continue to follow the previous concept of Lindquist and Evans (1965), such that the genus *Arctoseius* embraces *Arctoseiopsis* and includes the species *A. minutus*, *A. pulvisculus*, and *A. venustulus*. Adult females of *Iphidonopsis* are somewhat similar to those of *Arctoseius* and *Iphidozercon* in retaining what may be considered to be an apomorphically reduced, deutonymphal form of anal shield. However, as indicated in the following key, the genus *Iphidonopsis* shares with *Zerconopsis* and *Xenoseius* Lindquist & Evans, 1965 the apomorphic attribute of having dorsoproximal setae *ad-2* and *pd-2* of tarsi II to IV elongated, curved, somewhat whip-like, while retaining the plesiomorphic attribute of genu III having eight setae, including *pv-1*. In contrast, *Arctoseius*, *Iphidozercon* and *Maxinia* are plesiomorphic in having setae *ad-2* and *pd-2* of tarsi II to IV unmodified, but sharing the apomorphic attribute of genu III having seven setae, in absence of *pv-1*.

### Genus *Diseius*

Provisionally, we exclude the monotypic genus *Diseius* Lindquist & Evans, 1965 from the Arctoseiinae and from the following key to its genera. Based exclusively on gnathosomatic and idiosomatic attributes, the type-species of this genus, *Iphidozercon ulmi* Hirschmann, 1962, has been assigned to various genera as conceived by different authors' concepts of the family Ascidae, i.e., to the genus *Iphidozercon* (including *Arctoseius*, *Leioseius* Berlese, 1916 and *Gamasellodes* Athias-Henriot, 1961) sensu Hirschmann (1962), to the subgenus *Leioseius* (*Leioseius*) (including *Gamasellodes* but excluding *Arctoseius* and *Iphidozercon*) by Bernhard (1963), and to the genus *Leioseius* (including *Gamasellodes* but excluding *Arctoseius* and *Iphidozercon*) by Karg (1971, 1993). Accounting for those attributes and additional ones of leg chaetotaxy, the

species was assigned to a separate, new genus and placed in the tribe Ascini of the subfamily Ascinae (separate from the subfamily Arctoseiinae), by Lindquist and Evans (1965). The chaetotaxy of the genu and tibia of legs III and IV of *Diseius ulmi* resembles that of genera of Arctoseiinae, but *Diseius* was excluded from the Arctoseiinae based primarily on the adult female having a fully divided dorsal shield, and having sternal setae *st5* inserted on the edges of the epigynal shield, rather than on soft cuticle. However, new observations of female *Diseius* by one of us (EEL) revealed the unanticipated absence of setae *al-3* and *pl-3* on basitarsi III–IV, and also of *pd-3* on basitarsus IV. The chaetotaxy of tarsi II to IV is extremely constant throughout the families of free-living Gamasina (Evans 1963). Losses of basitarsal setae on legs II to IV are not known to occur among species of Ascidae, but they have been noted sporadically in the Digamasellidae and Rhodacaridae (Lindquist 1975). Also, in the absence of *j2*, setae *j3* are inserted relatively closely behind *j1* in *Diseius*, much as in the digamasellid subgenus *Longoseius* (*Longoseius*) Chant, sensu Lindquist (1975). The subcortical habitat association of *D. ulmi* with scolytid beetles is in common with that of a variety of digamasellids. As adult females of *D. ulmi* are highly neotenous in both leg and dorsal idiosomal setation, the similarity of leg chaetotaxy on genua and tibiae II–IV with Arctoseiinae is thought to be convergent, and our new observations persuade us to place *Diseius* tentatively in the Digamasellidae instead of the Ascidae, until such time as additional attributes become available from description of the female spermathecal system and of attributes of the adult male.

### Key to genera of Arctoseiinae. Adults

- 1 Leg chaetotaxy reduced: seta *pd-3* absent on genu and tibia I, *pl-2* absent on genu and tibia II, *al-2* absent on genua and tibiae III–IV (*maximum* number of setae on genua I to IV, 12-10-8-7; on tibiae I–IV, 12-9-7-7); adult dorsal shield entire, with or without lateral incisions; opisthonotal region of dorsal shield usually with 4 pairs of lateral setae (*S2* usually absent, exception – some *Xenoseius* Lindquist & Evans, 1965) ..... **Arctoseiinae (6 genera)**...2
- Leg chaetotaxy without above reductions: *pd-3* present on genu and tibia I, *pl-2* present on genu and tibia II, *al-2* present on genua and tibiae III–IV (*minimum* number of setae on genua I to IV: 12-11-8-9; on tibiae I–IV: 12-9-8-10); adult dorsal shield entire or divided; opisthonotal region of dorsal shield usually with 5 pairs of lateral setae (*S2* present)... **Ascinae (11 genera)**
- 2 Genu III usually with 8 setae (*pv-1* present); tarsi II–IV each with dorso-proximal setae *ad-2*, *pd-2* elongate, curved ..... **3**
- Genu III with 7 setae (*pv-1* absent); tarsi II–IV with dorso-proximal setae not elongate or curved..... **5**
- 3 Female with broad anal shield bearing only three circumanal setae; subcapitulum with hypostomatic setae *hp-1* only slightly elongated, about 1.2 as

- long as *hp-3*; dorsal shield without midlateral incisions .....  
 ..... ***Iphidonopsis* Gwiazdowicz, 2004**
- Female with ventrianal shield bearing 1–6 pairs of opisthogastric setae in addition to circumanal setae; subcapitulum with anterior pair of hypostomatic setae *hp-1* conspicuously elongated, at least 1.5 as long as *hp-3*; dorsal shield with or without midlateral incisions..... **4**
- 4 Tarsus I without pretarsus and claws; setae *j1* and *z1* smooth or barbed and variable in length; all other dorsal setae simple, none paddle-shaped .....  
 ..... ***Xenoseius* Lindquist & Evans, 1965**
- Tarsus I with pretarsus and claws; setae *j1* and *z1* smooth, pointed, or *j1* rarely paddle-shaped; some dorsal setae (at least *s4* and *Z5*) always paddle-shaped ..... ***Zerconopsis* Hull, 1918**
- 5 Tarsi II–IV with 1 (*al-1*) or 2 (*al-1*, *pl-1*) dorso-lateral subapical setae very slender and elongate; vertex of dorsal shield strongly arched downward, setae *j1* concealed from above; peritremes sharply recurved anteriorly; dorsal shield without midlateral incisions; palptarsus with macroseta .....  
 ..... ***Iphidozercon* Berlese, 1903**
- Tarsi II–IV with neither of dorso-lateral subapical setae slender and elongate; vertex of dorsal shield not strongly arched downward, setae *j1* visible from above; peritremes not recurved anteriorly; dorsal shield with or without midlateral incisions; palptarsus without macroseta ..... **6**
- 6 Dorsal shield of adult with parallel sides, lightly to moderately sclerotized, with lateral incisions of deutonymph retained or obliterated on adult, in male sometimes bearing some marginal setae of series *r* but none of *R* (these free on soft cuticle in female); opisthogastric setae *ZV1* present; female with anal shield distant from metapodal plates and setae *JV1*; male with sternitigenital shield incompletely consolidated with endopodal strips alongside coxae I–IV and abutting or removed from variably expansive ventral/ventrianal shielding ..... ***Arctoseius* Thor, 1930**
- Dorsal shield of adult relatively broad, well sclerotized, entire, in male bearing all marginal *r-R* setae (these free on soft cuticle in female); opisthogastric setae *ZV1* absent; both sexes with expansive ventrianal shield encompassing metapodal plates anterolaterally and including setae *JV1* anteriorly; male with expansive sternitigenital shield fully consolidated with endopodal strips alongside coxae I–IV and abutting expansive ventrianal shield ..... ***Maxinia* gen. n.**

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# New species of *Isotomiella* Bagnall, 1939 from Southeast of Brazil (Collembola, Isotomidae)

Maria Cleide de Mendonça<sup>1,†</sup>, Eduardo A. Abrantes<sup>1,‡</sup>, Ana Carolina R. Neves<sup>1,§</sup>

<sup>1</sup> Departamento de Entomologia, Museu Nacional / Universidade Federal do Rio de Janeiro, Quinta da Boa Vista s/n, São Cristóvão, Rio de Janeiro, RJ 20940-040, Brazil

<sup>†</sup> [urn:lsid:zoobank.org:author:B14993E8-8CEF-4911-967D-E4A47A4E6957](https://doi.org/urn:lsid:zoobank.org:author:B14993E8-8CEF-4911-967D-E4A47A4E6957)

<sup>‡</sup> [urn:lsid:zoobank.org:author:4F515B62-2896-4D10-872F-9F77A30EB47B](https://doi.org/urn:lsid:zoobank.org:author:4F515B62-2896-4D10-872F-9F77A30EB47B)

<sup>§</sup> [urn:lsid:zoobank.org:author:FAF49AFA-CDC3-4A4F-A7E9-042972EF14D9](https://doi.org/urn:lsid:zoobank.org:author:FAF49AFA-CDC3-4A4F-A7E9-042972EF14D9)

Corresponding author: Maria Cleide de Mendonça ([cleidecollembola@gmail.com](mailto:cleidecollembola@gmail.com))

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## Abstract

Two new species of the genus *Isotomiella* Bagnall, 1939 are described and illustrated, the first: *I. macedoi* **sp. n.**, based on males and females, from the “Parque Nacional da Serra dos Órgãos” (Teresópolis municipality, State of Rio de Janeiro) differs from the other by tibiotarsus III thickened and blunt and two antero-lateral chaetae of labrum strongly thickened. The second species *I. uai* **sp. n.** from “Serra da Gandarela”, (Caeté municipality, State of Minas Gerais) differs from the other by presence of short sensilla on antennal IV and tergites, two anterolabral chaetae thickened and falcate mucro.

## Keywords

Anurophorinae, Atlantic Rain Forest, Brazilian collembolan diversity, Taxonomy

## Introduction

*Isotomiella* comprises so far a reduced number of species for a genus considerably diverse, especially in tropical and subtropical regions. This can be attributed to the aspect of its members, all white and small, that look at first sight identical. Nowadays, the genus comprises 49 species, of which 18 were described from Brazil (Deharveng and Oliveira 1990; Oliveira and Deharveng 1990; Mendonça and Fernandes 2003a, b;

Mendonça and Abrantes 2007). Recent studies of the Isotomidae fauna in preserved areas of two States revealed two new species herein described and illustrated: *Isotomiella macedoi* sp. n. from “Parque Nacional da Serra dos Órgãos”, Teresópolis municipality, State of Rio de Janeiro, and *Isotomiella uai* sp. n. from “Serra da Gandarela,” Caeté municipality, State of Minas Gerais.

## Material and methods

The specimens studied were collected in litter and soil, extracted with Berlese-Tullgren funnels and mounted in glass slides according with the usual methodology. The type-material has been deposited in the Collembola Collection at the Departamento de Entomologia, Museu Nacional, Rio de Janeiro (CM/MNRJ).

## Abbreviations used in descriptions

Ant–antennal segment, Th–thoracic segment, Abd– abdominal segment, sl– lateral sensillum, sv– ventral sensillum, spl–dorsal lateral sensillum.

## Data resources

The data underpinning the analyses reported in this paper are deposited in the Dryad Data Repository at doi: 10.5061/dryad.m966q

## Taxonomy

### *Isotomiella macedoi* sp. n.

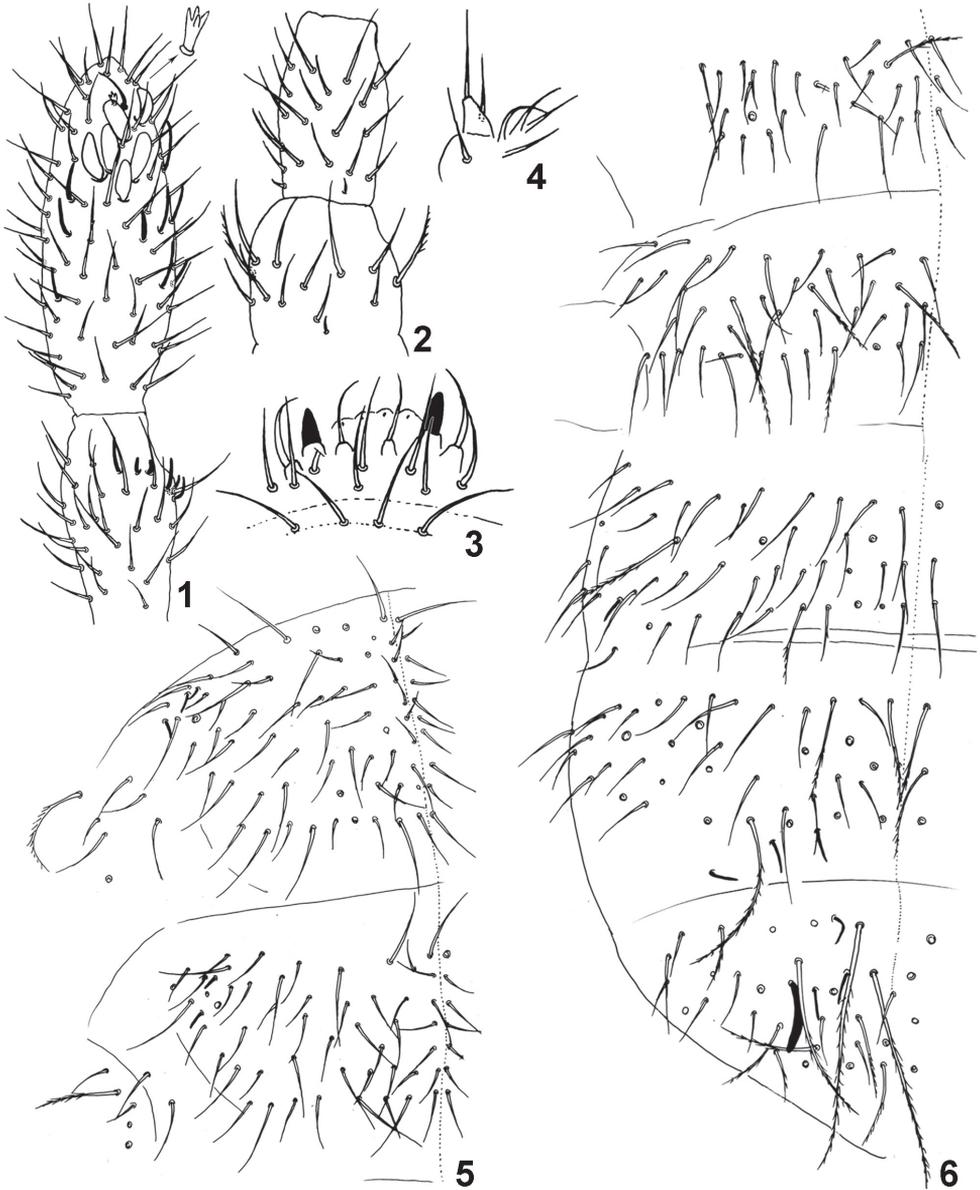
urn:lsid:zoobank.org:act:48E60458-A1F8-4C63-9C6B-28CA3F6A8724

[http://species-id.net/wiki/Isotomiella\\_macedoi](http://species-id.net/wiki/Isotomiella_macedoi)

Figs 1–13

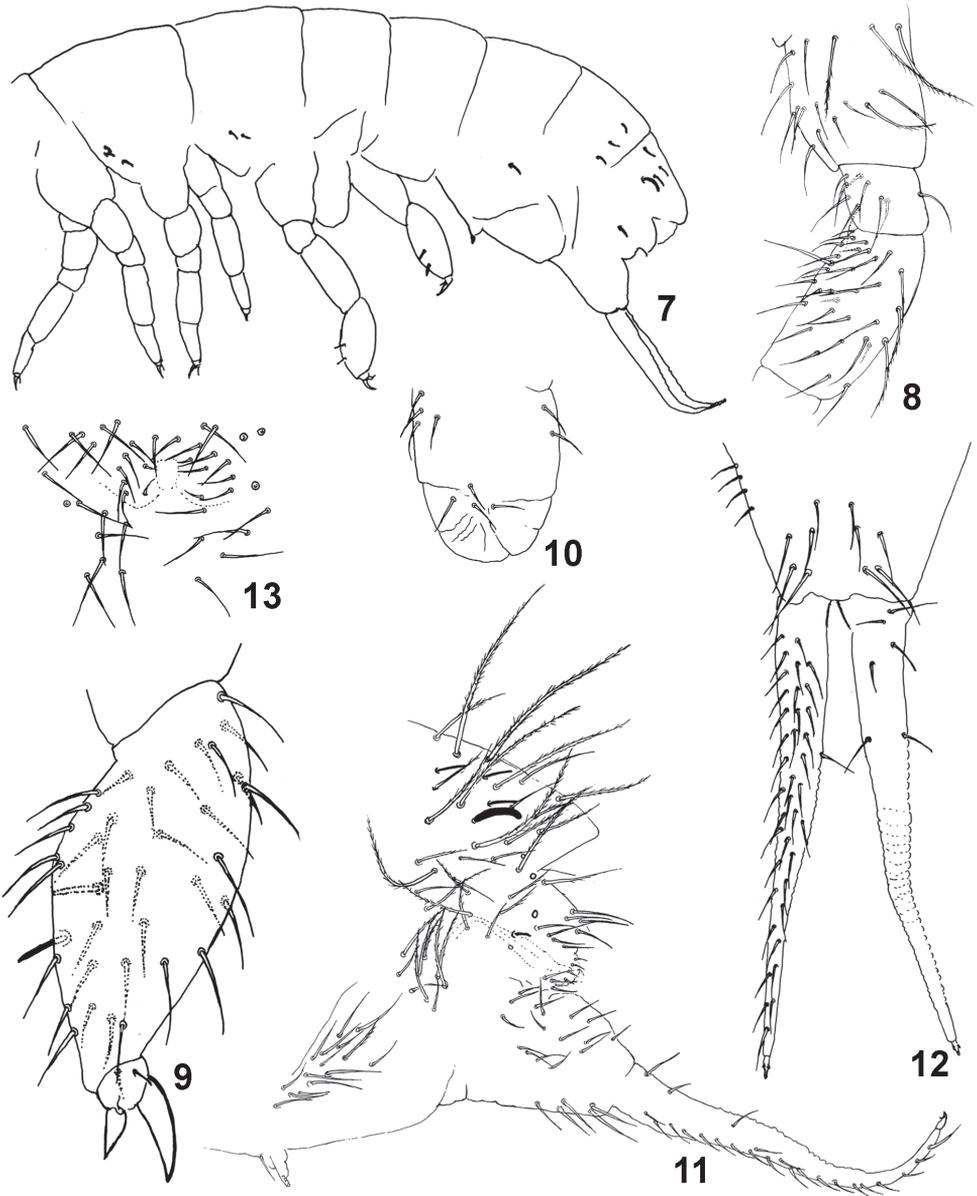
**Material.** Holotype: Male (2320 CM/MNRJ): Southeast Brazil, State of Rio de Janeiro, Teresópolis municipality, Rain forest litter at 1.400 meters a.s.l., 14-III-2012. Mendonça, M.C. leg. One Paratype male, same data as holotype, One male and 12 Paratypes female (2364CM/MNRJ) Same locality of holotype. 31-V-2012. All material deposited in Collembola Collection of Museu Nacional da Universidade Federal do Rio de Janeiro (Brazil).

**Description.** Total body length of the holotype 0,74 mm. Habitus typical of the genus. Color white. Integument without craters. Pseudopores and integument channels not observed.



**Figure 1–6.** *Isotomiella macedoi* sp.n. **1** Ant III-IV Dorsal view, detail of the apical microsensillum **2** Ant I-II Dorsal view **3** Labral and prelabral chaetae **4** Outer lobe of maxilla **5** Dorsal chaetotaxy of Th II-III **6** Dorsal chaetotaxy of Abd I-VI.

Antennae subequal to head diagonal. Length of Ant I to IV (30  $\mu$ m, 40  $\mu$ m, 40  $\mu$ m, 65  $\mu$ m). Ant IV with one conspicuous tulip-shaped microsensillum with three or four small spines at apex protected by a curved chaeta, six broad and subequal sensilla, eight supplementary very thin sensilla (seven dorsal external, six dorsal internal and one shorter and thicker dorsal). Ant III with about 35-40 ordinary chaetae, two small



**Figure 7–13.** *Isotomiella macedoi* sp.n. **7** Sensillary pattern of the body **8** Subcoxa and femur of leg III **9** Tibiotarsus and unguis of leg III **10** Lateral view of ventral tube **11** Lateral view of abd. V–VI, subcoxa furcal, furca and tenaculum **12** Furca **13** Male genital plate.

sensory rods (3  $\mu\text{m}$ ), three guard sensilla (7  $\mu\text{m}$ ) and one short sensillum below (Fig. 1). Ant II with about 40 smooth ordinary chaetae, 2 basal microsensilla, one dorsal and one ventral, and one dorso-lateral sensillum (Fig. 2). Ant I with 14 smooth ordinary chaetae, two lateral ciliated chaetae, two ventral and unequal sensilla (10  $\mu\text{m}$  and 4  $\mu\text{m}$ ) and two basal microsensilla, one dorsal and one ventral. Labral chaetae pattern

4/5,5,4, the third row with two lateral acuminate chaetae and the last row with two anterolateral chaetae strongly thickened (Fig. 3). External lobe of maxilla with bifurcate palp and four sublobal chaetae (Fig. 4). All chaetae of head smooth. Axial chaetotaxy pattern from Th II to Abd IV as 20,14/6,6,6,6 by half tergite. Th II with 1+1 lateral ciliated macrochaetae (45 µm) and 3+3 lateral sensilla (5 µm). Th III with 1+1 lateral ciliated macrochaetae (50 µm) and 2+2 lateral sensilla (5 µm); all the other chaetae smooth (Fig. 5). Abd I with 1+1 lateral ciliated macrochaetae (40 µm) and 2+2 ciliated chaetae (30 µm) between the lateral macrochaetae; sensilla absent. Abd II with 1+1 lateral ciliated macrochaetae (40 µm) and 2+2 ciliated chaetae between lateral macrochaetae; sensilla absent and without the lateral area devoid of chaetae. Abd III with 2+2 anterior ciliated chaetae (35 µm) and 2+2 posterior ciliated chaetae (35 µm) between the lateral ciliated macrochaetae (40 µm), 1+1 ventral sensillum (5 µm). Abd IV with many ciliated chaetae (35-50 µm) and few smooth chaetae, 3+3 posterior sensilla (11 µm). Abd V-VI with several ciliated macrochaetae of different sizes (60-75 µm) and few smooth chaetae, 1+1 long and thick dorso-lateral sensillum (**spl**) with apex slightly curved (20 µm), 3+3 dorso-lateral sensilla **sa**, **spe**, **spi** (11 µm) and 1+1 ventral sensillum **sv** (5 µm) (Fig. 6). Dorso-lateral sensillary pattern of the body 3,2/0,0,1,2,5 (Fig. 7) Subcoxa I of legs I, II, III with 2, 3, 2 ciliated chaetae. Femur III with tenent hair smooth and two ciliated chaetae (Fig. 8). Tibiotarsus III strongly thickened on males, with about 40 smooth chaetae and 2 thin erect stick-like chaetae (10 µm); on females the tibiotarsus III are normal without stick-like chaetae. Unguis plump (20 µm) and unguiculus (10 µm) lanceolated (Fig. 9). Ventral tube (45 µm) with 4+4 anterior, 2+2 posterior and 4+4 distal chaetae (Fig. 10). Tenaculum with 4+4 teeth and 1 chaeta. Subcoxae anterior with 15 chaetae of which one ciliated; subcoxae posterior with 9 chaetae of which 6 ciliated (Fig. 11). Manubrium (55 µm) with 5+5 ventro-distal, 4+4 lateral, and 12+12 dorsal smooth chaetae. Dens long, (125-130 µm) crenulated, with about 40 anterior and 6 posterior smooth chaetae. Mucro small (7 µm), tridentate, the 2 basal teeth symmetrical (Fig. 11-12). Male genital plate as in Fig. 13.

**Remarks.** *Isotomiella macedoi* sp. n. is easily included in the *minor* group *sensu* Kováč and Palacios-Vargas (2008) by its sensillar pattern (3,2/0,0,1,3,5), 3+3 to 5+5 ventral chaetae of manubrium, mucro tridentate and 4 sublobal chaetae. However, the new species also shares some characters, which do not define groups, with species of the *nummulifer* groups. With *I. delamarei* Barra, 1968, *I. spinifer* Deharveng & Oliveira, 1990, *I. edaphica* Bedos & Deharveng, 1994, *I. leksawasdii* Bedos & Deharveng, 1994, *I. canina* Mendonça & Fernandes, 2003, the new species shares the antero-lateral chaetae of labrum strongly thickened and blunt. With *I. digitata* Deharveng & Oliveira, 1990, *I. distincta* Mendonça & Fernandes, 2003 and *I. falcata* Mendonça & Fernandes, 2003, it shares the tibiotarsus III thickened. However the presence of a set of rare characters, in particular the tibiotarsus III strongly thickened with two thin erected stick-like chaetae in the males makes *I. macedoi* sp. n. unique among the genus *Isotomiella*. Females exhibit same characters as males, except this modified tibiotarsus III and stick-like chaetae.

**Name derivation.** The species is dedicated to the husband of the senior author, Prof. Antonio Carlos M. Macedo, micropaleontologist.

***Isotomiella uai* sp. n.**

urn:lsid:zoobank.org:act:7DE12EBF-102F-4604-B46F-6C81C7688F11

[http://species-id.net/wiki/Isotomiella\\_uai](http://species-id.net/wiki/Isotomiella_uai)

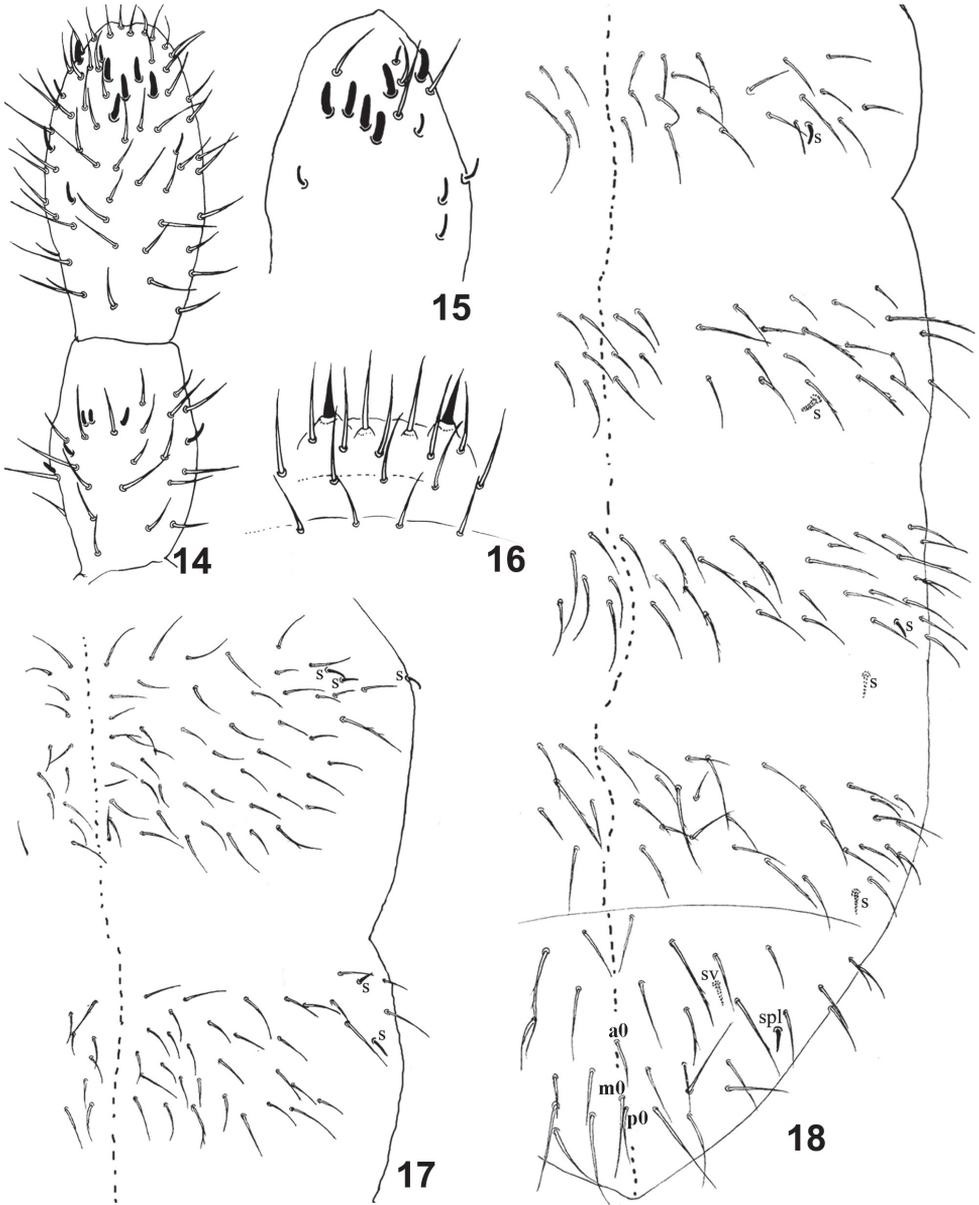
Figs 14–25

**Material.** Holotype: Female (2109CM/MNRJ), Southeast Brazil, State of Minas Gerais, Caeté municipality, Rain forest litter with about 1.500 meters a.s.l., 09. VII. 2011, Abrantes, EA and Silveira, TC leg.

Paratype: five females (2109CM/MNRJ) and six females (2110CM/MNRJ) same data as holotype, all material deposited in Collembola Collection of Museu Nacional da Universidade Federal do Rio de Janeiro, (Brazil).

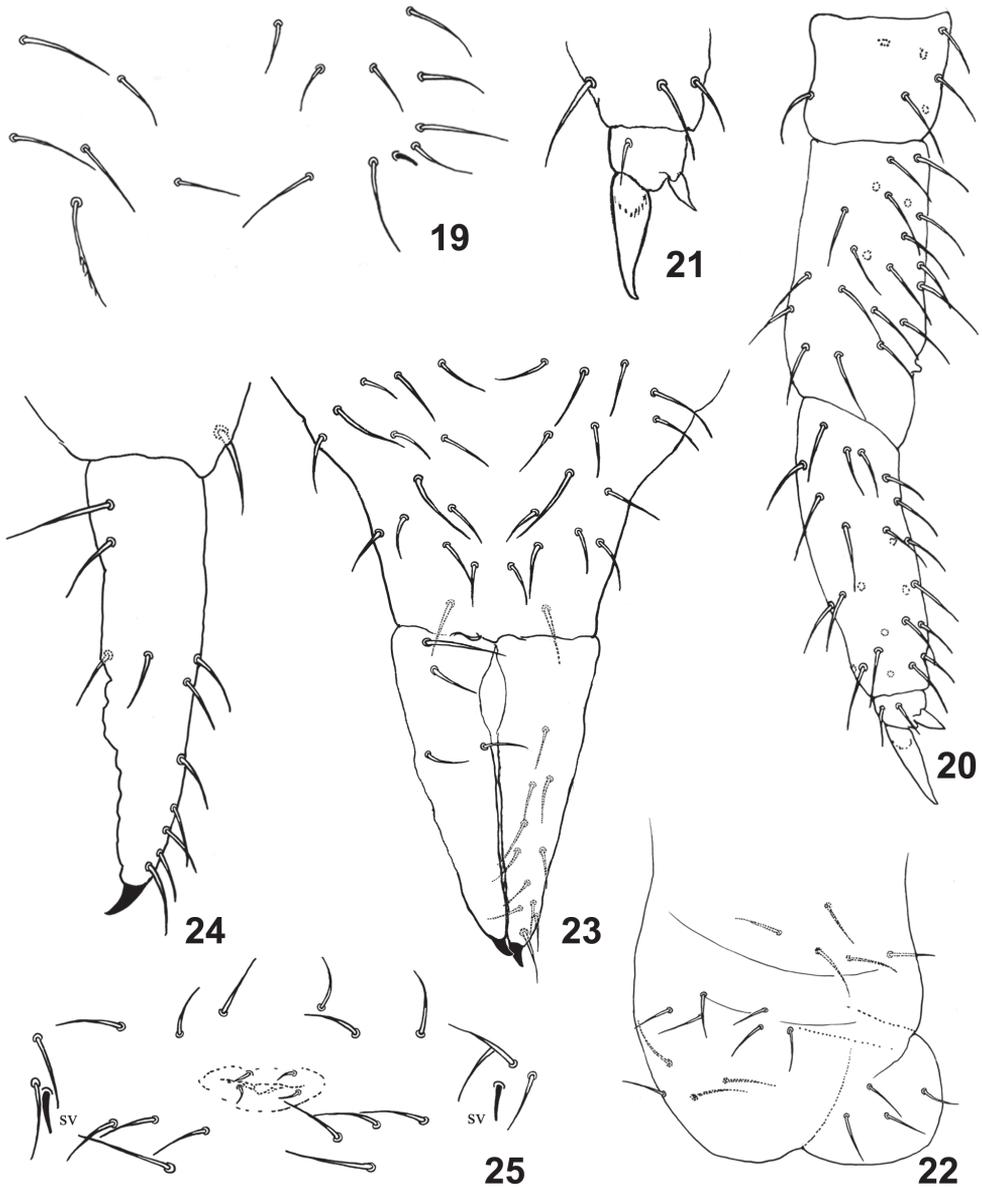
**Description.** Body length size 0,77–0,97mm. Habitus typical of the genus. Color white. Integument dorsally without craters, with primary granules. Pseudopores and integument channels not observed. Antennae subequal to head diagonal. Length of Ant I to IV (30  $\mu$ m, 35  $\mu$ m, 39  $\mu$ m, 58  $\mu$ m). Ant IV with one microsensillum protected by a curved chaeta, six small and subequal sensilla (5  $\mu$ m), supplementary very thin sensilla (3–4 dorsal lateral external and one dorsal internal) (Figs 14–15). Ant III with 26 ordinary chaetae, two very small sensory rods (2  $\mu$ m), three small guard sensilla (3  $\mu$ m), one below short sensillum and one lateral internal additional sensillum (Fig. 14). Ant II with 23–24 smooth ordinary chaetae, two basal microsensilla (one dorsal lateral and one ventral lateral) and one microsensillum lateral external. Ant I with about 13 dorsal ordinary chaetae, two ventral and unequal sensilla (5  $\mu$ m and 3  $\mu$ m) and two basal microsensilla (one ventral and one dorsal). Labral chaetae pattern 4/5,5,4, four very little anterior spinules; two antero lateral chaetae of labrum (11  $\mu$ m) thickened with apical filament (Fig. 16). External lobe of maxilla with bifurcate palp and 3 sublobal chaetae. All chaetae of head smooth. Axial chaetotaxy pattern from Th II to Abd IV with 8–10,5/3,3,3,3 by half tergite (Figs 17, 18). Th II with 1+1 lateral macrochaetae slightly ciliated (22  $\mu$ m) and 3+3 lateral sensilla, **sl 3** (5  $\mu$ m) migrated far from the others two (5  $\mu$ m and 3  $\mu$ m); Th III with 1+1 lateral slightly ciliated macrochaetae (22  $\mu$ m) and 2+2 lateral sensilla (5  $\mu$ m) (Fig. 17). Abd I with 1+1 lateral slightly ciliated chaetae (17  $\mu$ m) and 1+1 sensillum (4  $\mu$ m); Abd II with 1+1 lateral slightly ciliated macrochaetae (22  $\mu$ m), 1+1 ventral-lateral sensillum, without area devoid of chaetae (Figs 18, 19). Abd III with 1+1 slightly ciliated macrochaetae (22  $\mu$ m), few slightly ciliated chaetae (18  $\mu$ m) and 2+2 sensilla (5  $\mu$ m), one dorso-lateral and one ventral. Abd IV with 2+2 ciliated macrochaetae (23  $\mu$ m) and 1+1 ventral-lateral sensilla (7  $\mu$ m). Abd V–VI with some slightly ciliated (30  $\mu$ m) and some smooth macrochaetae; 1+1 dorso-lateral sensillum **spl**, short and thin (5  $\mu$ m); 1+1 ventral sensillum **sv** (6  $\mu$ m) and unpaired chaetae smooth, **ao** (15  $\mu$ m), **mo** (19  $\mu$ m) and **po** (20  $\mu$ m) (Fig. 18).

Proximal whorl of tibiotarsi with seven chaetae (Fig. 20). Tibiotarsus III without tenent hair or thickened apical chaetae. Unguis thin and toothless (15  $\mu$ m), unguiculus lanceolate (5  $\mu$ m) (Figs 20, 21). Ventral tube with 3+3 anterior, 4–5 posterior and 4+4 distal chaetae (Fig. 22). Tenaculum with 4+4 teeth and one chaeta. Subcoxae anterior



**Figure 14–18.** *Isotomiella uai* sp.n. **14** Ant III-IV Dorsal view **15** Sensillary pattern of Ant IV **16** Labral chaetae **17** Dorsal chaetotaxy of Th II-III **18** Dorsal chaetotaxy of Abd I-VI.

with seven chaetae of which one ciliated; subcoxae posterior with seven chaetae, of which one ciliated. Manubrium (55  $\mu$ m) with 1+1 ventro-distal and 14+14 dorsal chaetae, without lateral chaetae (Fig. 23). Dens longer than manubrium (65  $\mu$ m), slightly crenulated, with 10+10 – 13+13 anterior and 4+4 posterior chaetae. Mucro small and falcate (5  $\mu$ m) (Fig. 23, 24). Female genital plate as in Figure 25.



**Figure 19–25.** *Isotomiella uai* sp.n. **19** Detail of chaetotaxy of Abd II **20** Leg III **21** Unguis of leg III **22** Ventral tube **23** Furca **24** Lateral view of dens and mucro **25** Female genital opening.

**Remarks.** *Isotomiella uai* sp. n. belongs to the *nummulifer* group *sensu* Kováč and Palacios-Vargas (2008) that is defined by sensillary pattern 3,2/1,1,2,1,2 from Th II to Abd IV, reduced body chaetotaxy, manubrium usually with 1+1 to 2+2 ventral chaeta, mucro usually bidentate or falcate mucro and 3 external sublobal chaetae. This

new species is closest to *I. fellina* Mendonça & Fernandes, 2003 by its reduced general chaetotaxy and short sensilla on both antennae and tergites, but differs from it by the 1+1 ventral chaetae on manubrium, 10-13 ventral and 4 dorsal chaetae on dens and falcate mucro, against 2+2 ventral chaetae on manubrium, 19-21 ventral and 5 dorsal chaetae on dens and bidentate mucro in *I. fellina*. The falcate mucro of the new species is also similar to that of *I. barrai* Deharveng & Oliveira, 1990, *I. annae* Deharveng & Suhardjono, 1994 and *I. falcata* Mendonça & Fernandes, 2003 and *I. proxima* Mendonça & Fernandes, 2003, but other characters are quite distincts. Therefore, *Isotomiella uai* sp.n. differs from all species of the genus by a singular set of characters, including short sensilla on both antennal IV and tergites, two anterolabral chaetae of labrum thickened and acuminate and falcate mucro.

**Name derivation.** The species is dedicated to the people of Minas Gerais by the unique and local interjection “uai” used by its inhabitants.

## Acknowledgements

We are thankful to our colleague PhD Student Gabriel Costa Queiroz for the critical review and suggestions of the first manuscript, to both anonymous reviewers, to “AMPLO Consultoria”, specially Biologist Lucas Ribeiro, for the logistic support to the sampling in the State of Minas Gerais and to FUJB (Fundação Universitária José Bonifácio) for the equipment support. Open access to this paper was supported by the Encyclopedia of Life (EOL) Open Access Support Project (EOASP).

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# *Paridris* Kieffer of the New World (Hymenoptera, Platygastroidea, Platygastriidae)

Elijah J. Talamas<sup>1,†</sup>, Lubomír Masner<sup>2,‡</sup>, Norman F. Johnson<sup>3,§</sup>

**1** Department of Entomology, The Ohio State University, 1315 Kinnear Road, Columbus, Ohio 43212, U.S.A.

**2** Agriculture and Agri-Food Canada, K.W. Neatby Building, Ottawa, Ontario K1A 0C6, Canada

**3** Department of Evolution, Ecology and Organismal Biology, The Ohio State University, 1315 Kinnear Road, Columbus, Ohio 43212, U.S.A.

† [urn:lsid:zoobank.org:author:19124B60-4D11-46AF-ADBF-E48A9988B102](https://doi.org/urn:lsid:zoobank.org:author:19124B60-4D11-46AF-ADBF-E48A9988B102)

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§ [urn:lsid:zoobank.org:author:3508C4FF-F027-445F-8417-90AB4AB8F30D](https://doi.org/urn:lsid:zoobank.org:author:3508C4FF-F027-445F-8417-90AB4AB8F30D)

Corresponding author: *Elijah J. Talamas* (talamas.1@osu.edu)

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## Abstract

*Paridris* in the New World is revised (Hymenoptera: Platygastriidae). Fifteen species are described, of which 13 are new. *Paridris aenea* (Ashmead) (Mexico (Tamaulipas) and West Indies south to Bolivia and southern Brazil (Rio de Janeiro state)), *P. armata* Talamas, **sp. n.** (Venezuela), *P. convexa* Talamas, **sp. n.** (Costa Rica, Panama), *P. dnophos* Talamas, **sp. n.** (Mexico (Vera Cruz) south to Bolivia and central Brazil (Goiás)), *P. gongylos* Talamas & Masner, **sp. n.** (United States: Appalachian Mountains of Virginia, Tennessee, South Carolina), *P. gorn* Talamas & Masner, **sp. n.** (United States: Ohio south to Alabama, Georgia), *P. invicta* Talamas & Masner, **sp. n.** (Brazil: São Paulo), *P. isabelicae* Talamas & Masner, **sp. n.** (Cuba, Dominican Republic), *P. lemete* Talamas & Masner, **sp. n.** (Puerto Rico), *P. minor* Talamas, **sp. n.** (Cuba), *P. nayakorum* Talamas, **sp. n.** (Costa Rica), *P. pallipes* (Ashmead) (southeastern Canada, United States south to Costa Rica, also Brazil (São Paulo)), *P. psydrax* Talamas & Masner, **sp. n.** (Argentina, Mexico, Paraguay, United States, Venezuela), *P. saurotos* Talamas, **sp. n.** (Jamaica), *P. soucouyant* Talamas & Masner, **sp. n.** (Colombia, Trinidad and Tobago, Venezuela). *Paridris brevipennis* Fouts, *P. laeviceps* (Ashmead), and *P. nigricornis* (Fouts) are treated as junior synonyms of *P. pallipes*; *Paridris opaca* is transferred to *Probaryconus*. Lectotypes are designated for *Idris aenea* Ashmead and *Caloteleia aenea* Ashmead.

## Keywords

Egg-parasitoid, key, species description, revision, lectotype designation

## Introduction

J.J. Kieffer described the genus *Paridris* in 1908 to accommodate misinterpretations of Foerster's (1856) genus *Idris*. He transferred three species to the new name: *Idris laeviceps* Ashmead, *I. aenea* Ashmead and *I. nigricornis* Brues, with *I. laeviceps* selected as the type species of the new genus. One additional species, *P. brevipennis* Fouts, recorded as an egg parasitoid of the cricket *Gryllus pennsylvanicus* Burmeister (Masner and Muesebeck 1968), was described in 1920, and Masner (1976) transferred *P. opaca* (Kieffer) and *P. pallipes* (Ashmead) into the genus from *Paranteris* and *Thoron*, respectively.

Despite the fact that the genus was originally based on species of the Western Hemisphere, subsequent taxonomy of the genus was almost exclusively based on Old World species. Taxonomic circumscription of *Paridris* has required assessment on a world scale because of its polytypic morphology, which is perhaps most apparent among the New World species. Of the 13 new species described in this paper, 7 are morphologically close to *P. pallipes*, whereas the majority of the world species bear little obvious relation to the type species of the genus. The key to separate *Paridris* from *Probaryconus* and *Anteris* (Talamas et al. 2011) included specimens from the New World because it is here that *Paridris* resembles these genera most. Here we expand our study of New World *Paridris* to the species level as part of an ongoing treatment of the genus worldwide.

The gender of the name *Paridris* has been a point of confusion in previous literature, some of it of our own creation. Kieffer (1908) used the adjectival epithet “*aenea*” when transferring *Idris aenea* at the time he erected *Paridris*, thus indicating that the gender of *Paridris* is feminine. Masner (1976), Galloway and Austin (1984), Mani and Sharma (1982), Kononova and Petrov (2000), Lê (2000), Kononova and Kozlov (2008), Rajmohana and Bijoy (2011), and Talamas et al. (2011) treated *Paridris* as masculine. According to Article 30.1.4.2 of the Code, generic names must be treated as feminine names if they are treated as feminine in combination with an adjectival species-group name at the time they are established. We now treat the gender of *Paridris* accordingly and extend our thanks to David Notton (BMNH) for his detailed analysis of the matter and bringing it to our attention while reviewing our manuscript. Species epithets previously treated as masculine are as follows: *P. bispinosa* (Masner), *P. fera* Talamas, *P. gloria* Kononova, *P. pachmarhica* (Sharma), *P. parvoculata* Galloway, *P. rugulosa* Talamas, *P. spinosa* Rajmohana, *P. stena* Kononova & Petrov, and *P. verrucosa* Talamas.

This work is conducted as part of the Platygastroidea Planetary Biodiversity Inventory and represents a step toward a species-level revision of the Scelionini sensu lato. The contributions of the authors are as follows: E.J. Talamas: collection of specimens, character definition, species concept development, imaging, key

development, manuscript preparation; L. Masner: collection and aggregation of specimens, species concept development, manuscript preparation; N.F. Johnson: software and database development, manuscript preparation.

## Materials and methods

**Specimens:** This work is based upon specimens deposited in the following collections, with abbreviations used in the text: AMNH, American Museum of Natural History, New York, USA<sup>1</sup>; BMNH, Natural History Museum, London, England<sup>2</sup>; CASC, California Academy of Sciences, San Francisco, CA<sup>3</sup>; CNCI, Canadian National Collection of Insects, Ottawa, Canada<sup>4</sup>; IAVH, Colección de Artrópodos, Instituto Alexander von Humboldt, Villa de Leyva, Colombia<sup>5</sup>; INBC, Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, Costa Rica<sup>6</sup>; INHS, Illinois Natural History Survey, Champaign, Illinois, USA<sup>7</sup>; LACM, Natural History Museum of Los Angeles County, Los Angeles, California, USA<sup>8</sup>; MCZ, Harvard University Museum of Comparative Zoology, Cambridge, Massachusetts, USA<sup>9</sup>; MEMU, Mississippi State University, Mississippi State, MS<sup>10</sup>; MZLU, Lund Museum of Zoology, Lund University, Lund, Sweden<sup>11</sup>; MZSP, Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil<sup>12</sup>; OSUC, C.A. Triplehorn Insect Collection, Columbus, OH<sup>13</sup>; UCDC, R. M. Bohart Museum of Entomology, Davis, CA<sup>14</sup>; UCMC, University of Colorado Museum of Natural History, Boulder, Colorado<sup>15</sup>; USNM, Smithsonian National Museum of Natural History, Washington DC, USA<sup>16</sup>.

**Morphology:** Abbreviations and morphological terms used in text: A1, A2, ... A12: antennomere 1, 2, ... 12; claval formula: distribution of the multiporous basiconic sensilla on the underside of apical antennomeres of the female, with the antennomere interval specified followed by the number of sensilla per segment (Bin 1981); palpal formula: number of maxillary and labial palpal segments, respectively; S1, S2, ... S6: metasomal medioternite 1, 2, ... 6; T1, T2, ... T7: metasomal mediotergite 1, 2, ... 7.; posterior vertex: area between the posterior ocelli and the occipital carina. Morphological terminology largely follows Mikó et al. 2007; the following are illustrated and labeled to facilitate their use.

- anterior propodeal projection (app: Fig. 12)
- lateral propodeal area (lpa: Figs 11, 13)
- lateral propodeal carina (lpc: Figs 11–13)
- occipital carina (occ: Figs 9, 10, 17)
- plical carina (plc: Figs 11, 13)
- plical area (pla: Figs 12, 13)
- pronotal cervical sulcus (prcs: Fig. 29)
- pronotal suprahumeral sulcus (pss: Fig. 29)
- postacetabular sulcus (ats: Fig. 10)
- postgena (pg: Figs 8–10)
- prespiracular propodeal area (pspp: Figs 11–13)
- transverse carina of T2 (trc: Fig. 70)

Morphological terms used in this revision were matched to the Hymenoptera Anatomy Ontology (HAO, Yoder et al. 2010) (Appendix 1). Identifiers (URIs) in the format [http://purl.obolibrary.org/obo/HAO\\_XXXXXXX](http://purl.obolibrary.org/obo/HAO_XXXXXXX) represent anatomical concepts in HAO version <http://purl.obolibrary.org/obo/hao/2011-05-18/hao.owl>. They are provided to enable readers to confirm their understanding of the anatomical structures being referenced. To find out more about a given structure, including, images, references, and other metadata, use the identifier as a web-link, or use the HAO:XXXXXXX (note colon replaces underscore) as a search term at <http://glossary.hymao.org>.

The description of surface sculpture is presented in two formats. Areas of the exoskeleton in which the sculptural elements are inseparable are described simply as “sculpture”. For areas in which the sculptural elements vary independently, sculpture is divided into three categories: punctation: round depressions associated with setae; macrosculpture: raised or sunken patterns of texture that are oriented linearly or radially with respect to punctation or the axes of the body; microsulpture: unoriented, very fine wrinkles or pustulations that occur on, in, or between elements of macrosculpture and punctation.

**Information management:** The locality data reported for primary types are not a literal transcription of the labels: some abbreviations are expanded; additional data from the collectors are also included. The holotypes should be unambiguously identifiable by means of the unique identifier or the red holotype label. The numbers prefixed with “OSUC ” and “CASENT ” are unique identifiers for the individual specimens (note the blank space after the acronyms). Details on the data associated with these specimens may be accessed at the following link, [purl.oclc.org/NET/hymenoptera/hol](http://purl.oclc.org/NET/hymenoptera/hol), and entering the identifier in the form. This monograph also features simultaneous publication and distribution of taxonomic and occurrence records through the Global Biodiversity Information Facility (GBIF) using DarwinCore Archives. All new species have been prospectively registered with Zoobank (Polaszek et al. 2005) and other taxonomic names have been retrospectively registered therein. All names are also registered in the Hymenoptera Name Server ([hns.osu.edu](http://hns.osu.edu)). Life sciences identifiers, lsids, may be resolved at the URLs specified in the footnotes or at [lsid.tdwg.org](http://lsid.tdwg.org).

**Cybertools:** The species descriptions are generated by a database application, vSysLab ([purl.oclc.org/NET/hymenoptera/vSysLab](http://purl.oclc.org/NET/hymenoptera/vSysLab)), designed to facilitate the generation of taxon by character data matrices, to integrate these with the existing taxonomic and specimen-level database, and to export the data both as text and as input files for other applications. The output is in the format of “Character: Character state(s).” Polymorphic characters are indicated by semicolon-separated character states.

**Imaging:** Images were produced using Combine ZP and AutoMontage extended-focus software. The individual images are archived at the image database at The Ohio State University ([purl.oclc.org/NET/hymenoptera/specimage](http://purl.oclc.org/NET/hymenoptera/specimage)) and with MorphBank ([www.morphbank.net](http://www.morphbank.net)). The latter also contains collections of images organized by plate.

**Species concept:** For the purpose of this revision, species are defined as taxa diagnosable by putative autapomorphies or a unique combination of fixed character states.

**Identification keys** (a Lucid key is included as a supplementary file and is also available at <http://hymfiles.biosci.ohio-state.edu/keys/1/>)

**Key to Females** (unknown for *P. armata*, *P. invicta*, *P. gongylos*)

- 1 Genal striae weakly developed, rarely reaching ventral margin of eye (Figs 26, 29, 30, 37); plical carina absent and lateral propodeal area indistinguishable from plical area (Figs 12, 66); occipital carina not extending below foramen magnum (Figs 8, 10); T2 without transverse carina (Figs 12, 27, 31, 35) ... **2**
- Genal striae pronounced, extending above ventral margin of eye (Figs 14, 18, 19, 38); lateral propodeal area differentiated from plical area by distinct plical carina (Figs 11, 13); occipital carina reaching base of mandible (Fig. 9) **or** antecostal sulcus of T2 bordered posteriorly by transverse carina (Figs 15, 20, 39, 41) ..... **8**
- 2 Antecostal sulcus of T2 comprised of deep cells (Figs 12, 31, 60); posterior margin of sulcus strongly convex (Figs 31, 60); lateral T3 with longitudinal line of setae (Figs 30, 59); T3–T5 without macrosculpture (Figs 31, 60) .... **3**
- Antecostal sulcus of T2 present as a constriction, without deep cells (Figs 27, 35, 47, 64); posterior margin of sulcus weakly convex (Figs 27, 35, 47, 64); lateral T3 without longitudinal line of setae (Figs 26, 34, 63, 71); macrosculpture of T3–T5 variable ..... **4**
- 3 A8 with 2 basiconic sensilla (Fig. 6); metascutellum obscured by horn of T1 (Fig. 60); T1 without longitudinal striae (Fig. 60) ..... ***P. nayakorum* Talamas, sp. n.**
- A8 with 1 basiconic sensillum (as in Fig. 7); metascutellum visible (Figs 12, 31); T1 longitudinally striate (Figs 12, 31) ..... ***P. dnophos* Talamas, sp. n.**
- 4 T6 evenly convex, usually smooth medially (Figs 56, 64, 83, 84); ventral metapleural area setose and punctate throughout (Fig. 63) ..... **5**
- T6 apically constricted, densely and finely punctate throughout (Figs 81, 82); setation and sculpture of ventral metapleural area variable ..... **6**
- 5 Notaulus percurrent, reaching mesoscutal suprahumeral sulcus as a smooth furrow (Fig. 55) ..... ***P. minor* Talamas, sp. n.**
- Notaulus abbreviate, or at most reaching mesoscutal suprahumeral sulcus as a line of punctures (Fig. 64) ..... ***P. pallipes* (Ashmead)**
- 6 Posterior surface of horn on T1 entirely smooth (Figs 46, 47) ..... ***P. isabelicae* Talamas & Masner, sp. n.**
- Posterior surface of horn on T1 not entirely smooth (Figs 26, 71) ..... **7**
- 7 Head with reticulate microfissures throughout (Figs 26, 27, 29); posterior surface of horn on T1 with transverse ridge (Figs 26, 27) ..... ***P. convexa* Talamas, sp. n.**
- Head with reticulate microfissures limited to patches between median and lateral ocelli, on temples, on anterodorsal margin of eye or directly posterior to lateral ocellus (Figs 71, 72); posterior surface of horn on T1 with posteriorly directed spine (Figs 71, 72) ..... ***P. saurotos* Talamas, sp. n.**
- 8 Metascutellum obscured by large horn of T1 (Fig. 68, 70); posterior head and anterior mesosoma with dense pustulate microsculpture (Figs 67, 68); mandible unidentate or with ventral tooth minute (Fig. 69); length of T6

- greater than width along anterior margin (Fig. 80) ..... ***P. psydrax* Talamas & Masner, sp. n.**
- Metascutellum visible (Figs 13, 15, 39, 76); head and anterior mesosoma without pustulate microsculpture (Figs 15, 19, 39, 76); mandible tridentate, medial tooth the smallest (Fig. 17); length of T6 less than or equal to width along anterior margin (Fig. 79) ..... **9**
- 9 Metascutellum bispinose (Figs 39, 41, 76, 78); sculpture of posterior head irregularly rugulose (Figs 39, 76) ..... **10**
- Posterior margin of metascutellum straight or convex, rarely emarginate; if emarginate then irregularly so and without lateral points (Figs 15, 51, 53); sculpture of posterior head variable ..... **11**
- 10 Horn of T1 with longitudinal carina along its dorsal crest (Fig. 78); T4–T5 strigose to rugulose laterally (Fig. 76) ..... ***P. soucouyant* Talamas & Masner, sp. n.**
- Horn of T1 simple, sometimes with median, longitudinal row of shallow punctures (Figs 38, 39); T4–T5 without macrosculpture (Fig. 39) ..... ***P. gorn* Talamas & Masner, sp. n.**
- 11 A8 with single basiconic sensillum (Fig. 7); horn of T1 with strong, posteriorly directed spine, without carinate crest (Fig. 14); micropunctuation often present on horn (Fig. 13) ..... ***P. aenea* (Ashmead)**
- A8 with 2 basiconic sensilla (as in Fig. 6); horn of T1 sometimes with weak spine directed posteriorly, with carinate crest (Figs 50, 51, 53); micropunctuation not present on horn (Fig. 53) ..... ***P. lemete* Talamas & Masner, sp. n.**

### Key to Males (unknown for *P. nayakorum*)

- 1 Genal striae weakly developed, rarely reaching ventral margin of eye (Figs 26, 29, 30, 37); plical carina absent and lateral propodeal area indistinguishable from plical area (Figs 12, 66); occipital carina not extending below foramen magnum (Figs 8, 10); T2 without transverse carina (Figs 12, 27, 31, 35) ... **6**
- Genal striae pronounced, extending above ventral margin of eye (Figs 14, 18, 19, 38); lateral propodeal area differentiated from plical area by distinct plical carina (Figs 11, 13); occipital carina reaching base of mandible (Fig. 9) **or** antecostal sulcus of T2 bordered posteriorly by transverse carina (Figs 15, 20, 39, 41) ..... **2**
- 2 Posterior margin of metascutellum emarginate (Figs 22, 41, 76, 78) ..... **3**
- Posterior margin of metascutellum straight or convex (Figs 13, 53) ..... **5**
- 3 Clypeus smooth along ventral margin and narrower than torular space (Fig. 24); posterior margin of antecostal sulcus on T2 convex and without transverse carina (Fig. 23); notaulus absent in anterior half of mesoscutum and poorly defined posteriorly (Fig. 23) ..... ***P. armata* Talamas, sp. n.**

- Clypeus serrate along ventral margin and wider than torular space (Fig. 40); posterior margin of antecostal sulcus on T2 straight, bordered posteriorly by transverse carina (Figs 39, 41, 76); notaulus percurrent or reaching mesoscutal suprahumeral sulcus as a line of punctures ..... 4
- 4 T4–T5 strigose to rugulose laterally (Fig. 76) .....  
..... ***P. soucouyant* Talamas & Masner, sp. n.**
- T4–T5 without macrosculpture (Fig. 39) .... ***P. gorn* Talamas & Masner, sp. n.**
- 5 Lateral propodeal area discontinuous with prespiracular propodeal area (Fig. 11); femora enlarged (Fig. 42); gena with dense long setae (Fig. 44) .....  
..... ***P. invicta* Talamas & Masner, sp. n.**
- Lateral propodeal area contiguous with prespiracular propodeal area (Figs 13, 53, 70); femora not obviously enlarged; setation of gena either not dense or long ..... 6
- 6 A6–A11 spherical in shape (Fig. 5); head, anterior mesoscutum and metasoma covered with dense pustulate microsculpture (Fig. 68) .....  
..... ***P. psydrax* Talamas & Masner, sp. n.**
- A6–A11 longer than wide (Fig. 4); head, mesoscutum and metasoma without dense microsculpture (Figs 15, 51) ..... 7
- 7 Mesopleuron below femoral depression coarsely punctate rugose to areolate (Fig. 85); postmarginal vein about half as long as stigmal vein (Fig. 87) .....  
..... ***P. aenea* (Ashmead)**
- Mesopleuron below femoral depression mostly smooth with sparse large punctures (Fig. 86); postmarginal vein as long as stigmal vein (Fig. 88) .....  
..... ***P. lemete* Talamas & Masner, sp. n.**
- 8 Length of flagellomeres (A6–A11) greater than 3 times width (Fig. 1) ..... 9
- Length of flagellomeres (A6–A11) less than 3 times width (Fig. 2) ..... 11
- 9 Reticulate microfissures present throughout posterior vertex and temples (Figs 26, 27) ..... ***P. convexa* Talamas, sp. n.**
- Posterior vertex entirely smooth (Figs 46, 47, 71, 72), microsculpture sometimes present in small patch on temples and between median and lateral ocelli ..... 10
- 10 Medial mesoscutum with dense to moderately dense setigerous punctation throughout (Fig. 72); medial S2 smooth (Fig. 74) ... ***P. saurotos* Talamas, sp. n.**
- Medial mesoscutum mostly smooth and glabrous with very sparse setigerous punctures (Fig. 47); medial S2 longitudinally striate (Fig. 49) .....  
..... ***P. isabelicae* Talamas & Masner, sp. n.**
- 11 Antecostal sulcus of T2 comprised of deep cells (Figs 12, 31); posterior margin of sulcus strongly convex (Fig. 31); lateral T3 longitudinal line of setae (Fig. 30); T3–T5 without macrosculpture (Fig. 31) .....  
..... ***P. dnophos* Talamas, sp. n.**
- Antecostal sulcus of T2 present as a constriction, without deep cells (Figs 35, 56, 64); posterior margin of sulcus weakly convex (Figs 35, 56, 64); lateral

- T3 without longitudinal line of setae (Fig. 34); macrosculpture of T3–T5 variable ..... 12
- 12 Occipital carina crenulate anteriorly (Fig. 35) .....  
 ..... *P. gongylos* Talamas & Masner, sp. n.
- Occipital carina simple (Fig. 55, as in Fig. 72) ..... 13
- 13 Notaulus percurrent, reaching mesoscutal suprahumeral sulcus as a smooth furrow (Fig. 55) ..... *P. minor* Talamas, sp. n.
- Notaulus abbreviate, or at most reaching mesoscutal suprahumeral sulcus as a line of punctures (Fig. 64) ..... *P. pallipes* (Ashmead)

## Taxonomy

### *Paridris aenea* (Ashmead)

urn:lsid:zoobank.org:act:8709F7AA-46A7-4D34-98F8-9671D6539ABF

urn:lsid:biosci.ohio-state.edu:osuc\_concepts:5062

[http://species-id.net/wiki/Paridris\\_aenea](http://species-id.net/wiki/Paridris_aenea)

Figures 4, 13–20, 85, 87; Morphbank<sup>17</sup>

*Idris aenea* Ashmead, 1894: 231 (original description); Ashmead 1900: 328 (distribution).

*Paridris aenea* (Ashmead): Kieffer 1908: 123 (generic transfer); Kieffer 1926: 421, 423 (description, keyed); Masner 1976: 36 (type information, description, emendation).

*Caloteleia aenea* Ashmead, 1894: 218, 219 (original description, keyed) syn. n.; Ashmead 1900: 327 (distribution).

*Ceratoteleia aenea* (Ashmead): Kieffer 1908: 121 (generic transfer).

*Oxyteleia aenea* (Ashmead): Kieffer 1926: 516, 517 (generic transfer, description, keyed).

urn:lsid:zoobank.org:act:39C31284-74AC-4431-B2AF-0771E8E9603C

urn:lsid:biosci.ohio-state.edu:osuc\_concepts:9489

**Description.** Female body length: 1.73–2.66 mm (n=20). Male body length: 1.38–2.54 mm (n=20).

Number of basiconic sensilla on A8: 1.

Color of head: brown; black. Distal margin of clypeus: serrate. Width of clypeus: wider than interantennal process. Lateral corner of clypeus: projecting into acute angle. Development of interantennal process ventrally: not reaching clypeus. Number of mandibular teeth: three. Length of mediofacial striae: not extending above midpoint of eye; extending to dorsal frons. Shape of gena in dorsal view: moderately receding behind compound eye. Striae on gena: pronounced. Length of striae on gena: extending above ventral margin of eye. Distribution of microsculpture on head: absent. Length of OOL: greater than 2 ocellar diameters; less than 2 ocellar diameters. Occipital carina above foramen magnum: present. Anterior margin of occipital carina: comprised

of small to miniscule cells. Setation of postgena: sparse. Ventral extent of occipital carina: extending to base of mandible.

Color of mesosoma: yellowish brown to black; reddish brown. Dorsal half of pronotal cervical sulcus: present as line of small to minute cells; present as smooth furrow. Ventral half of pronotal cervical sulcus: present as line of small to minute cells. Transverse pronotal carina: present in posterior half of pronotum; present in posterodorsal corner of pronotum. Shape of pronotal shoulder in dorsal view: narrow and striplike. Form of pronotal suprahumeral sulcus: areolate. Macrosculpture of anterior medial mesoscutum: absent. Density of punctation on anterior medial mesoscutum: dense along mesoscutal suprahumeral sulcus, otherwise sparse; dense throughout. Reticulate microfissures on anterior half of medial mesoscutum: absent. Pustulate microsculpture on anterior mesoscutum: absent. Density of punctation on posterior medial mesoscutum: sparse. Notaulus: percurrent, reaching suprahumeral sulcus as a smooth furrow; percurrent, reaching suprahumeral sulcus as a line of punctures. Orientation of notauli: parallel. Shape of notaulus at posterior apex: ovoid. Macrosculpture of mesoscutellum: punctate rugose along margins, smooth medially. Postacetabular sulcus: crenulate. Mesopleural carina: present, complete. Punctures on posterodorsal mesepimeral area: very fine; absent; large. Sculpture of mesopleuron anteroventral to femoral depression: areolate to punctate rugose throughout; densely punctate on lateral surface, smooth on ventral surface. Sculpture of posterior mesepimeral area: smooth. Form of metascutellum in female: transverse punctate rugulose lamella, posterior margin approximately straight. Form of metascutellum in male: transverse punctate rugulose lamella, posterior margin approximately straight. Paracoxal and metapleural sulci: separate. Posterior margin of metapleuron below propodeal spiracle: straight to moderately convex. Setation between metapleural triangle and metapleural sulcus: absent. Sculpture between metapleural triangle and metapleural sulcus: smooth; punctate; punctate rugose; faintly rugulose. Sculpture of metapleural triangle: punctate rugose. Setation of metapleural triangle: sparse. Anterior propodeal projection: absent. Setation of metasomal depression: absent. Lateral propodeal area: raised above plical area and indicated by sparser setation. Plical carina: present. Shape of lateral propodeal area: continuous with prespiracular propodeal area. Sculpture of lateral propodeal area: punctate rugulose.

Color of metasoma: yellowish brown to black; reddish brown. Macrosculpture of T1: longitudinally striate; longitudinally strigose. Interstitial sculpture of T1: finely rugulose. Adornment of horn on T1 in female: posteriorly projecting spine. Macrosculpture of T2 in female: longitudinally striate throughout. Macrosculpture of T2 in male: longitudinally striate throughout. Microsculpture on T2: absent. Setal patch of lateral T2: present throughout lateral surface of tergite. Posterior margin of transverse sulcus on T2: straight. Carina along posterior margin of transverse sulcus on T2 in male: present. Carina along posterior margin of transverse sulcus on T2 in female: present. Microsculpture on T3: absent; present. Macrosculpture of T3 medially in female: weakly longitudinally strigose; weakly longitudinally striate. Macrosculpture of T3 laterally in female: longitudinally strigose; longitudinally striate. Macrosculpture of T3 medially in male: longitudinally striate. Macrosculpture of T3 laterally in male: longitudinally striate. Microsculpture on T4: absent. Macrosculpture of T4 medially in female: absent. Macrosculpture of T4 laterally in female: absent. Macrosculpture of T4 in male: longi-

tudinally strigose laterally; absent. Macrosculpture of T5 in female: absent. Constriction of apical T6 in female: present. Punctuation of T6 in female: densely and finely punctate throughout. Setation of S1: present as medial tuft. Form of S2 felt field: longitudinal row or patch of setigerous punctures. Macrosculpture of S2 medially: longitudinally striate. Macrosculpture of S3: absent; weakly crenulate to weakly strigose medially.

Wing development: macropterous. Basal vein in hind wing: spectral. Setation of hind wing: reduced anad of submarginal vein. Length of postmarginalis: approximately half of length of stigmalis. RS+M in fore wing: spectral.

**Diagnosis.** *Paridris aenea* is most similar to *P. lemete* (endemic to Puerto Rico). The females of these species are easily separated by the number of basiconic sensilla on A8: one in *P. aenea*, and two in *P. lemete*; and a carina is present along the crest of the horn of T1 in *P. lemete* but not in *P. aenea*. The males of *P. aenea* may be separated by the coarse rugose or areolate sculpture of the mesopleuron ventral to the femoral depression; in *P. lemete* the ventral mesopleuron is mostly smooth with sparse punctuation.

**Link to distribution map.**<sup>18</sup>

**Associations.** collected near *Prestoea acuminata* var. *montana* (Graham): [Arecales: Arecaceae]

**Material examined.** *Lectotype* (by present designation), female, *Idris aenea*: **SAINT VINCENT AND THE GRENADINES**: Saint Vincent Island, no date, H. H. Smith, B.M.TYPE HYM. 9.935 (deposited in BMNH). *Paralectotype*, male, *I. aenea*: **SAINT VINCENT AND THE GRENADINES**: Saint Vincent Island, no date, H. H. Smith, OSUC 397883 (deposited in BMNH). *Lectotype* (by present designation), female, *Caloteleia aenea*: **SAINT VINCENT AND THE GRENADINES**: Saint Vincent Island, no date, H. H. Smith, B.M.TYPE HYM. 9.936 (deposited in BMNH). *Paralectotypes*: 2 males, *C. aenea*: **SAINT VINCENT AND THE GRENADINES**: OSUC 397892–397893 (deposited in BMNH). *Other material*: (161 females, 144 males) **BELIZE**: 2 females, 5 males, OSUC 181326, 181375–181377, 396509–396510, 396541 (CNCI). **BOLIVIA**: 3 females, 2 males, OSUC 181331, 181396, 181400, 396278–396279 (CNCI). **BRAZIL**: 4 females, 13 males, OSUC 181361, 181364, 181367, 181372, 396066 (CNCI); OSUC 111928, 133058, 133083, 147969, 148060, 225, 254564, 254589, 254592, 266228, 334194, 334198 (OSUC). **COLOMBIA**: 9 females, 21 males, OSUC 181360, 181368, 181402, 396274 (CNCI); OSUC 178136, 181407, 182831, 182833, 185437, 189095, 189243, 192194, 193175, 202090, 256813–256814, 256816, 268895 (IAVH); OSUC 182235, 182835, 188736–188737, 189094, 189244, 191336, 194181, 202091–202092, 256815, 262597 (OSUC). **COSTA RICA**: 36 females, 32 males, OSUC 181302, 181308, 181310, 181317, 181321–181322, 181330, 181335, 181341–181342, 181346–181347, 181350, 181380, 181383, 181387, 181389, 181393, 181405, 334104–334106, 396070–396077, 396085–396086, 396093–396095, 396101, 396104, 396106, 396110–396112, 396115–396116, 396123–396125, 396127–396128, 396275–396277, 396488–396495, 396512, 396540, 396542, 396544, 396547, 396550 (CNCI); OSUC 334190 (OSUC); OSUC 266071, 266073 (TAMU). **CUBA**: 16 females, 4 males, OSUC 334265–334267 (CNCI); OSUC 436213–436227, 436230–436231 (USNM). **DOMINICA**: 2 females, 4 males, OSUC 181338, 396826–396827, 396831–396833 (CNCI). **DOMINICAN REPUB-**

**LIC:** 6 females, 3 males, OSUC 181314, 181323, 181325, 181381, 396078, 396088–396089, 396513 (CNCI); OSUC 261872 (OSUC). **ECUADOR:** 10 females, 6 males, OSUC 181315, 181337, 181340, 181345, 181348, 181353–181354, 181369, 181386, 181398, 396092, 396107, 396117–396118, 396120, 396530 (CNCI). **FRENCH GUIANA:** 1 female, 1 male, OSUC 181334, 396545 (CNCI). **GRENADA:** 1 female, OSUC 396830 (CNCI). **GUYANA:** 8 females, 2 males, OSUC 181390, 396263–396267, 396518–396521 (CNCI). **HONDURAS:** 1 female, 2 males, OSUC 334161–334162, 334165 (MZLU). **JAMAICA:** 1 female, OSUC 58703 (OSUC). **MEXICO:** 25 females, 2 males, OSUC 181301, 181303, 181385, 181388, 334073–334085, 334098–334103, 396108–396109, 396511 (CNCI); OSUC 49279 (OSUC). **PANAMA:** 2 females, 13 males, OSUC 181307, 181309, 181318–181320, 181336, 181366, 396079–396081, 396087, 396102–396103, 396105, 396114 (CNCI). **PERU:** 7 females, 15 males, OSUC 181316, 181324, 181343, 181408, 396082–396084, 396119, 396257–396262, 396269, 396280, 396517, 396546 (CNCI); OSUC 237351, 255001–255002 (OSUC); OSUC 232004 (USNM). **SAINT VINCENT AND THE GRENADINES:** 2 females, OSUC 396828–396829 (CNCI). **SURINAME:** 2 females, OSUC 181355–181356 (CNCI). **TRINIDAD AND TOBAGO:** 11 females, 12 males, OSUC 181305, 181362–181363, 396051–396057, 396059–396062, 396067–396068, 396096–396100, 396121–396122 (CNCI). **VENEZUELA:** 12 females, 7 males, OSUC 181306, 181328–181329, 181379, 265174, 334071–334072, 396090–396091, 396113, 396528–396529, 396531–396533, 396543 (CNCI); OSUC 146704, 334201, 79752 (OSUC).

**Comments.** The large geographical distribution of *P. aenea* is accompanied by morphological variation, some of which is correlated with particular regions. Specimens from Cuba and Jamaica have smaller eyes (and consequently a larger OOL) and a pronounced transverse carina on T2 that protrudes laterally, making the anterior width of T2 distinctly greater than the posterior width of T1. Typically, the genal striae do not extend above the midpoint of the eye and are concentrated in the posterior half of the gena. Specimens from Tobago, and some from mainland South America, have elongate genal striae that extend to the vertex, or even around the eye, becoming dorsally continuous with the malar striae. Finally, three female specimens, OSUC 181316, 181345, 334201, have a minute horn on T1. They are otherwise consistent with our concept of *P. aenea*, and we consider them to be variants within this species.

***Paridris armata* Talamas, sp. n.**

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[http://species-id.net/wiki/Paridris\\_armata](http://species-id.net/wiki/Paridris_armata)

Figures 21–25; Morphbank<sup>19</sup>

**Description.** Male body length: 2.35 mm (n=1).

Color of head: black. Distal margin of clypeus: smooth. Width of clypeus: equal to or less than width of interantennal process. Lateral corner of clypeus: rounded.

Development of interantennal process ventrally: connecting with clypeus. Number of mandibular teeth: three. Length of mediofacial striae: extending to dorsal frons. Shape of gena in dorsal view: moderately receding behind compound eye. Striae on gena: pronounced. Length of striae on gena: extending above ventral margin of eye. Distribution of microsculpture on head: absent. Length of OOL: less than 2 ocellar diameters. Occipital carina above foramen magnum: present. Anterior margin of occipital carina: comprised of medium to large sized cells. Setation of postgena: sparse. Ventral extent of occipital carina: extending to base of mandible.

Color of mesosoma: reddish brown. Dorsal half of pronotal cervical sulcus: present as line of small to minute cells. Ventral half of pronotal cervical sulcus: present as line of small to minute cells. Transverse pronotal carina: present in posterodorsal corner of pronotum. Shape of pronotal shoulder in dorsal view: without dorsal surface. Form of pronotal suprahumeral sulcus: punctate rugulose. Macrosculpture of anterior medial mesoscutum: absent. Density of punctation on anterior medial mesoscutum: dense throughout. Reticulate microfissures on anterior half of medial mesoscutum: absent. Pustulate microsculpture on anterior mesoscutum: absent. Density of punctation on posterior medial mesoscutum: sparse. Notaulus: present as cluster of punctures at posterior margin of mesoscutum. Macrosculpture of mesoscutellum: punctate rugose. Postacetabular sulcus: crenulate. Mesopleural carina: absent. Punctures on posterodorsal mesepimeral area: absent. Sculpture of mesopleuron anteroventral to femoral depression: densely punctate anteriorly, smooth posteriorly and on ventral surface. Sculpture of posterior mesepimeral area: smooth. Form of metascutellum in male: bispinose. Paracoxal and metapleural sulci: uncertain, separate. Posterior margin of metapleuron below propodeal spiracle: straight to moderately convex. Setation between metapleural triangle and metapleural sulcus: absent. Sculpture between metapleural triangle and metapleural sulcus: punctate rugose. Sculpture of metapleural triangle: punctate rugose. Setation of metapleural triangle: sparse. Anterior propodeal projection: absent. Setation of metasomal depression: absent. Lateral propodeal area: indicated by sparser degree of setation. Plical carina: absent. Shape of lateral propodeal area: continuous with prespiracular propodeal area. Sculpture of lateral propodeal area: rugose.

Color of metasoma: brown. Macrosculpture of T1: longitudinally strigose. Interstitial sculpture of T1: smooth. Macrosculpture of T2 in male: weakly longitudinally striate throughout. Microsculpture on T2: absent. Setal patch of lateral T2: present throughout lateral surface of tergite. Posterior margin of transverse sulcus on T2: weakly convex. Carina along posterior margin of transverse sulcus on T2 in male: absent. Microsculpture on T3: absent. Macrosculpture of T3 medially in male: weakly longitudinally striate. Macrosculpture of T3 laterally in male: weakly longitudinally striate. Microsculpture on T4: absent. Macrosculpture of T4 in male: absent. Setation of S1: absent. Form of S2 felt field: longitudinal row or patch of setigerous punctures. Macrosculpture of S2 medially: absent. Macrosculpture of S3: absent.

Wing development: macropterous. Basal vein in hind wing: spectral. Setation of hind wing: uniform throughout. Length of postmarginalis: less than half of length of stigmalis. RS+M in fore wing: nebulous.

**Diagnosis.** *Paridris armata* is not acutely similar to any of the other *Paridris* species in the New World. The bispinose shape of the metascutellum and very narrow clypeus unambiguously separate it from the other species treated here.

**Etymology.** The adjectival Latin epithet “armata” is given to this species for the shape and relatively large size of the metascutellum.

**Link to distribution map.**<sup>20</sup>

**Material examined.** *Holotype*, male: **VENEZUELA:** Bolívar St., camp, Auyán Tepuy, 05°46'07"N, 62°31'56"W, 2075m, 19.IV–25.IV.1994, yellow pan trap, L. Masner & J. L. Garcia, OSUC 181352 (deposited in CNCI).

***Paridris convexa* Talamas, sp. n.**

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urn:lsid:biosci.ohio-state.edu:osuc\_concepts:299093

[http://species-id.net/wiki/Paridris\\_convexa](http://species-id.net/wiki/Paridris_convexa)

Figures 1, 26–29, 82; Morphbank<sup>21</sup>

**Description.** Female body length: 1.19–1.51 mm (n=4). Male body length: 1.26–2.44 mm (n=12).

Number of basiconic sensilla on A8: 1.

Color of head: brown; black. Distal margin of clypeus: smooth. Width of clypeus: wider than interantennal process. Lateral corner of clypeus: projecting into acute angle. Development of interantennal process ventrally: not reaching clypeus. Number of mandibular teeth: three. Length of mediofacial striae: not extending above midpoint of eye. Shape of gena in dorsal view: moderately receding behind compound eye. Striae on gena: weakly indicated. Length of striae on gena: terminating below ventral margin of eye. Form of microsculpture on head: reticulate microfissures. Distribution of microsculpture on head: present throughout dorsal head. Length of OOL: greater than 2 ocellar diameters. Occipital carina above foramen magnum: present. Anterior margin of occipital carina: simple. Setation of postgena: dense. Ventral extent of occipital carina: absent below midpoint of foramen magnum.

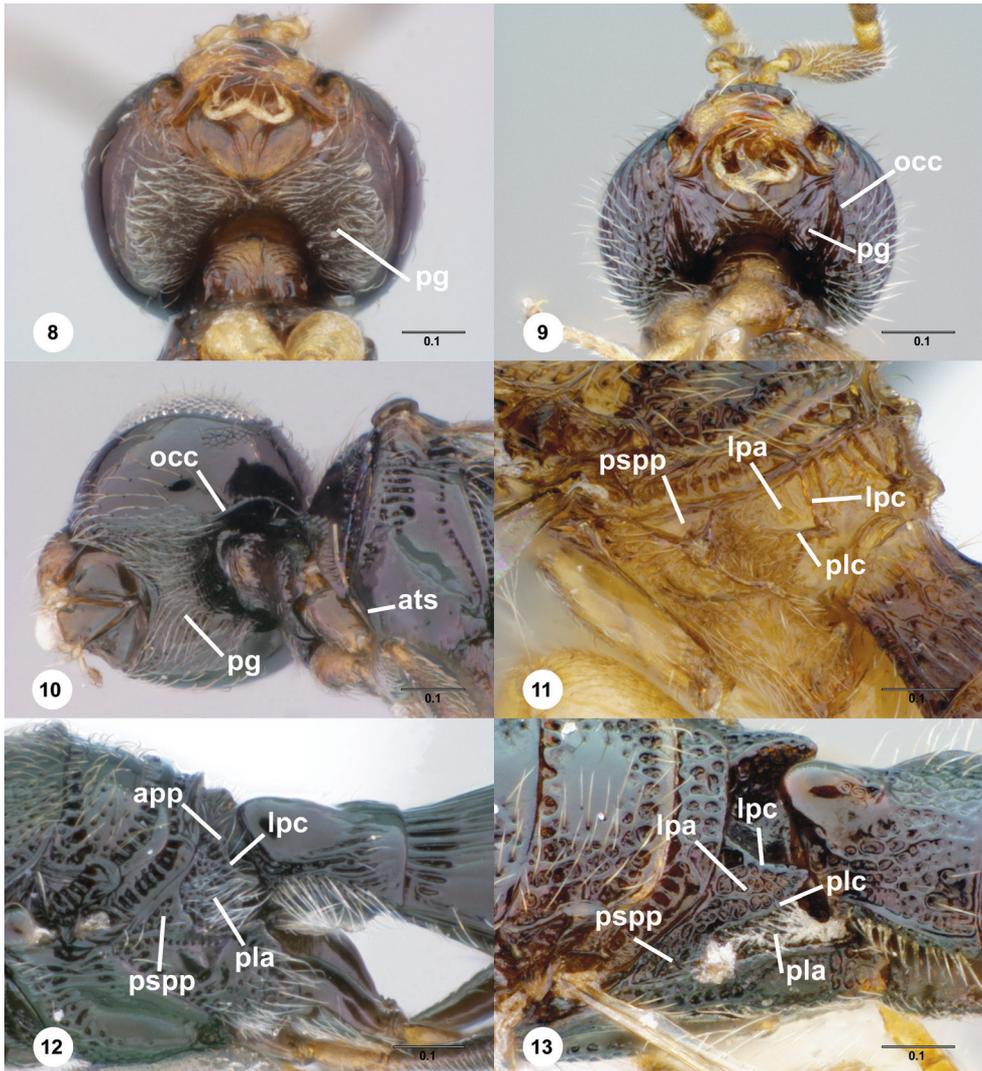
Color of mesosoma: reddish brown; yellowish brown. Dorsal half of pronotal cervical sulcus: present as line of small to minute cells. Ventral half of pronotal cervical sulcus: present as line of small to minute cells. Transverse pronotal carina: absent. Shape of pronotal shoulder in dorsal view: without dorsal surface. Form of pronotal suprahumeral sulcus: sparsely punctate; line of uniform punctures. Macrosculpture of anterior medial mesoscutum: absent. Density of punctation on anterior medial mesoscutum: sparse; moderate. Reticulate microfissures on anterior half of medial mesoscutum: present throughout. Density of punctation on posterior medial mesoscutum: sparse; absent. Notaulus: percurrent, reaching suprahumeral sulcus as a smooth furrow; abbreviate, not reaching mesoscutal suprahumeral sulcus. Orientation of notauli: parallel. Shape of notaulus at posterior apex: parallel-sided. Macrosculpture of mesoscutellum: absent. Postacetabular sulcus: crenulate. Mesopleural carina: absent. Punctures on pos-



**Figures 1–7.**<sup>79</sup> **1** *Paridris convexa* sp. n., Antenna, male (OSUC 262116) **2** *Paridris pallipes* (Ashmead), Antenna, male (OSUC 396171) **3** *Paridris dnophos* sp. n., Antenna, male (OSUC 396752) **4** *Paridris aenea* (Ashmead), Antenna, male (OSUC 396540) **5** *Paridris psydrax* sp. n., Head and antennae, ventral view, male (OSUC 181278) **6** *Paridris nayakorom* sp. n., Antennal clava, ventral view, female (OSUC 396697) **7** *Paridris aenea* (Ashmead), Antennal clava, ventral view, female (OSUC 202090)

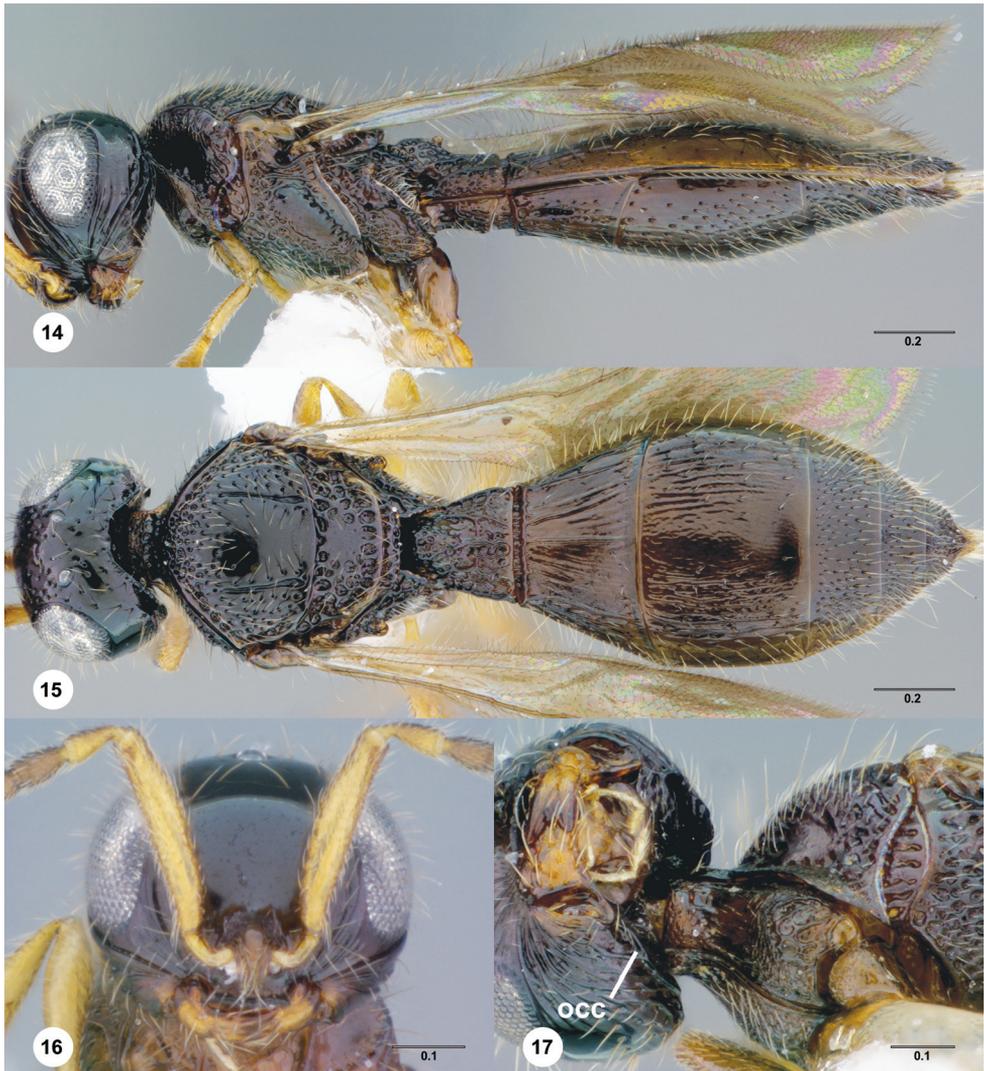
terodorsal mesepimeral area: absent. Sculpture of mesopleuron anteroventral to femoral depression: densely punctate; areolate to punctate rugose throughout. Sculpture of posterior mesepimeral area: smooth. Form of metascutellum in female: transverse lamella, posterior margin convex. Form of metascutellum in male: transverse lamella, pointed medially; transverse lamella, posterior margin convex. Paracoxal and metapleural sulci: fused. Setation between metapleural triangle and metapleural sulcus: present throughout. Sculpture of metapleural triangle: punctate rugose. Setation of metapleural triangle: sparse. Anterior propodeal projection: absent. Setation of metasomal depression: present. Lateral propodeal area: undifferentiated from plical area. Plical carina: absent.

Color of metasoma: reddish brown; yellowish brown. Macrosculpture of T1: longitudinally striate. Interstitial sculpture of T1: finely rugulose. Adornment of horn on T1 in female: transverse ridge at base of horn. Macrosculpture of T2 in female: longitudinally striate throughout. Macrosculpture of T2 in male: longitudinally striate throughout. Microsculpture on T2: absent. Setal patch of lateral T2: present throughout lateral surface of tergite. Posterior margin of transverse sulcus on T2: distinctly convex. Carina along posterior margin of transverse sulcus on T2 in male: absent. Carina along posterior margin of transverse sulcus on T2 in female: absent. Microsculpture



**Figures 8–13.**<sup>80</sup> **8** *Paridris saurotos* sp. n., head, posterior view, female holotype (OSUC 262111) **9** *Paridris gorn*, head, posterior view, female (OSUC 181261) **10** *Paridris dnophos* sp. n., head, posteroventral view, female (OSUC 190973) **11** *Paridris invicta* sp. n., propodeum, dorsolateral view, male holotype (OSUC 236922) **12** *Paridris dnophos* sp. n., mesoscutellum, metascutellum, propodeum and T1, dorsolateral view, female (OSUC 190971) **13** *Paridris aenea* (Ashmead), mesoscutellum, metascutellum, propodeum and T1, dorsolateral view, female (OSUC 181306)

on T3: absent. Macrosculpture of T3 medially in female: absent. Macrosculpture of T3 laterally in female: longitudinally striate. Macrosculpture of T3 medially in male: absent. Macrosculpture of T3 laterally in male: longitudinally striate. Microsculpture on T4: absent. Macrosculpture of T4 medially in female: absent. Macrosculpture of T4 laterally in female: absent. Macrosculpture of T4 in male: absent. Macrosculpture of T5 in female: absent. Constriction of apical T6 in female: present. Setation of S1:

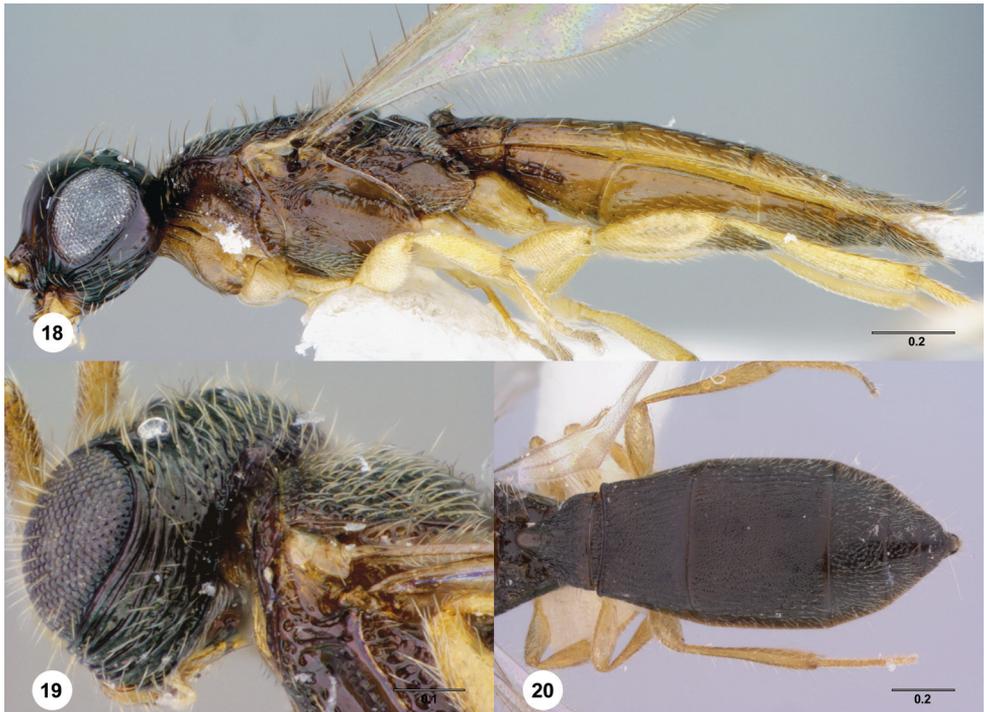


**Figures 14–17.**<sup>81</sup> *Paridris aenea* (Ashmead) **14** Lateral habitus, female (OSUC 181348) **15** Dorsal habitus, female (OSUC 181348) **16** Head, anterior view, female (OSUC 182833) **17** Head, propleuron and pronotum, ventral view, female (OSUC 396090)

densely present throughout. Form of S2 felt field: line of dense setae along longitudinal ridge. Macrosculpture of S2 medially: longitudinally striate.

Wing development: macropterous. Basal vein in hind wing: spectral. Setation of hind wing: uniform throughout. RS+M in fore wing: nebulous.

**Diagnosis.** *Paridris convexa* is most similar to *P. saurotos* and *P. isabelicae*. Males and females of *P. convexa* may be separated from these two species by the presence of reticulate microfissures through the head. In *P. saurotos* and *P. isabelicae* this microsculpture is limited to patches on the temple, between the median and lateral ocelli, and directly posterior to the lateral ocellus.



**Figures 18–20.**<sup>82</sup> *Paridris aenea* (Ashmead) **18** Lateral habitus, female (OSUC 181316) **19** Head, posterolateral view, female (OSUC 181305) **20** Metasoma, dorsal view, female (OSUC 58703).

**Etymology.** The Latin epithet “convexa” is adjectival, meaning rounded or smooth. It is given to this species for its smooth surface sculpture.

**Link to distribution map.**<sup>22</sup>

**Material examined.** *Holotype*, female: **COSTA RICA:** Heredia Prov., La Selva Biological Station, 10°26'N, 84°01'W, 75m, 27.II–28.II.2003, sweeping, J. S. Noyes, OSUC 181392 (deposited in BMNH). *Paratypes*: (3 females, 13 males) **COSTA RICA:** 3 females, 9 males, OSUC 181304, 181327, 181382, 181403–181404, 181409, 262112–262114, 265168 (CNCI); OSUC 181391, 181399 (OSUC). **PANAMA:** 4 males, OSUC 262115–262116 (CNCI); OSUC 181332, 262117 (OSUC).

***Paridris dnophos* Talamas, sp. n.**

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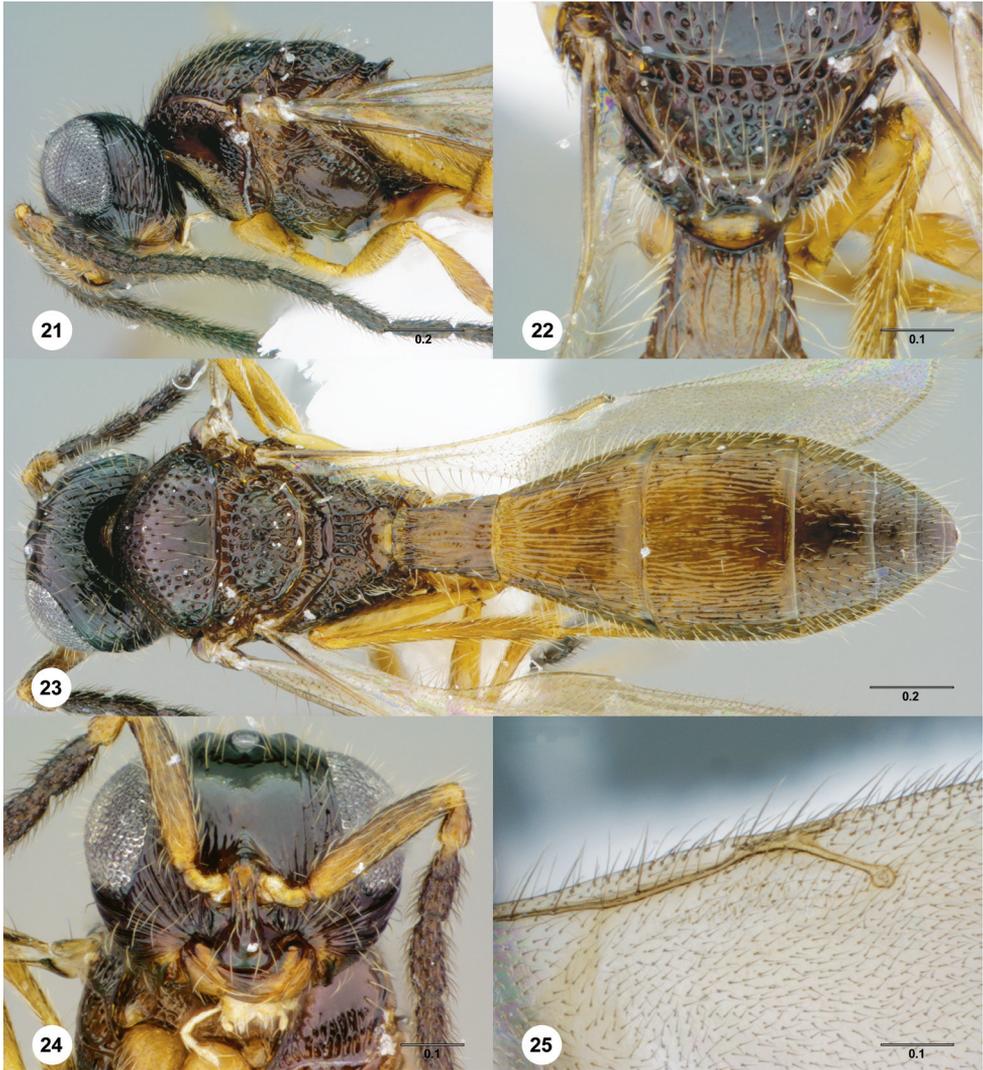
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[http://species-id.net/wiki/Paridris\\_dnophos](http://species-id.net/wiki/Paridris_dnophos)

Figures 3, 10, 12, 30–33; Morphbank<sup>23</sup>

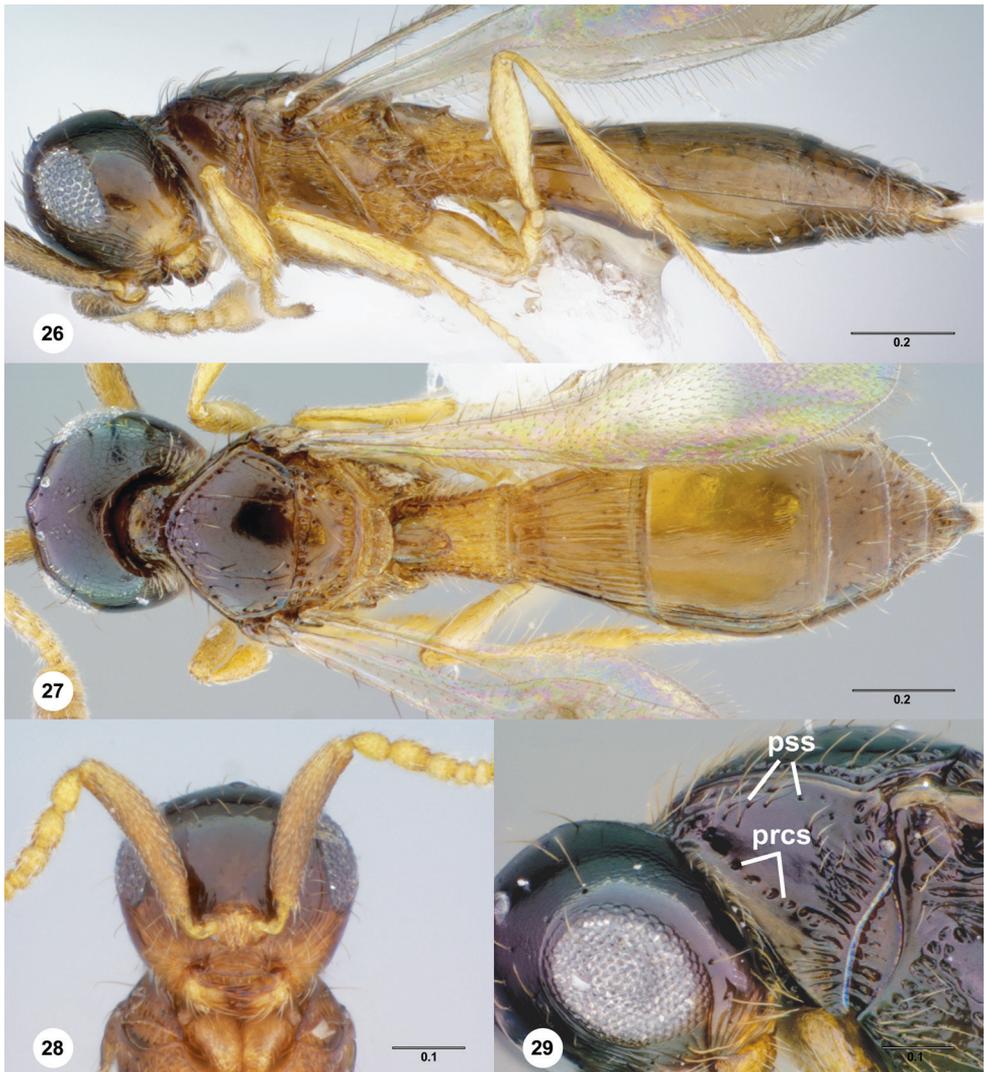
**Description.** Female body length: 1.21–1.97 mm (n=21). Male body length: 1.08–1.88 mm (n=20).

Number of basiconic sensilla on A8: 1.



**Figures 21–25.**<sup>83</sup> *Paridris armata*, sp. n., male holotype (OSUC 181352) **21** Head and mesosoma, lateral view **22** Mesoscutellum, metascutellum and T1, dorsal view **23** Dorsal habitus **24** Head, anterior view **25** Venation of forewing, dorsal view

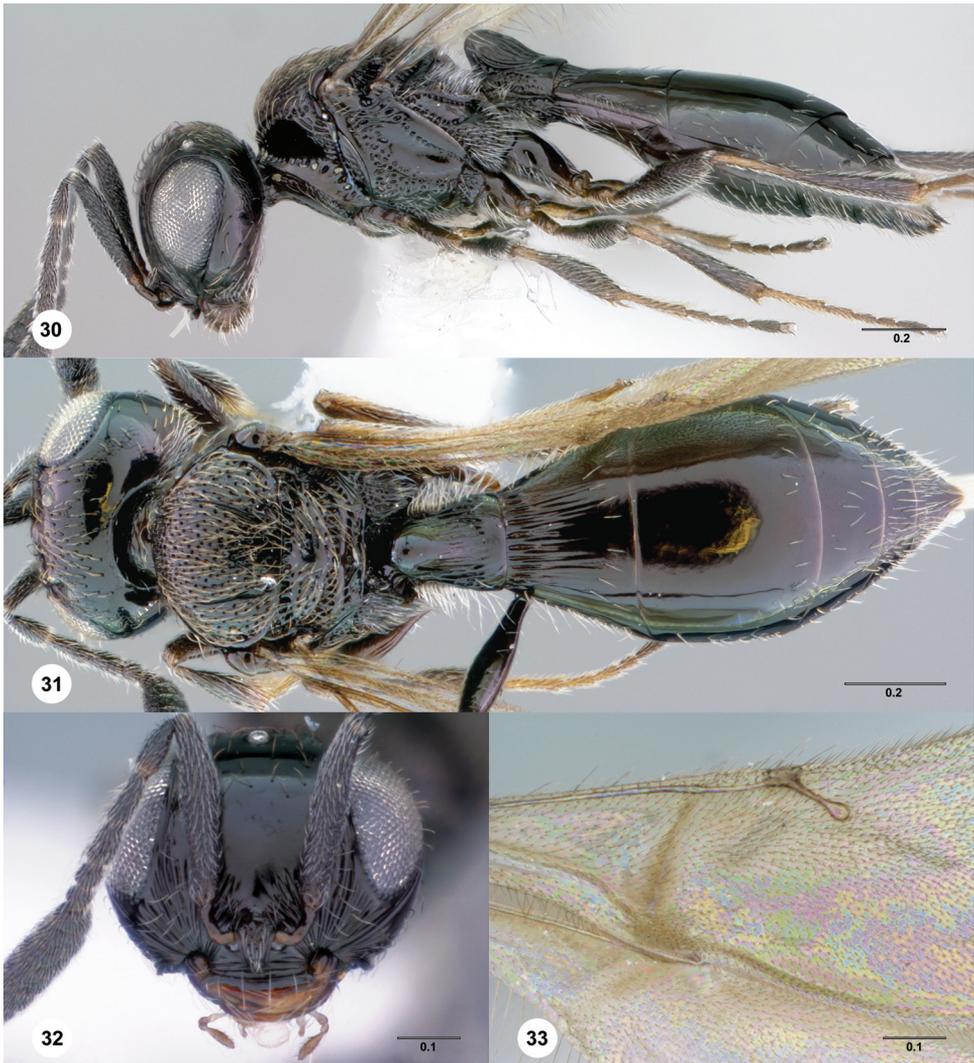
Color of head: brown; black. Distal margin of clypeus: serrate. Width of clypeus: wider than interantennal process. Lateral corner of clypeus: projecting into acute angle. Development of interantennal process ventrally: not reaching clypeus. Number of mandibular teeth: three. Length of mediofacial striae: not extending above midpoint of eye. Shape of gena in dorsal view: strongly receding behind compound eye. Striae on gena: weakly indicated. Length of striae on gena: terminating below midpoint of eye. Form of microsculpture on head: reticulate microfissures. Distribution of microsculpture on head: present only on anterodorsal margin of eye, temples, and posterior to lateral ocellus. Length of OOL: less than 2 ocellar diameters. Occipital carina above



**Figures 26–29.**<sup>84</sup> *Paridris convexa*, sp. n. **26** Lateral habitus, female holotype (OSUC 181392) **27** Dorsal habitus, female holotype (OSUC 181392) **28** Head, anterior view, female (OSUC 262112) **29** Head and pronotum, lateral view, male (OSUC 262115)

foramen magnum: present. Anterior margin of occipital carina: comprised of small to miniscule cells; simple; faintly crenulate throughout. Setation of postgena: dense. Ventral extent of occipital carina: absent below midpoint of foramen magnum.

Color of mesosoma: brown; black. Dorsal half of pronotal cervical sulcus: present as line of small to minute cells. Ventral half of pronotal cervical sulcus: present as line of small to minute cells; present as line of large cells. Transverse pronotal carina: present in posterodorsal corner of pronotum. Shape of pronotal shoulder in dorsal view: without dorsal surface. Form of pronotal suprahumeral sulcus: broadly punctate; punctate rugulose; line of uniform punctures. Macrosculpture of anterior medial mes-



**Figures 30–33.**<sup>85</sup> *Paridris dnophos*, sp. n. **30** Lateral habitus, female holotype (OSUC 191490) **31** Dorsal habitus, female (OSUC 191488) **32** Head, anterior view, female (OSUC 190977) **33** Venation of forewing, dorsal view, female holotype (OSUC 191490)

oscutum: absent. Density of punctation on anterior medial mesoscutum: dense along mesoscutal suprahumeral sulcus, otherwise sparse; sparse; moderate; dense throughout. Reticulate microfissures on anterior half of medial mesoscutum: absent. Pustulate microsculpture on anterior mesoscutum: absent. Density of punctation on posterior medial mesoscutum: sparse; dense; moderately dense. Notaulus: percurrent, reaching suprahumeral sulcus as a line of punctures; abbreviate, not reaching mesoscutal suprahumeral sulcus. Orientation of notauli: parallel. Shape of notaulus at posterior apex: parallel-sided. Macrosculpture of mesoscutellum: absent. Postacetabular sulcus: comprised of distinct, closed cells. Mesopleural carina: absent. Punctures on postero-

dorsal mesepimeral area: absent. Sculpture of mesopleuron anteroventral to femoral depression: densely punctate; smooth; moderately punctate; densely punctate on lateral surface, smooth on ventral surface. Sculpture of posterior mesepimeral area: smooth. Form of metascutellum in female: transverse lamella, pointed medially; obscured by horn of T1. Form of metascutellum in male: transverse lamella, pointed medially. Paracoxal and metapleural sulci: fused. Posterior margin of metapleuron below propodeal spiracle: with blunt angle near intersection with metapleural sulcus. Setation between metapleural triangle and metapleural sulcus: present throughout. Sculpture between metapleural triangle and metapleural sulcus: punctate. Sculpture of metapleural triangle: densely punctate. Setation of metapleural triangle: dense. Anterior propodeal projection: present. Setation of metasomal depression: present. Lateral propodeal area: undifferentiated from plical area. Plical carina: absent.

Color of metasoma: brown; black; yellow anteriorly, brown posteriorly. Macrosculpture of T1: longitudinally striate. Interstitial sculpture of T1: smooth. Adornment of horn on T1 in female: absent. Macrosculpture of T2 in female: longitudinally and sparsely striate, medial striae not reaching posterior margin. Macrosculpture of T2 in male: longitudinally striate anteriorly, smooth posteriorly. Microsculpture on T2: absent. Setal patch of lateral T2: present in thin line along lateral edge. Posterior margin of transverse sulcus on T2: distinctly convex. Carina along posterior margin of transverse sulcus on T2 in male: absent. Carina along posterior margin of transverse sulcus on T2 in female: absent. Microsculpture on T3: absent. Macrosculpture of T3 medially in female: absent; finely and densely punctate. Macrosculpture of T3 laterally in female: absent. Macrosculpture of T3 medially in male: absent. Macrosculpture of T3 laterally in male: absent. Microsculpture on T4: absent. Macrosculpture of T4 medially in female: absent. Macrosculpture of T4 laterally in female: absent. Macrosculpture of T4 in male: absent. Macrosculpture of T5 in female: absent. Constriction of apical T6 in female: absent. Punctuation of T6 in female: sparse along longitudinal midline and anterior margin, dense and fine laterally. Setation of S1: densely present throughout. Form of S2 felt field: line of dense setae along longitudinal ridge. Macrosculpture of S2 medially: longitudinally striate. Macrosculpture of S3: absent.

Wing development: macropterous. Basal vein in hind wing: nebulous. Setation of hind wing: uniform throughout. Length of postmarginalis: punctiform. RS+M in fore wing: nebulous.

**Diagnosis.** *Paridris dnophos* may be strikingly similar to *P. nayakorum* in coloration and shape of the body. Females may easily be separated by having only 1 basiconic sensillum on A8, versus 2 in *P. nayakorum*; by the absence of striation on T1; and the linear form of the posterior notaulus. The presence of an externally visible metascutellum serves well to separate *P. dnophos* in most cases, but this character should not be used alone given that a few specimens of have a large horn on T1 and reduced metascutellum.

**Etymology.** The Greek epithet “dnophos” means “darkness” and is given to this species for the color of its body. The name is treated as a noun in apposition.

**Link to distribution map.**<sup>24</sup>

**Material examined.** *Holotype*, female: **COLOMBIA**: Magdalena Dept., Nevada de Santa Marta Mts., M.602, El Ramo, 10°48'N, 73°39'W, 2500m, 16.VIII–31.VIII.2000, Malaise trap, J. Cantillo, OSUC 191490 (deposited in IAVH). *Paratypes*: (378 females, 171 males) **BELIZE**: 1 male, OSUC 396702 (CNCI). **BOLIVIA**: 6 females, 1 male, OSUC 396500–396506 (CNCI). **BRAZIL**: 11 females, 6 males, OSUC 396460–396466 (CNCI); OSUC 10784, 134086, 134501, 134639, 134819, 135102, 135623, 135736, 135771, 13589 (OSUC). **COLOMBIA**: 75 females, 63 males, OSUC 396298–396348, 396600–396603, 396647–396650, 396683–396686, 396711–396712, 396731, 396750–396751, 396771–396772, 405110 (CNCI); OSUC 144070–144071, 182832, 190858–190859, 190972–190973, 190976–190977, 191484–191485, 191488–191489, 191492, 256817–256818, 262129, 265241–265242, 266115–266121, 266124–266125, 268899, 334195, 334200, 396594–396599, 396604–396605, 396729 (IAVH); OSUC 144067–144069, 144124, 190971, 190974–190975, 190978, 191486–191487, 191491, 192195, 193122–193123, 193236, 265243, 266114, 266122–266123, 268896–268898, 269528, 334196–334197, 334199, 372630 (OSUC). **COSTA RICA**: 94 females, 29 males, OSUC 262123–262124, 262127, 396350–396351, 396354–396355, 396359–396361, 396363, 396374–396375, 396377, 396379, 396382–396386, 396411–396416, 396422, 396429, 396431, 396434, 396450–396459, 396467–396487, 396507–396508, 396526–396527, 396534, 396549, 396551–396552, 396555, 396557–396560, 396678–396679, 396682, 396695, 396698, 396704–396706, 396709–396710, 396720, 396725–396727, 396732–396737, 396745, 396752, 396754, 396757–396769, 396773–396782, 396800, 396812 (CNCI); OSUC 334191 (INBC). **ECUADOR**: 24 females, 50 males, OSUC 262125–262126, 262133, 262141–262144, 396364–396370, 396421, 396433, 396514–396516, 396536–396537, 396614–396625, 396646, 396651–396672, 396674–396676, 396770, 396783–396789, 396794–396795, 396801, 396807, 396811, 396813–396814 (CNCI). **EL SALVADOR**: 40 females, OSUC 396398–396405, 396423, 396432, 396538, 396582–396593, 396626–396637, 396713–396714, 396721–396722, 396809 (CNCI). **FRENCH GUIANA**: 3 females, 2 males, OSUC 396715–396719 (CNCI). **GUATEMALA**: 1 female, OSUC 396753 (CNCI). **HONDURAS**: 4 females, 3 males, OSUC 396742–396743 (CNCI); OSUC 334159–334160, 334163–334164, 334166 (MZLU). **MEXICO**: 2 females, 2 males, OSUC 396792–396793, 396803–396804 (CNCI). **NICARAGUA**: 9 females, 6 males, OSUC 396567–396581 (CNCI). **PANAMA**: 37 females, 4 males, OSUC 160254 (AMNH); OSUC 262137–262139, 396380–396381, 396387–396397, 396418–396420, 396425–396428, 396430, 396523–396525, 396535, 396539, 396687–396690, 396699–396701, 396723–396724, 396808 (CNCI); OSUC 334143 (TAMU). **PERU**: 3 females, OSUC 396728, 396790–396791 (CNCI). **TRINIDAD AND TOBAGO**: 17 females, 3 males, OSUC 262132, 396376, 396606–396613, 396703, 396738–396741, 396744, 396746–396747, 396806, 396815 (CNCI). **VENEZUELA**: 52 females, 1 male, OSUC 262130–262131, 262135, 262140, 396371–396373, 396378, 396406–396410, 396417, 396424, 396435–396436, 396561–396566,

396638–396645, 396691–396694, 396696, 396707–396708, 396730, 396748–396749, 396755–396756, 396796–396799, 396802, 396805, 396816–396817 (CNCI); OSUC 334192–334193 (OSUC).

**Comments.** Morphological variation within *P. dnoφος* occurs primarily in color and density of setation and punctation on the head and mesosoma. The antennae, legs, T1, and anterior T2 range from black to yellow; the head, mesosoma and remainder of the metasoma vary from black to brown. The setation of the head and dorsal mesosoma varies from white to golden yellow and may be extremely sparse to dense. The density of punctation and setation of the lateral pronotum are similarly variable.

***Paridris gongylos* Talamas & Masner, sp. n.**

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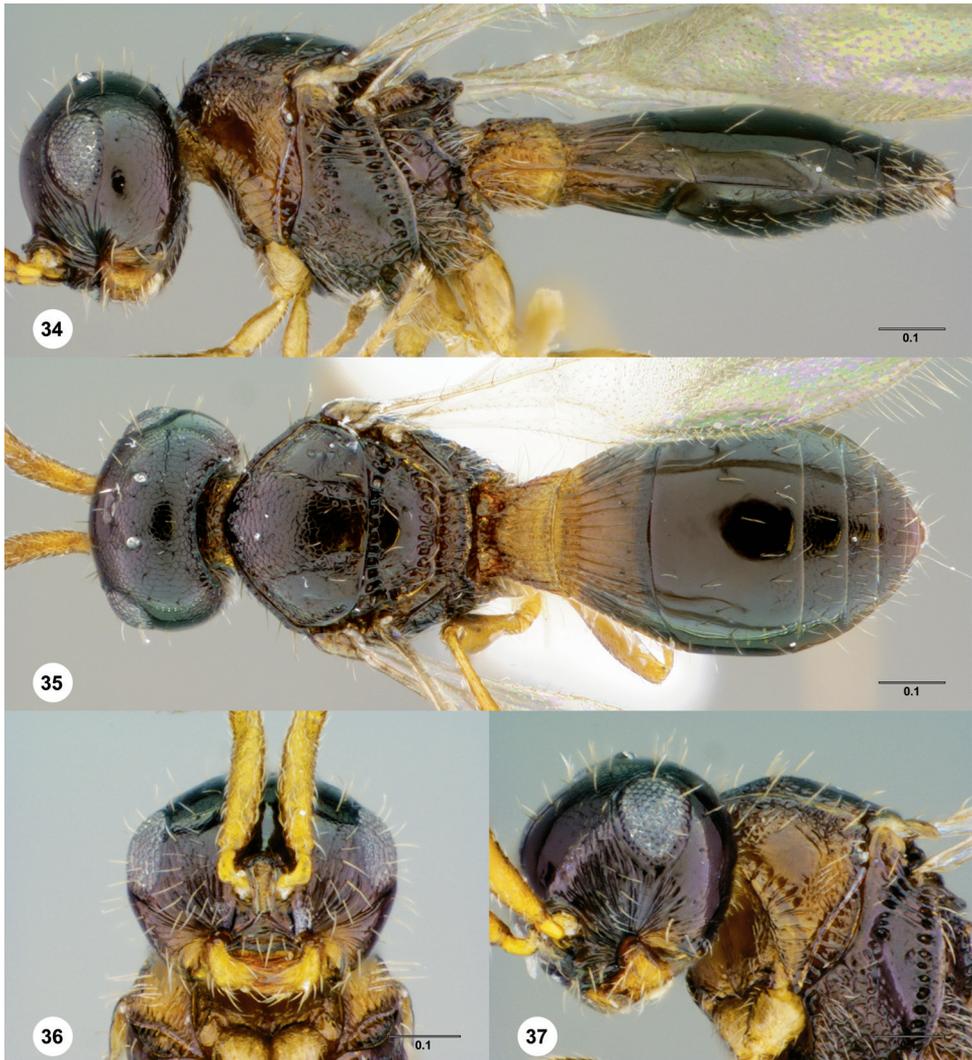
[http://species-id.net/wiki/Paridris\\_gongylos](http://species-id.net/wiki/Paridris_gongylos)

Figures 34–37; Morphbank<sup>25</sup>

**Description.** Male body length: 1.17–1.47 mm (n=20).

Color of head: black. Distal margin of clypeus: serrate. Width of clypeus: wider than interantennal process. Lateral corner of clypeus: projecting into acute angle. Development of interantennal process ventrally: not reaching clypeus. Number of mandibular teeth: three. Length of mediofacial striae: not extending above midpoint of eye. Shape of gena in dorsal view: not receding or slightly bulging directly behind compound eye. Striae on gena: weakly indicated. Length of striae on gena: terminating below ventral margin of eye. Form of microsculpture on head: reticulate microfissures. Distribution of microsculpture on head: present throughout dorsal head. Length of OOL: greater than 2 ocellar diameters. Occipital carina above foramen magnum: present. Anterior margin of occipital carina: crenulate. Setation of postgena: dense. Ventral extent of occipital carina: absent below midpoint of foramen magnum.

Color of mesosoma: reddish brown. Dorsal half of pronotal cervical sulcus: present as line of small to minute cells. Ventral half of pronotal cervical sulcus: present as line of large cells. Transverse pronotal carina: absent. Shape of pronotal shoulder in dorsal view: narrow and striplike. Form of pronotal suprahumeral sulcus: punctate rugulose. Macrosculpture of anterior medial mesoscutum: absent. Density of punctation on anterior medial mesoscutum: sparse. Reticulate microfissures on anterior half of medial mesoscutum: present throughout. Pustulate microsculpture on anterior mesoscutum: absent. Density of punctation on posterior medial mesoscutum: absent. Notaulus: percurrent, reaching suprahumeral sulcus as a smooth furrow; abbreviate, not reaching mesoscutal suprahumeral sulcus. Orientation of notauli: converging posteriorly. Shape of notaulus at posterior apex: ovoid. Macrosculpture of mesoscutellum: absent; rugulose laterally, smooth medially. Postacetabular sulcus: crenulate. Mesopleural carina: absent. Punctures on posterodorsal mesepimeral area: absent. Sculpture of mesopleuron anteroventral to femoral depression: areolate to punctate



**Figures 34–37.**<sup>86</sup> *Paridris gongylos*, sp. n. **34** Lateral habitus, male holotype (OSUC 334015) **35** Dorsal habitus, male holotype (OSUC 334015) **36** Head, anterior view, male (OSUC 334016) **37** Head, propodeum and pronotum, anterolateral view (OSUC 334016).

rugose throughout. Sculpture of posterior mesepimeral area: rugulose. Form of metascutellum in male: transverse lamella, posterior margin convex. Paracoxal and metapleural sulci: fused. Posterior margin of metapleuron below propodeal spiracle: with blunt angle near intersection with metapleural sulcus. Setation between metapleural triangle and metapleural sulcus: absent. Sculpture between metapleural triangle and metapleural sulcus: punctate rugose. Sculpture of metapleural triangle: punctate rugose. Setation of metapleural triangle: dense. Anterior propodeal projection: absent. Setation of metasomal depression: absent. Lateral propodeal area: undifferentiated from plical area. Plical carina: absent.

Color of metasoma: yellow anteriorly, brown posteriorly. Macrosculpture of T1: longitudinally strigose. Interstitial sculpture of T1: finely rugulose. Macrosculpture of T2 in male: longitudinally striate throughout. Microsculpture on T2: absent. Setal patch of lateral T2: present in thin line along lateral edge. Posterior margin of transverse sulcus on T2: weakly convex. Carina along posterior margin of transverse sulcus on T2 in male: absent. Microsculpture on T3: absent. Macrosculpture of T3 medially in male: absent. Macrosculpture of T3 laterally in male: absent. Microsculpture on T4: absent. Macrosculpture of T4 in male: absent. Setation of S1: present throughout, moderately dense. Form of S2 felt field: line of dense setae along longitudinal ridge. Macrosculpture of S2 medially: longitudinally striate. Macrosculpture of S3: absent.

Wing development: macropterous. Basal vein in hind wing: spectral. Setation of hind wing: reduced anad of submarginal vein. Length of postmarginalis: punctiform. RS+M in fore wing: spectral.

**Diagnosis.** *Paridris gongylos* is closest morphologically with *P. pallipes* with which it shares the presence of very fine reticulate fissures throughout the dorsal head and mesosoma. The males, from which this species is known, have a crenulate occipital rim that distinguishes them from males of *P. pallipes*.

**Etymology.** The Greek word gongylos, meaning “rounded”, is given to this species for the shape of its head and the curves of its metasoma. The epithet is treated as a noun in apposition.

**Link to distribution map.**<sup>26</sup>

**Material examined.** *Holotype*, male: **UNITED STATES:** TN, Blount Co., Top of the World, old growth pine, Great Smoky Mountains National Park, 35°38'N, 83°55'W, 670m, 30.VII–13.VIII.1998, Malaise trap, H. Alley, OSUC 334015 (deposited in CNCI). *Paratypes:* **UNITED STATES:** 22 males, OSUC 181281–181282, 334016, 334018, 334020–334028, 334268–334272 (CNCI); OSUC 181280, 334017, 334019, 334273 (OSUC).

***Paridris gorn* Talamas & Masner, sp. n.**

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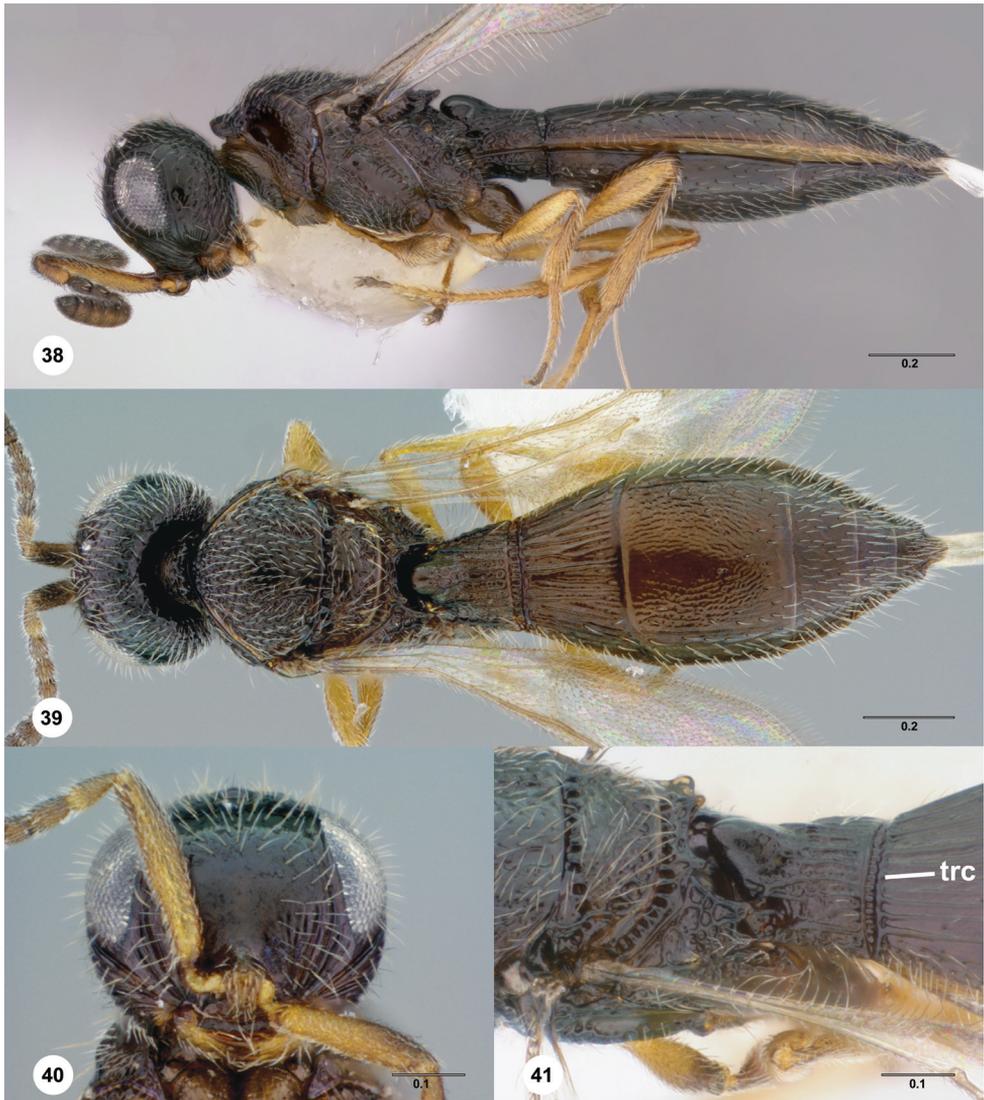
[http://species-id.net/wiki/Paridris\\_gorn](http://species-id.net/wiki/Paridris_gorn)

Figures 9, 38–41, 79; Morphbank<sup>27</sup>

**Description.** Female body length: 1.74–2.00 mm (n=20). Male body length: 1.75 mm (n=1).

Number of basiconic sensilla on A8: 1.

Color of head: brown; black. Distal margin of clypeus: serrate. Width of clypeus: wider than interantennal process. Lateral corner of clypeus: projecting into acute angle. Development of interantennal process ventrally: not reaching clypeus. Number of mandibular teeth: three. Length of mediofacial striae: not extending above midpoint of eye; extending to dorsal frons. Shape of gena in dorsal view: moderately receding be-



**Figures 38–41.**<sup>87</sup> *Paridris gorn*, sp. n. **38** Lateral habitus, female holotype (OSUC 405092) **39** Dorsal habitus, female (OSUC 334055) **40** Head, anterior view, female (OSUC 334054) **41** Mesoscutellum, metascutellum, propodeum, T1, T2, dorsolateral view, female (OSUC 405089).

hind compound eye. Striae on gena: pronounced. Length of striae on gena: extending above ventral margin of eye. Distribution of microsculpture on head: absent. Length of OOL: less than 2 ocellar diameters. Occipital carina above foramen magnum: present. Anterior margin of occipital carina: comprised of medium to large sized cells. Setation of postgena: sparse. Ventral extent of occipital carina: extending to base of mandible.

Color of mesosoma: brown; black. Dorsal half of pronotal cervical sulcus: present as smooth furrow. Ventral half of pronotal cervical sulcus: present as line of small to minute cells; present as line of large cells. Transverse pronotal carina: present in poste-

rior half of pronotum. Shape of pronotal shoulder in dorsal view: narrow and striplike. Form of pronotal suprahumeral sulcus: areolate. Macrosculpture of anterior medial mesoscutum: absent; irregularly rugulose. Density of punctation on anterior medial mesoscutum: dense along mesoscutal suprahumeral sulcus, otherwise sparse. Reticulate microfissures on anterior half of medial mesoscutum: absent. Pustulate microsculpture on anterior mesoscutum: present. Density of punctation on posterior medial mesoscutum: moderately dense. Notaulus: percurrent, reaching suprahumeral sulcus as a smooth furrow; percurrent, reaching suprahumeral sulcus as a line of punctures. Orientation of notauli: converging posteriorly. Shape of notaulus at posterior apex: ovoid. Macrosculpture of mesoscutellum: punctate rugose along margins, smooth medially. Postacetabular sulcus: crenulate. Mesopleural carina: absent; present only anterodorsally. Punctures on posterodorsal mesepimeral area: large. Sculpture of mesopleuron anteroventral to femoral depression: areolate to punctate rugose throughout. Sculpture of posterior mesepimeral area: smooth. Form of metascutellum in female: bispinose. Form of metascutellum in male: bispinose. Paracoxal and metapleural sulci: separate. Setation between metapleural triangle and metapleural sulcus: absent. Sculpture between metapleural triangle and metapleural sulcus: punctate rugose. Sculpture of metapleural triangle: punctate rugose. Setation of metapleural triangle: moderately dense. Anterior propodeal projection: absent. Setation of metasomal depression: absent. Lateral propodeal area: indicated by sparser degree of setation. Plical carina: indistinguishable from propodeal sculpture except at posterior apex; present. Shape of lateral propodeal area: continuous with prespiracular propodeal area. Sculpture of lateral propodeal area: punctate rugulose.

Color of metasoma: brown; black. Macrosculpture of T1: longitudinally striate. Interstitial sculpture of T1: finely rugulose. Adornment of horn on T1 in female: absent. Macrosculpture of T2 in female: longitudinally striate throughout. Macrosculpture of T2 in male: longitudinally striate throughout. Microsculpture on T2: absent. Setal patch of lateral T2: present throughout lateral surface of tergite. Posterior margin of transverse sulcus on T2: straight. Carina along posterior margin of transverse sulcus on T2 in male: present. Carina along posterior margin of transverse sulcus on T2 in female: present. Microsculpture on T3: present. Macrosculpture of T3 medially in female: weakly longitudinally strigose; absent. Macrosculpture of T3 laterally in female: longitudinally strigose. Macrosculpture of T3 medially in male: absent; weakly longitudinally striate. Macrosculpture of T3 laterally in male: longitudinally striate. Microsculpture on T4: absent. Macrosculpture of T4 medially in female: absent. Macrosculpture of T4 laterally in female: absent. Macrosculpture of T4 in male: absent. Macrosculpture of T5 in female: absent. Constriction of apical T6 in female: present. Punctation of T6 in female: densely and finely punctate throughout. Setation of S1: absent. Form of S2 felt field: longitudinal row or patch of setigerous punctures. Macrosculpture of S2 medially: longitudinally striate. Macrosculpture of S3: absent.

Wing development: macropterous. Basal vein in hind wing: spectral. Setation of hind wing: reduced anad of submarginal vein. Length of postmarginalis: approximately equal to length of stigmalis. RS+M in fore wing: nebulous.

**Diagnosis.** *Paridris gorn* is most similar to *P. soucouyant*, particularly in the bispinose shape of the metascutellum and punctate-rugose sculpture of the head. These two species may be separated by the sculpture of T4–T5: punctate-rugose in *P. soucouyant*, smooth in *P. gorn*. Additionally, females of *P. gorn* have a horn on T1 that is either smooth or has shallow punctures along its longitudinal midline. In *P. soucouyant* a carina is present along the dorsal crest of the horn.

**Etymology.** This species is named after a reptilian alien race from the original Star Trek television series for the similar appearance of their compound eyes. The epithet is treated as a noun in apposition.

**Link to distribution map.**<sup>28</sup>

**Material examined.** *Holotype*, female: **UNITED STATES:** OH, Franklin Co., vegetation / along railroad tracks, Columbus, 39°59'21"N, 82°59'41"W, 11.VI–13.VI.2011, yellow pan trap, E. Talamas, OSUC 405092 (deposited in OSUC). *Paratypes:* **UNITED STATES:** 45 females, 2 males, OSUC 181260–181267, 334048–334070, 396553–396554 (CNCI); OSUC 256459, 405080–405091, 405109 (OSUC).

***Paridris invicta* Talamas & Masner, sp. n.**

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[http://species-id.net/wiki/Paridris\\_invicta](http://species-id.net/wiki/Paridris_invicta)

Figures 11, 42–45; Morphbank<sup>29</sup>

**Description.** Male body length: 2.39 mm (n=1).

Color of head: black. Distal margin of clypeus: smooth. Width of clypeus: wider than interantennal process. Lateral corner of clypeus: projecting into acute angle. Development of interantennal process ventrally: not reaching clypeus. Number of mandibular teeth: three. Length of mediofacial striae: not extending above midpoint of eye. Shape of gena in dorsal view: moderately receding behind compound eye. Striae on gena: pronounced. Length of striae on gena: extending above ventral margin of eye. Distribution of microsculpture on head: absent. Length of OOL: less than 2 ocellar diameters. Occipital carina above foramen magnum: present. Anterior margin of occipital carina: crenulate. Setation of postgena: sparse. Ventral extent of occipital carina: extending to base of mandible.

Color of mesosoma: mesoscutellum brown, otherwise golden orange. Dorsal half of pronotal cervical sulcus: present as smooth furrow. Ventral half of pronotal cervical sulcus: present as line of small to minute cells. Transverse pronotal carina: present in posterior half of pronotum. Shape of pronotal shoulder in dorsal view: narrow and striplike. Form of pronotal suprahumeral sulcus: areolate. Macrosculpture of anterior medial mesoscutum: absent. Density of punctation on anterior medial mesoscutum: dense along mesoscutal suprahumeral sulcus, otherwise sparse. Reticulate microfissures on anterior half of medial mesoscutum: absent. Pustulate microsculpture on anterior mesoscutum: absent. Density of punctation on posterior medial mesoscutum: sparse. Notaulus: percurrent, reaching suprahumeral sulcus as a smooth furrow. Orientation of notauli: converging



**Figures 42–45.**<sup>88</sup> *Paridris invicta*, sp. n. **42** Lateral habitus, male holotype (OSUC 236922) **43** Dorsal habitus, male holotype (OSUC 236922) **44** Head, anterior view, male holotype (OSUC 236922) **45** Wings, dorsal view, male holotype (OSUC 236922)

posteriorly. Shape of notaulus at posterior apex: ovoid. Macrosculpture of mesoscutellum: punctate rugose along margins, smooth medially. Postacetabular sulcus: crenulate. Mesopleural carina: absent. Punctures on posterodorsal mesepimeral area: absent. Sculpture of mesopleuron anteroventral to femoral depression: moderately punctate. Sculpture of posterior mesepimeral area: rugulose. Form of metascutellum in male: transverse lamella, posterior margin convex. Paracoxal and metapleural sulci: separate. Posterior margin of metapleuron below propodeal spiracle: with blunt angle near intersection with metapleural sulcus. Setation between metapleural triangle and metapleural sulcus: absent. Sculpture between metapleural triangle and metapleural sulcus: smooth. Sculpture

of metapleural triangle: punctate rugose. Setation of metapleural triangle: moderately dense. Anterior propodeal projection: absent. Setation of metasomal depression: absent. Lateral propodeal area: raised above plical area and indicated by sparser setation. Plical carina: present. Shape of lateral propodeal area: separated from prespiracular propodeal area. Sculpture of lateral propodeal area: weakly to moderately rugose.

Color of metasoma: banded in pale and dark brown. Macrosculpture of T1: longitudinally strigose. Interstitial sculpture of T1: finely rugulose. Macrosculpture of T2 in male: longitudinally striate anteriorly, smooth posteriorly. Microsculpture on T2: absent. Setal patch of lateral T2: present throughout lateral surface of tergite. Posterior margin of transverse sulcus on T2: weakly convex. Carina along posterior margin of transverse sulcus on T2 in male: absent. Microsculpture on T3: absent. Macrosculpture of T3 medially in male: absent. Macrosculpture of T3 laterally in male: absent. Microsculpture on T4: absent. Macrosculpture of T4 in male: absent. Setation of S1: present as medial tuft. Form of S2 felt field: longitudinal row or patch of setigerous punctures. Macrosculpture of S2 medially: longitudinally striate. Macrosculpture of S3: absent.

Wing development: macropterous. Basal vein in hind wing: spectral. Setation of hind wing: reduced and of submarginal vein. Length of postmarginalis: punctiform. RS+M in fore wing: spectral.

**Diagnosis.** The form of the lateral propodeal area in *P. invicta* is unique among the New World species of *Paridris*. In members of the *P. pallipes* species group the plica is absent and thus there is no distinction between the plical area and lateral propodeal area. In other New World species the plica is well developed and the lateral propodeal area is contiguous with the prespiracular propodeal area. In *P. invicta*, the plica is distinct, and separates the plical area from the lateral propodeal area, and the lateral propodeal area is not contiguous with the prespiracular propodeal area; by this character alone it may be separated. In addition, the enlarged femora and dense, elongate setation of the head and mesosoma serve well to identify this species.

**Etymology.** The Latin adjectival epithet “invicta” means “unconquered” or “strong”. It is given to this species for the large size of its legs and its powerful appearance.

**Link to distribution map.**<sup>30</sup>

**Material examined.** *Holotype*, male: **BRAZIL**: SP, Trilha da Anta, Base Barra Grande, MT B2, Intervalles State Park, 13.XII–16.XII.2000, Malaise trap, M. T. Tavares et al., OSUC 236922 (deposited in MZSP).

***Paridris isabelicae* Talamas & Masner, sp. n.**

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urn:lsid:biosci.ohio-state.edu:osuc\_concepts:238223

[http://species-id.net/wiki/Paridris\\_isabelicae](http://species-id.net/wiki/Paridris_isabelicae)

Figures 46–49; Morphbank<sup>31</sup>

**Description.** Female body length: 1.43–1.99 mm (n=10). Male body length: 1.48–1.96 mm (n=18).



**Figures 46–49.**<sup>89</sup> *Paridris isabelicae*, sp. n. **46** Lateral habitus, female holotype (OSUC 334036) **47** Dorsal habitus, female (OSUC 334034) **48** Head, anterior view, female holotype (OSUC 334036) **49** S2, ventral view, male (OSUC 334044)

Number of basiconic sensilla on A8: 1.

Color of head: yellow; black; reddish brown. Distal margin of clypeus: smooth. Width of clypeus: wider than interantennal process. Lateral corner of clypeus: projecting into acute angle. Development of interantennal process ventrally: not reaching clypeus. Number of mandibular teeth: three. Length of mediofacial striae: not extending above midpoint of eye. Shape of gena in dorsal view: moderately receding behind compound eye. Striae on gena: weakly indicated. Length of striae on gena: terminating below ventral margin of eye. Form of microsculpture on head: reticulate microfissures. Distribution of microsculpture on head: present only on temples, between median and

lateral ocellus, and posterior to lateral ocellus. Length of OOL: greater than 2 ocellar diameters. Occipital carina above foramen magnum: present. Anterior margin of occipital carina: simple. Setation of postgena: dense. Ventral extent of occipital carina: absent below midpoint of foramen magnum.

Color of mesosoma: yellow; reddish brown. Dorsal half of pronotal cervical sulcus: present as line of small to minute cells; present as line of large cells. Ventral half of pronotal cervical sulcus: present as line of large cells. Transverse pronotal carina: absent. Shape of pronotal shoulder in dorsal view: without dorsal surface. Form of pronotal suprahumeral sulcus: line of uniform punctures. Macrosculpture of anterior medial mesoscutum: absent. Density of punctation on anterior medial mesoscutum: sparse. Reticulate microfissures on anterior half of medial mesoscutum: absent. Pustulate microsculpture on anterior mesoscutum: absent. Density of punctation on posterior medial mesoscutum: sparse. Notaulus: percurrent, reaching suprahumeral sulcus as a smooth furrow. Orientation of notauli: parallel. Shape of notaulus at posterior apex: parallel-sided. Macrosculpture of mesoscutellum: absent. Postacetabular sulcus: crenulate. Mesopleural carina: present, complete. Punctures on posterodorsal mesepimeral area: absent. Sculpture of mesopleuron anteroventral to femoral depression: densely punctate; moderately punctate. Sculpture of posterior mesepimeral area: smooth. Form of metascutellum in female: transverse lamella, pointed medially. Form of metascutellum in male: transverse lamella, pointed medially; transverse lamella, posterior margin convex. Paracoxal and metapleural sulci: fused. Setation between metapleural triangle and metapleural sulcus: absent. Sculpture between metapleural triangle and metapleural sulcus: faintly rugulose. Sculpture of metapleural triangle: punctate rugose. Setation of metapleural triangle: sparse. Anterior propodeal projection: absent. Setation of metasomal depression: present. Lateral propodeal area: undifferentiated from plical area. Plical carina: absent.

Color of metasoma: yellow; reddish brown; yellowish brown. Macrosculpture of T1: longitudinally striate. Interstitial sculpture of T1: smooth. Adornment of horn on T1 in female: absent. Macrosculpture of T2 in female: longitudinally striate throughout. Macrosculpture of T2 in male: weakly longitudinally striate throughout. Microsculpture on T2: absent. Setal patch of lateral T2: present in thin line along lateral edge. Posterior margin of transverse sulcus on T2: distinctly convex. Carina along posterior margin of transverse sulcus on T2 in male: absent. Carina along posterior margin of transverse sulcus on T2 in female: absent. Microsculpture on T3: absent. Macrosculpture of T3 medially in female: longitudinally striate; absent. Macrosculpture of T3 laterally in female: longitudinally striate. Macrosculpture of T3 medially in male: weakly longitudinally striate. Macrosculpture of T3 laterally in male: weakly longitudinally striate. Microsculpture on T4: absent. Macrosculpture of T4 medially in female: absent. Macrosculpture of T4 laterally in female: absent. Macrosculpture of T4 in male: absent. Macrosculpture of T5 in female: absent. Constriction of apical T6 in female: present. Punctuation of T6 in female: densely and finely punctate throughout. Setation of S1: densely present throughout. Form of S2 felt field: line of dense setae along longitudinal ridge. Macrosculpture of S2 medially: longitudinally striate. Macrosculpture of S3: absent.

Wing development: macropterous; brachypterous. Basal vein in hind wing: spectral. Setation of hind wing: reduced anad of submarginal vein. Length of postmarginalis: punctiform. RS+M in fore wing: nebulous.

**Diagnosis.** *Paridris isabelicae* is similar to *P. convexa* and *P. saurotos*. Females of *P. saurotos* have a posteriorly projecting spine on the horn of T1, and those of *P. convexa* have a small transverse carina at the base of the horn. The horn of T1 is smooth in *P. isabelicae*. Males of *P. isabelicae* may be separated from the males of both other species by the presence of longitudinal striation on S2 medially.

**Etymology.** This species is named for Cafetal La Isabelica, a coffee plantation where the holotype was collected. The epithet is treated as a noun in the genitive case.

**Link to distribution map.**<sup>32</sup>

**Material examined.** *Holotype*, female: **CUBA**: Santiago de Cuba Prov., La Isabelica, elfin forest, Gran Piedra Mountain, 1100m, 14.XII.1995, S. B. Peck, OSUC 334036 (deposited in CNCI). *Paratypes*: (23 females, 21 males) **CUBA**: 22 females, 16 males, OSUC 181295–181297, 334029, 334031–334032, 334034–334035, 334037, 334039, 334041–334047, 405059–405075 (CNCI); OSUC 334030, 334033, 334038, 334040 (OSUC). **DOMINICAN REPUBLIC**: 1 female, 5 males, OSUC 181344, 181384, 396496–396497, 396499 (CNCI); OSUC 396498 (OSUC).

***Paridris lemete* Talamas & Masner, sp. n.**

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[http://species-id.net/wiki/Paridris\\_lemete](http://species-id.net/wiki/Paridris_lemete)

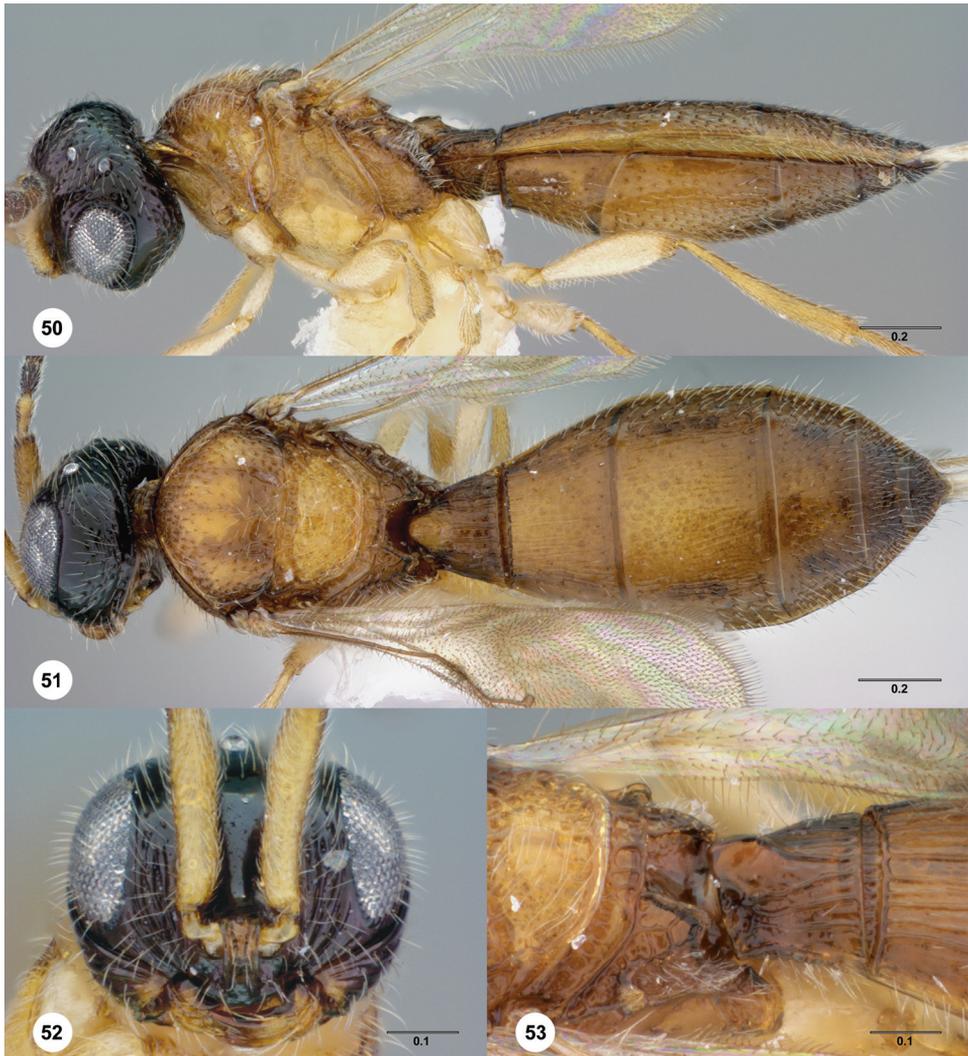
Figures 50–53, 86, 88; Morphbank<sup>33</sup>

**Description.** Female body length: 2.16–2.35 mm (n=7). Male body length: 1.70–2.35 mm (n=20).

Number of basiconic sensilla on A8: 2.

Color of head: black; reddish brown. Distal margin of clypeus: serrate. Width of clypeus: equal to or less than width of interantennal process. Lateral corner of clypeus: projecting into acute angle. Development of interantennal process ventrally: connecting with clypeus. Number of mandibular teeth: three. Length of mediofacial striae: not extending above midpoint of eye. Shape of gena in dorsal view: moderately receding behind compound eye. Striae on gena: pronounced. Length of striae on gena: extending above ventral margin of eye. Distribution of microsculpture on head: absent. Length of OOL: less than 2 ocellar diameters. Occipital carina above foramen magnum: present. Anterior margin of occipital carina: comprised of small to miniscule cells. Setation of postgena: sparse. Ventral extent of occipital carina: extending to base of mandible.

Color of mesosoma: yellow; reddish brown; yellowish brown. Dorsal half of pronotal cervical sulcus: present as smooth furrow. Ventral half of pronotal cervical sulcus: present as line of small to minute cells. Transverse pronotal carina: present in posterior half of pronotum. Shape of pronotal shoulder in dorsal view: narrow and



**Figures 50–53.**<sup>90</sup> *Paridris lemete*, sp. n. **50** Lateral habitus, female holotype (OSUC 334096) **51** Dorsal habitus, female holotype (OSUC 334096) **52** Head, anterior view, female holotype (OSUC 334096) **53** Mesoscutellum, metascutellum, propodeum, T1, T2, dorsolateral view, female (OSUC 334091)

striplike. Form of pronotal suprahumeral sulcus: areolate. Macrosculpture of anterior medial mesoscutum: absent. Density of punctation on anterior medial mesoscutum: dense along mesoscutal suprahumeral sulcus, otherwise sparse. Reticulate microfissures on anterior half of medial mesoscutum: absent. Density of punctation on posterior medial mesoscutum: sparse. Notaulus: percurrent, reaching suprahumeral sulcus as a smooth furrow; percurrent, reaching suprahumeral sulcus as a line of punctures; abbreviate, not reaching mesoscutal suprahumeral sulcus. Orientation of notauli: parallel. Shape of notaulus at posterior apex: ovoid. Macrosculpture of mesoscutellum: punctate rugose along margins, smooth medially. Postacetabular sulcus: smoothly

furrowed. Mesopleural carina: absent. Punctures on posterodorsal mesepimeral area: very fine; absent. Sculpture of mesopleuron anteroventral to femoral depression: smooth with punctures or rugulae along prespiracular sulcus. Sculpture of posterior mesepimeral area: smooth. Form of metascutellum in female: transverse punctate rugulose lamella, posterior margin approximately straight. Form of metascutellum in male: transverse punctate rugulose lamella, posterior margin approximately straight. Paracoxal and metapleural sulci: separate. Posterior margin of metapleuron below propodeal spiracle: with blunt angle near intersection with metapleural sulcus. Sculpture between metapleural triangle and metapleural sulcus: smooth. Sculpture of metapleural triangle: punctate rugose. Setation of metapleural triangle: sparse. Anterior propodeal projection: absent. Setation of metasomal depression: absent. Lateral propodeal area: raised above plical area and indicated by sparser setation. Plical carina: present. Shape of lateral propodeal area: continuous with prespiracular propodeal area. Sculpture of lateral propodeal area: rugose.

Color of metasoma: yellow; reddish brown; yellowish brown. Macrosculpture of T1: longitudinally striate. Interstitial sculpture of T1: smooth; finely rugulose. Adornment of horn on T1 in female: longitudinal median carina on dorsal surface, forming small point posteriorly. Macrosculpture of T2 in female: longitudinally striate throughout. Macrosculpture of T2 in male: longitudinally striate throughout. Microsculpture on T2: present. Setal patch of lateral T2: present throughout lateral surface of tergite. Posterior margin of transverse sulcus on T2: straight. Carina along posterior margin of transverse sulcus on T2 in male: present. Carina along posterior margin of transverse sulcus on T2 in female: present. Microsculpture on T3: present. Macrosculpture of T3 medially in female: weakly longitudinally striate. Macrosculpture of T3 laterally in female: longitudinally striate. Macrosculpture of T3 medially in male: weakly longitudinally striate. Macrosculpture of T3 laterally in male: longitudinally striate. Microsculpture on T4: absent. Macrosculpture of T4 medially in female: absent. Macrosculpture of T4 laterally in female: absent. Macrosculpture of T4 in male: absent. Macrosculpture of T5 in female: absent. Constriction of apical T6 in female: present. Punctuation of T6 in female: densely and finely punctate throughout. Setation of S1: sparsely distributed throughout. Form of S2 felt field: longitudinal row or patch of setigerous punctures. Macrosculpture of S2 medially: longitudinally striate. Macrosculpture of S3: absent.

Wing development: macropterous. Basal vein in hind wing: spectral. Setation of hind wing: uniform throughout. Length of postmarginalis: approximately equal to length of stigmalis. RS+M in fore wing: spectral.

**Diagnosis.** *Paridris lemete* is very similar to *P. aenea*. The additional basiconic sensillum present on A8 provides a straightforward character to separate the females of these species. Males of *P. lemete* are best separated from *P. aenea* by the smooth sculpture of the ventral mesopleuron.

**Etymology.** The species epithet is derived from the Spanish phrase “le mete,” slang in Puerto Rico for “it is awesome”, which we which we consider to be appropriate for this species. The name is treated as a noun in apposition.

**Link to distribution map.**<sup>34</sup>

**Material examined.** *Holotype*, female: **PUERTO RICO**: Aguas Buenas Mpio., guano, Aguas Buenas Cave, 30.V.1974, Berlese funnel, S. Peck, OSUC 334096 (deposited in CNCI). *Paratypes*: **PUERTO RICO**: 6 females, 20 males, OSUC 181371, 334086–334089, 334091–334093, 334097, 396069, 396437–396442, 396444–396448 (CNCI); OSUC 334090, 334094–334095, 396443, 396449 (OSUC).

***Paridris minor* Talamas, sp. n.**

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[http://species-id.net/wiki/Paridris\\_minor](http://species-id.net/wiki/Paridris_minor)

Figures 54–58; Morphbank<sup>35</sup>

**Description.** Female body length: 1.11 mm (n=1). Male body length: 1.10 mm (n=1).

Number of basiconic sensilla on A8: 1.

Color of head: yellow; reddish brown. Distal margin of clypeus: smooth. Width of clypeus: wider than interantennal process. Lateral corner of clypeus: projecting into acute angle. Development of interantennal process ventrally: not reaching clypeus. Number of mandibular teeth: two. Length of mediofacial striae: not extending above midpoint of eye. Shape of gena in dorsal view: not receding or slightly bulging directly behind compound eye. Striae on gena: weakly indicated. Length of striae on gena: terminating below ventral margin of eye. Form of microsculpture on head: reticulate microfissures. Distribution of microsculpture on head: present throughout dorsal head. Length of OOL: greater than 2 ocellar diameters. Occipital carina above foramen magnum: present. Anterior margin of occipital carina: simple. Setation of postgena: dense. Ventral extent of occipital carina: absent below midpoint of foramen magnum.

Color of mesosoma: yellow. Dorsal half of pronotal cervical sulcus: present as line of small to minute cells. Ventral half of pronotal cervical sulcus: present as line of small to minute cells. Transverse pronotal carina: present in posterior half of pronotum; present in posterodorsal corner of pronotum. Shape of pronotal shoulder in dorsal view: narrow and striplike. Form of pronotal suprahumeral sulcus: broadly punctate. Macrosculpture of anterior medial mesoscutum: absent. Density of punctation on anterior medial mesoscutum: sparse. Reticulate microfissures on anterior half of medial mesoscutum: present throughout. Density of punctation on posterior medial mesoscutum: absent. Notaulus: percurrent, reaching suprahumeral sulcus as a smooth furrow. Orientation of notauli: converging posteriorly. Shape of notaulus at posterior apex: ovoid. Macrosculpture of mesoscutellum: absent. Postacetabular sulcus: crenulate. Mesopleural carina: absent. Punctures on posterodorsal mesepimeral area: absent. Sculpture of mesopleuron anteroventral to femoral depression: densely punctate. Sculpture of posterior mesepimeral area: smooth. Form of metascutellum in female: transverse lamella, pointed medially. Form of metascutellum in male: transverse lamella, pointed medially. Setation between metapleural triangle and metapleural sulcus: present throughout.



**Figures 54–58.**<sup>91</sup> *Paridris minor*, sp. n. **54** Lateral habitus, male (OSUC 265158) **55** Head and mesosoma, dorsal view, female holotype (OSUC 181299) **56** Metasoma, dorsal view, female holotype (OSUC 181299) **57** Head, anterolateral view, female holotype (OSUC 181299) **58** Lateral habitus, female holotype (OSUC 181299).

Sculpture between metapleural triangle and metapleural sulcus: punctate. Sculpture of metapleural triangle: punctate rugose. Setation of metapleural triangle: sparse. Anterior propodeal projection: absent. Setation of metasomal depression: absent. Lateral propodeal area: undifferentiated from plical area. Plical carina: absent.

Color of metasoma: yellow anteriorly, brown posteriorly. Macrosculpture of T1: longitudinally striate. Adornment of horn on T1 in female: transverse ridge at base of horn. Macrosculpture of T2 in female: longitudinally striate throughout. Macrosculpture of T2 in male: longitudinally striate throughout. Microsculpture on T2:

absent. Setal patch of lateral T2: present throughout lateral surface of tergite. Posterior margin of transverse sulcus on T2: distinctly convex. Carina along posterior margin of transverse sulcus on T2 in male: absent. Carina along posterior margin of transverse sulcus on T2 in female: absent. Microsculpture on T3: absent. Macrosculpture of T3 medially in female: absent. Macrosculpture of T3 laterally in female: absent. Macrosculpture of T3 medially in male: absent. Macrosculpture of T3 laterally in male: absent. Microsculpture on T4: absent. Macrosculpture of T4 medially in female: absent. Macrosculpture of T4 laterally in female: absent. Macrosculpture of T4 in male: absent. Macrosculpture of T5 in female: absent. Constriction of apical T6 in female: absent. Setation of S1: densely present throughout. Form of S2 felt field: line of dense setae along longitudinal ridge.

Wing development: macropterous. Basal vein in hind wing: spectral. Setation of hind wing: uniform throughout. RS+M in fore wing: nebulous.

**Diagnosis.** *Paridris minor* shares with *P. convexa*, *P. gongylos*, and *P. laeviceps* the presence of reticulate microsculpture throughout the head. The females differ from *P. convexa* most notably by the shape of T6 which is not constricted in its apical half and from the females of *P. laeviceps* by the complete notaulus. Males of *P. minor* may be separated from these species by the combination of the complete notaulus, a non-crenulate occipital rim and antennomeres 6–11 that are less than 3 times as long as wide.

**Etymology.** This species is named for its diminutive size. The Latin epithet “minor” is treated as a noun in apposition.

**Link to distribution map.**<sup>36</sup>

**Material examined.** *Holotype*, female: **CUBA**: Santiago de Cuba Prov., botanical garden, Santiago de Cuba, 10m, 4.XII–17.XII.1995, yellow pan trap, L. Masner, OSUC 181298 (deposited in CNCI). *Paratype*: **CUBA**: 1 male, OSUC 265158 (CNCI).

***Paridris nayakorum* Talamas, sp. n.**

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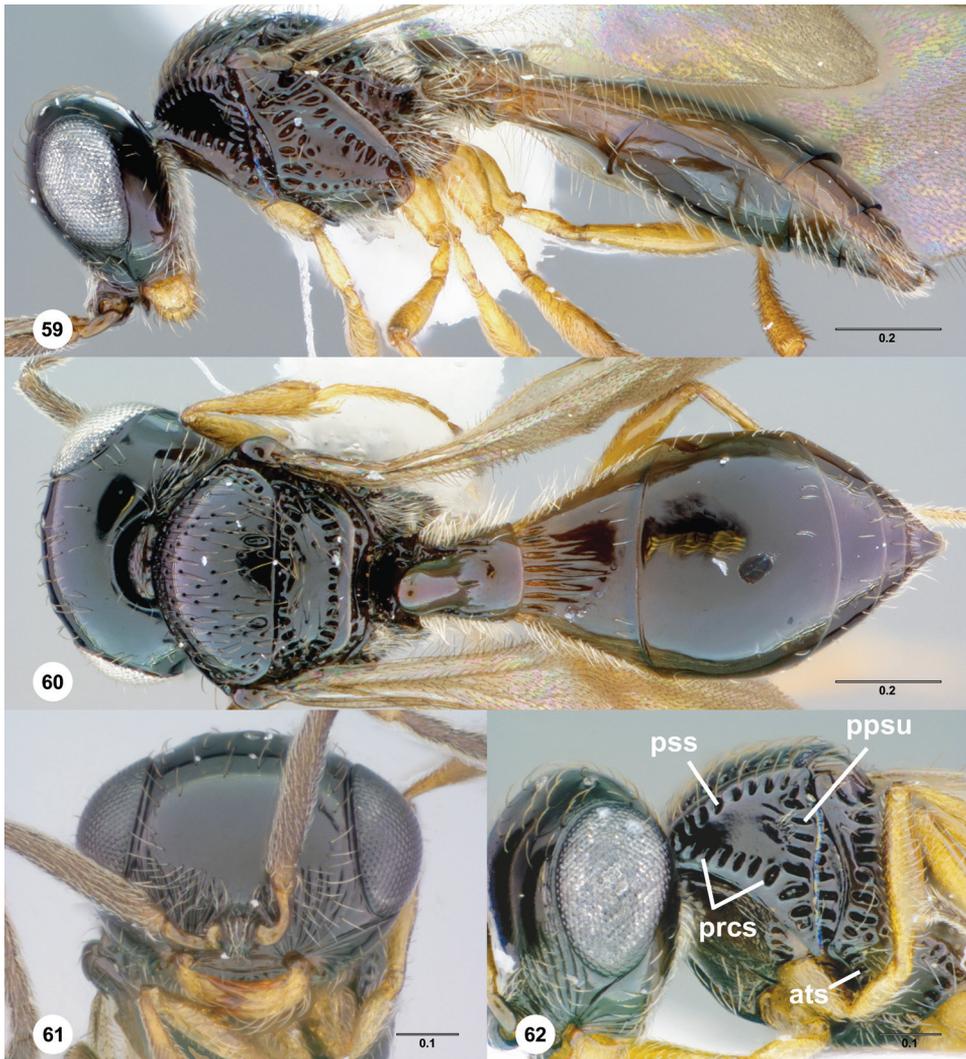
[http://species-id.net/wiki/Paridris\\_nayakorum](http://species-id.net/wiki/Paridris_nayakorum)

Figures 6, 59–62, 84; Morphbank<sup>37</sup>

**Description.** Female body length: 1.59–1.91 mm (n=19).

Number of basiconic sensilla on A8: 2.

Color of head: black. Distal margin of clypeus: serrate. Width of clypeus: wider than interantennal process. Lateral corner of clypeus: projecting into acute angle. Development of interantennal process ventrally: not reaching clypeus. Number of mandibular teeth: three. Length of mediofacial striae: not extending above midpoint of eye. Shape of gena in dorsal view: strongly receding behind compound eye. Striae on gena: weakly indicated. Length of striae on gena: terminating below ventral margin of eye. Form of microsculpture on head: reticulate microfissures. Distribution of microsculpture on



**Figures 59–62.**<sup>92</sup> *Paridris nayakorum*, sp. n. **59** Lateral habitus, female holotype (OSUC 396697) **60** Dorsal habitus, female (OSUC 396681) **61** Head, anterior view, female (OSUC 262128) **62** Pronotum, anterolateral view, female (OSUC 396358)

head: present only on anterodorsal margin of eye, temples, and posterior to lateral ocellus. Length of OOL: greater than 2 ocellar diameters. Occipital carina above foramen magnum: present. Anterior margin of occipital carina: simple. Setation of postgena: dense. Ventral extent of occipital carina: absent below midpoint of foramen magnum.

Color of mesosoma: black. Dorsal half of pronotal cervical sulcus: present as line of large cells. Ventral half of pronotal cervical sulcus: present as line of large cells. Transverse pronotal carina: absent. Shape of pronotal shoulder in dorsal view: without dorsal surface. Form of pronotal suprahumeral sulcus: line of uniform punctures. Macrosculpture of anterior medial mesoscutum: absent. Density of punctation on anterior medial mesos-

cutum: moderate. Reticulate microfissures on anterior half of medial mesoscutum: present only along predicted notaular line. Pustulate microsculpture on anterior mesoscutum: absent. Density of punctation on posterior medial mesoscutum: moderately dense. Notaulus: present as single round depression at posterior margin of mesoscutum. Shape of notaulus at posterior apex: ovoid. Macrosculpture of mesoscutellum: absent. Postacutabular sulcus: comprised of distinct, closed cells. Mesopleural carina: absent. Punctures on posterodorsal mesepimeral area: absent. Sculpture of mesopleuron anteroventral to femoral depression: smooth. Sculpture of posterior mesepimeral area: smooth. Form of metascutellum in female: obscured by horn of T1. Paracoxal and metapleural sulci: fused. Setation between metapleural triangle and metapleural sulcus: present throughout. Sculpture between metapleural triangle and metapleural sulcus: punctate. Sculpture of metapleural triangle: densely punctate. Setation of metapleural triangle: dense. Anterior propodeal projection: present. Setation of metasomal depression: present. Lateral propodeal area: undifferentiated from plical area. Plical carina: absent.

Color of metasoma: brown; black. Macrosculpture of T1: absent. Adornment of horn on T1 in female: absent; longitudinal median carina at base of horn. Macrosculpture of T2 in female: striate anteriorly, with few striae reaching T3. Microsculpture on T2: absent. Setal patch of lateral T2: present in thin line along lateral edge. Posterior margin of transverse sulcus on T2: distinctly convex. Carina along posterior margin of transverse sulcus on T2 in female: absent. Microsculpture on T3: absent. Macrosculpture of T3 medially in female: absent. Macrosculpture of T3 laterally in female: absent. Microsculpture on T4: absent. Macrosculpture of T4 medially in female: absent. Macrosculpture of T4 laterally in female: absent. Macrosculpture of T5 in female: absent. Constriction of apical T6 in female: absent. Punctation of T6 in female: moderately dense along anterior margin. Setation of S1: densely present throughout. Form of S2 felt field: line of dense setae along longitudinal ridge. Macrosculpture of S2 medially: longitudinally striate. Macrosculpture of S3: absent.

Wing development: macropterous. Basal vein in hind wing: spectral. Setation of hind wing: uniform throughout. Length of postmarginalis: punctiform. RS+M in fore wing: nebulous.

**Diagnosis.** *Paridris nayakorum* is most similar to *P. dnophos*, and may be separated easily by the presence of two basiconic sensilla on A8, the ovoid and abbreviate form of the notaulus, and the absence of longitudinal striae on T1. The large horn of T1 in *P. nayakorum* obscures the metascutellum in all specimens examined in this revision and is useful for separating it from most species of *Paridris*.

**Etymology.** *Paridris nayakorum* is named to commemorate the marriage of Dr. David A. Nayak (USA) and Alicia Rae Sim (USA), two friends of the first author.

**Link to distribution map.**<sup>38</sup>

**Material examined.** *Holotype*, female: **COSTA RICA:** Puntarenas Prov., Monteverde Cloud Forest Reserve, 25.V.1993, flight intercept trap, Michalski, OSUC 396697 (deposited in CNCI). *Paratypes:* **COSTA RICA:** 18 females, OSUC 262118–262121, 262128, 396349, 396352, 396356, 396358, 396362, 396677, 396680–396681, 396810 (CNCI); OSUC 262122, 396353, 396357, 396556 (OSUC).

**Comments.** Although the males of the species are not yet known, we speculate that they will have a short ovoid notaulus and mesosomal sulci comprised of large cells, and that these characters will separate them from the males of *P. dnophos*.

***Paridris pallipes* (Ashmead)**

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[http://species-id.net/wiki/Paridris\\_pallipes](http://species-id.net/wiki/Paridris_pallipes)

Figures 2, 63–66, 83; Morphbank<sup>39</sup>

*Thoron pallipes* Ashmead, 1887: 99 (original description); Ashmead 1893: 168 (description); Kieffer 1926: 171, 173 (description, keyed).

*Thoron pallidipes* Ashmead: Dalla Torre 1898: 512 (emendation).

*Paridris pallipes* (Ashmead): Krombein and Burks 1967: 298 (generic transfer); Masner and Muesebeck 1968: 42 (type information).

Morphbank<sup>40</sup>

*Idris laeviceps* Ashmead, 1893: 235 (original description), syn. n.

*Idris leviceps* Dalla Torre, 1898: 497 (unjustified emendation).

*Paridris leviceps* (Dalla Torre): Kieffer 1908: 123 (generic transfer).

*Paridris laeviceps* (Ashmead): Kieffer 1926: 422 (description, keyed); Masner and Muesebeck 1968: 42 (type information).

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Morphbank<sup>41</sup>

*Idris nigricornis* Brues, 1903: 126 (original description), syn. n.; Brues 1916: 555 (description).

*Paridris nigricornis* (Brues): Kieffer 1908: 123 (generic transfer); Kieffer 1926: 422 (description, keyed); Masner 1965: 300 (lectotype designation).

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Morphbank<sup>42</sup>

*Paridris brevipennis* Fouts, 1920: 66 (original description), syn. n.; Masner and Muesebeck 1968: 42 (type information); Masner 1976: 36 (taxonomic status).

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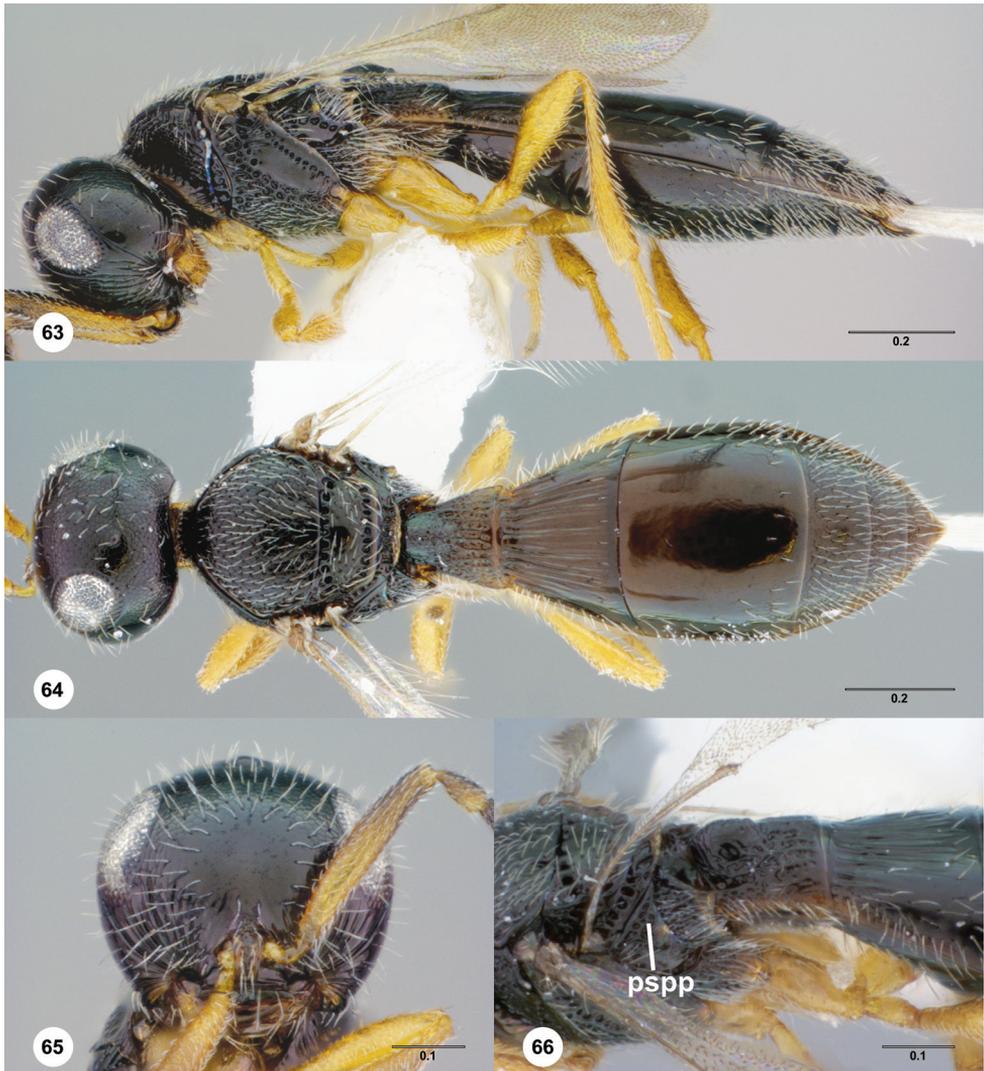
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Morphbank<sup>43</sup>

**Description.** Female body length: 1.35–1.99 mm (n=20). Male body length: 1.32–1.95 mm (n=20).

Number of basiconic sensilla on A8: 1.

Color of head: brown; black; reddish brown. Distal margin of clypeus: serrate. Width of clypeus: wider than interantennal process. Lateral corner of clypeus: project-



**Figures 63–66.**<sup>93</sup> *Paridris pallipes* (Ashmead) **63** Lateral habitus, female (OSUC 256785) **64** Dorsal habitus, female (OSUC 396285) **65** Head, anterior view, female (OSUC 396295) **66** Mesocutellum, metanotum, propodeum, T1, T2, dorsolateral view, female (OSUC 207783)

ing into acute angle. Development of interantennal process ventrally: not reaching clypeus. Number of mandibular teeth: three. Length of mediofacial striae: not extending above midpoint of eye. Shape of gena in dorsal view: not receding or slightly bulging directly behind compound eye. Striae on gena: weakly indicated. Length of striae on gena: terminating below ventral margin of eye. Form of microsculpture on head: reticulate microfissures; pustulate. Distribution of microsculpture on head: present throughout dorsal head. Length of OOL: greater than 2 ocellar diameters; less than 2 ocellar diameters. Occipital carina above foramen magnum: present. Anterior margin

of occipital carina: simple. Setation of postgena: dense. Ventral extent of occipital carina: absent below midpoint of foramen magnum.

Color of mesosoma: brown; black; reddish brown. Dorsal half of pronotal cervical sulcus: present as line of small to minute cells. Ventral half of pronotal cervical sulcus: present as line of large cells. Transverse pronotal carina: absent. Shape of pronotal shoulder in dorsal view: narrow and striplike. Form of pronotal suprahumeral sulcus: broadly punctate. Macrosculpture of anterior medial mesoscutum: absent. Density of punctation on anterior medial mesoscutum: dense along mesoscutal suprahumeral sulcus, otherwise sparse. Reticulate microfissures on anterior half of medial mesoscutum: present throughout. Density of punctation on posterior medial mesoscutum: dense; moderately dense. Notaulus: abbreviate, not reaching mesoscutal suprahumeral sulcus; present as single round depression at posterior margin of mesoscutum. Orientation of notauli: parallel. Shape of notaulus at posterior apex: ovoid. Macrosculpture of mesoscutellum: absent. Postacetabular sulcus: crenulate. Mesopleural carina: absent. Punctures on posterodorsal mesepimeral area: absent. Sculpture of mesopleuron anteroventral to femoral depression: densely punctate. Sculpture of posterior mesepimeral area: smooth. Form of metascutellum in female: transverse lamella, posterior margin convex. Form of metascutellum in male: transverse lamella, posterior margin convex. Paracoxal and metapleural sulci: fused. Posterior margin of metapleuron below propodeal spiracle: with blunt angle near intersection with metapleural sulcus. Setation between metapleural triangle and metapleural sulcus: present throughout. Sculpture between metapleural triangle and metapleural sulcus: punctate. Sculpture of metapleural triangle: densely punctate. Setation of metapleural triangle: dense. Anterior propodeal projection: absent. Setation of metasomal depression: absent. Lateral propodeal area: undifferentiated from plical area. Plical carina: absent.

Color of metasoma: brown; black; reddish brown. Macrosculpture of T1: longitudinally striate. Interstitial sculpture of T1: finely rugulose. Adornment of horn on T1 in female: absent. Macrosculpture of T2 in female: longitudinally striate throughout. Macrosculpture of T2 in male: longitudinally striate throughout. Microsculpture on T2: absent. Setal patch of lateral T2: present in thin line along lateral edge. Posterior margin of transverse sulcus on T2: distinctly convex. Carina along posterior margin of transverse sulcus on T2 in male: absent. Carina along posterior margin of transverse sulcus on T2 in female: absent. Microsculpture on T3: absent. Macrosculpture of T3 medially in female: absent. Macrosculpture of T3 laterally in female: absent. Macrosculpture of T3 medially in male: absent. Macrosculpture of T3 laterally in male: absent. Microsculpture on T4: absent. Macrosculpture of T4 medially in female: absent. Macrosculpture of T4 laterally in female: absent. Macrosculpture of T4 in male: absent. Macrosculpture of T5 in female: absent. Constriction of apical T6 in female: absent. Setation of S1: densely present throughout. Form of S2 felt field: line of dense setae along longitudinal ridge. Macrosculpture of S2 medially: longitudinally striate.

Wing development: macropterous; brachypterous. Basal vein in hind wing: spectral. Setation of hind wing: uniform throughout. RS+M in fore wing: nebulous.

**Diagnosis.** Males of *P. pallipes* are similar to those of *P. gongylos* and may be easily separated by the simple occipital carina versus the crenulate occipital rim in *P. gongylos*. The dense microsculpture throughout the head and anterior mesosoma, absence of a transverse carina on T2 and smoothly convex posterior margin of T6 render the females of this species morphologically distinct among the specimens treated here.

**Link to distribution map.**<sup>44</sup>

**Associations.** collected on *Spartina alterniflora* Loisel.: [Cyperales: Poaceae]; collected on *alfalfa*: [Fabales: Fabaceae]; collected on *arroz*: [Cyperales: Poaceae]

**Material examined.** *Holotype*, *Thoron pallipes*: **UNITED STATES**: Jacksonville, Fla; Type; type No. 24485 U.S.N.M.; *Thoron pallipes* Ashm. (USNM). *Holotype*, male, *Idris laeviceps*: **UNITED STATES**: VA, Arlington Co., Arlington, no date, USNM Type No. 24541 (deposited in USNM). *Lectotype*, *Idris nigricornis*: **UNITED STATES**: Mixed nest Myr-Lepto, Colebrook [CT], 9-10-01; LECTOTYPE *Idris nigricornis* Brues By L. Masner, 65; *Idris nigricornis* TYPES Brues; M.C.Z. type 31016 (MCZC). *Holotype*, *Paridris brevipennis*: **UNITED STATES**: Reared from eggs of *Gryllus abbreviatus*; Brookings S.D.; H.C. Severin Coll.; Type; *Paridris brevipennis* (MS) Fouts (USNM). *Other material*: (156 females, 153 males) **BELIZE**: 1 female, OSUC 181339 (CNCI). **BRAZIL**: 1 male, OSUC 323902 (OSUC). **CANADA**: 22 females, 25 males, OSUC 181096–181108, 181144, 181146, 181155–181156, 181167, 181169, 181175–181177, 334254–334258, 396139–396140, 396147–396158, 396183, 396235, 396240–396243 (CNCI). **COSTA RICA**: 3 males, OSUC 181333, 181395, 396126 (CNCI). **CUBA**: 1 female, 1 male, OSUC 436228–436229 (USNM). **GUATEMALA**: 1 female, OSUC 181365 (CNCI). **MEXICO**: 5 females, 2 males, OSUC 181180–181181, 181311, 181313, 396281, 396522 (CNCI); OSUC 436232 (USNM). **UNITED STATES**: 126 females, 121 males, OSUC 334293 (AMNH); CASENT 2042379–2042381, 2042383, 2042385, 2042387, 2042389–2042391 (CASC); OSUC 181109–181143, 181145, 181147, 181149–181154, 181157–181166, 181168, 181170–181174, 181178–181179, 181182–181185, 181279, 265156, 334259–334264, 396129–396138, 396141–396146, 396159–396182, 396184–396234, 396236–396239, 396270–396273, 396282–396297 (CNCI); OSUC 78732–78742 (MEMU); OSUC 141974, 176003, 207783, 254612, 256488, 256630–256631, 256784–256789, 266151–266155, 411762, 58699–58702 (OSUC); OSUC 205736 (UCDC); OSUC 157734, 157760 (UCMC); OSUC 436200–436206, 436208–436212 (USNM).

**Comments.** *Paridris pallipes* exhibits remarkably little morphological variation for the large size of its geographical distribution. One specimen from Costa Rica, OSUC 265167, fits neatly into our concept of *P. pallipes* with the exception that it has a posteriorly directed spine on T1. Consequently, this specimen is determined only as *Paridris* until more specimens are available to assess if this is a morphological variation within *P. pallipes*, or if it should be treated as a separate species. The females of this species have macropterous and brachypterous forms. The lone specimen record of *P. pallipes* from Brazil (OSUC 323902) is worthy of mention because of its distance from any other specimen records, and may indicate that this species has been introduced to Brazil by humans.

***Paridris psydrax* Talamas & Masner, sp. n.**

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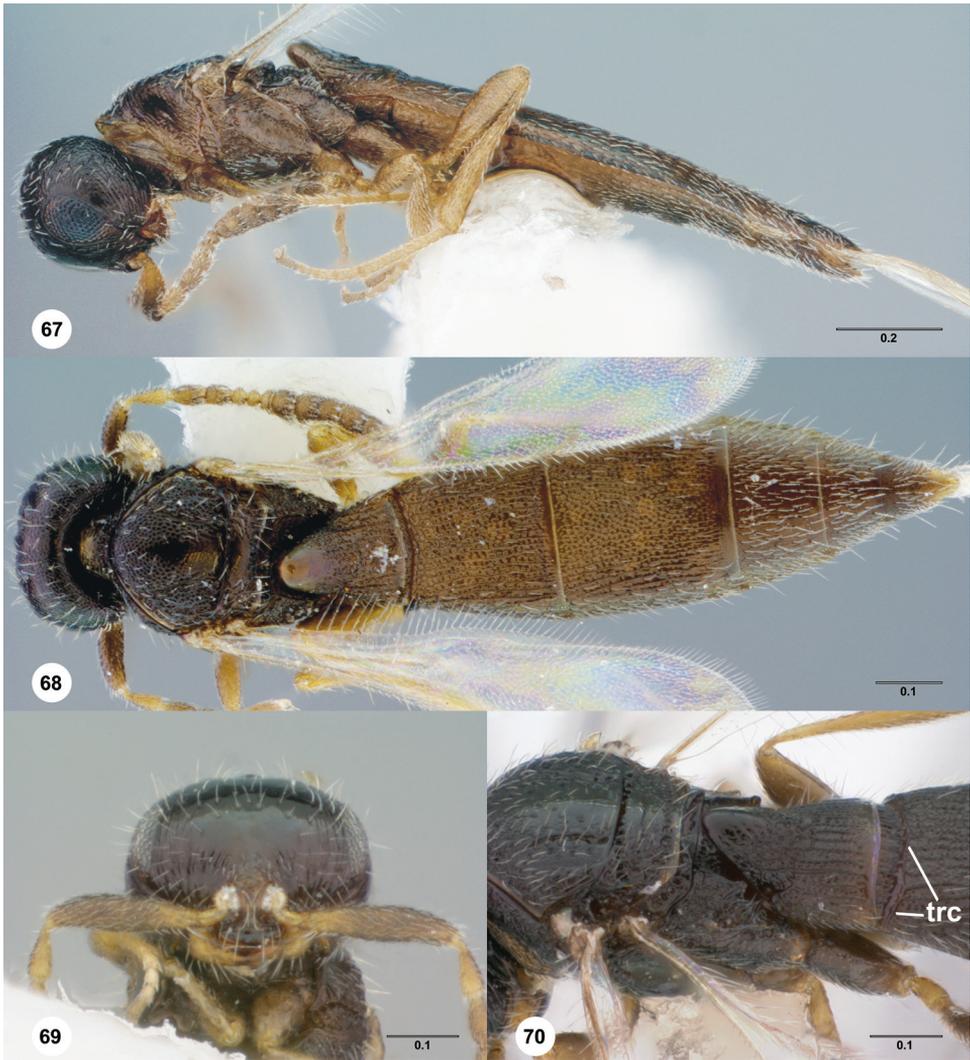
[http://species-id.net/wiki/Paridris\\_psydrax](http://species-id.net/wiki/Paridris_psydrax)Figures 5, 67–70, 80; Morphbank<sup>45</sup>

**Description.** Female body length: 1.63–2.15 mm (n=5). Male body length: 1.79–1.93 mm (n=4).

Number of basiconic sensilla on A8: 1.

Color of head: brown; black; reddish brown. Distal margin of clypeus: serrate. Width of clypeus: wider than interantennal process. Lateral corner of clypeus: projecting into acute angle. Development of interantennal process ventrally: not reaching clypeus. Number of mandibular teeth: two; one. Length of mediofacial striae: not extending above midpoint of eye. Shape of gena in dorsal view: not receding or slightly bulging directly behind compound eye. Striae on gena: pronounced. Length of striae on gena: extending above ventral margin of eye. Form of microsculpture on head: pustulate. Distribution of microsculpture on head: present throughout dorsal head. Length of OOL: greater than 2 ocellar diameters. Occipital carina above foramen magnum: absent. Anterior margin of occipital carina: rounded. Setation of postgena: sparse. Ventral extent of occipital carina: extending to base of mandible.

Color of mesosoma: brown; black. Dorsal half of pronotal cervical sulcus: present as line of small to minute cells. Ventral half of pronotal cervical sulcus: present as line of small to minute cells. Transverse pronotal carina: present in posterior half of pronotum. Shape of pronotal shoulder in dorsal view: narrow and striplike. Form of pronotal suprahumeral sulcus: areolate; punctate rugulose. Macrosculpture of anterior medial mesoscutum: absent. Density of punctation on anterior medial mesoscutum: sparse. Reticulate microfissures on anterior half of medial mesoscutum: absent. Pustulate microsculpture on anterior mesoscutum: present. Density of punctation on posterior medial mesoscutum: sparse. Notaulus: percurrent, reaching suprahumeral sulcus as a line of punctures. Orientation of notauli: converging posteriorly. Shape of notaulus at posterior apex: ovoid. Macrosculpture of mesoscutellum: punctate rugose along margins, smooth medially. Postacetabular sulcus: crenulate. Mesopleural carina: present, complete. Punctures on posterodorsal mesepimeral area: absent. Sculpture of mesopleuron anteroventral to femoral depression: finely punctate. Sculpture of posterior mesepimeral area: smooth. Form of metascutellum in female: obscured by horn of T1. Form of metascutellum in male: transverse punctate rugulose lamella, posterior margin approximately straight. Paracoxal and metapleural sulci: separate. Posterior margin of metapleuron below propodeal spiracle: straight to moderately convex. Setation between metapleural triangle and metapleural sulcus: absent. Sculpture between metapleural triangle and metapleural sulcus: faintly rugulose. Sculpture of metapleural triangle: punctate rugose. Setation of metapleural triangle: sparse. Anterior propodeal projection: absent. Setation of metasomal depression: absent. Lateral propodeal area: raised above plical area and indicated by sparser setation. Plical carina: present. Shape



**Figures 67–70.**<sup>94</sup> *Paridris psydrax*, sp. n. **67** Lateral habitus, female (OSUC 181378) **68** Dorsal habitus, female holotype (OSUC 181374) **69** Head, anterior view, female holotype (OSUC 181374) **70** Mesoscutellum, metanotum, propodeum, T1, T2, dorsolateral view, female (OSUC 404963)

of lateral propodeal area: continuous with prespiracular propodeal area. Sculpture of lateral propodeal area: punctate rugulose.

Color of metasoma: brown; reddish brown; yellowish brown. Macrosculpture of T1: rugose reticulate. Interstitial sculpture of T1: finely rugulose. Adornment of horn on T1 in female: absent. Macrosculpture of T2 in female: reticulate rugose throughout; reticulate; longitudinally strigose throughout. Macrosculpture of T2 in male: longitudinally strigose; weakly reticulate rugose. Microsculpture on T2: present. Setal patch of lateral T2: present throughout lateral surface of tergite. Posterior margin of transverse sulcus on T2: weakly convex. Carina along posterior margin of transverse

sulcus on T2 in male: present. Carina along posterior margin of transverse sulcus on T2 in female: present. Microsculpture on T3: present. Macrosculpture of T3 medially in female: absent; reticulate. Macrosculpture of T3 laterally in female: absent; longitudinally strigose. Macrosculpture of T3 medially in male: absent. Macrosculpture of T3 laterally in male: weakly longitudinally striate; absent. Microsculpture on T4: absent. Macrosculpture of T4 medially in female: absent. Macrosculpture of T4 laterally in female: absent; longitudinally strigose. Macrosculpture of T4 in male: absent. Macrosculpture of T5 in female: absent. Constriction of apical T6 in female: present. Punctuation of T6 in female: densely and finely punctate throughout; sparse along longitudinal midline and anterior margin, dense and fine laterally. Form of S2 felt field: longitudinal row or patch of setigerous punctures. Macrosculpture of S2 medially: crenulate. Macrosculpture of S3: absent.

Wing development: macropterous. Basal vein in hind wing: spectral. Setation of hind wing: reduced anad of submarginal vein. Length of postmarginalis: approximately half of length of stigmalis. RS+M in fore wing: spectral.

**Diagnosis.** *Paridris psydrax* is a distinct species that is superficially similar to *P. pallipes* and *P. gongylos* in the dense microsculpture of the head and mesosoma. Females of *P. psydrax* may be identified by the large horn that obscures the metascutellum and the presence of a carina that posteriorly borders the transverse sulcus of T2. Males are best identified by the spherical shape of the antennal flagellomeres, the transverse carina on T2, and the presence of microsculpture on the head and mesosoma.

**Etymology.** The Greek epithet *psydrax*, meaning “blister”, is given to the species for the pustulate microsculpture of the head and mesosoma. The name is treated as a noun in apposition.

**Link to distribution map.**<sup>46</sup>

**Material examined.** *Holotype*, female: **ARGENTINA**: Formosa Prov., 50km NW Clorinda, herbaceous vegetation, 90-121, Río Pilcomayo National Park, 19.XII.1990, sweeping, S. Peck & J. Peck, OSUC 181374 (deposited in CNCI). *Paratypes*: (7 females, 5 males) **MEXICO**: 1 male, OSUC 218772 (INHS). **PARAGUAY**: 3 females, OSUC 334217, 404962–404963 (OSUC). **UNITED STATES**: 3 females, 4 males, OSUC 181273–181274, 181276–181278 (CNCI); OSUC 181275 (LACM); OSUC 436207 (USNM). **VENEZUELA**: 1 female, OSUC 181378 (CNCI).

***Paridris saurotos* Talamas, sp. n.**

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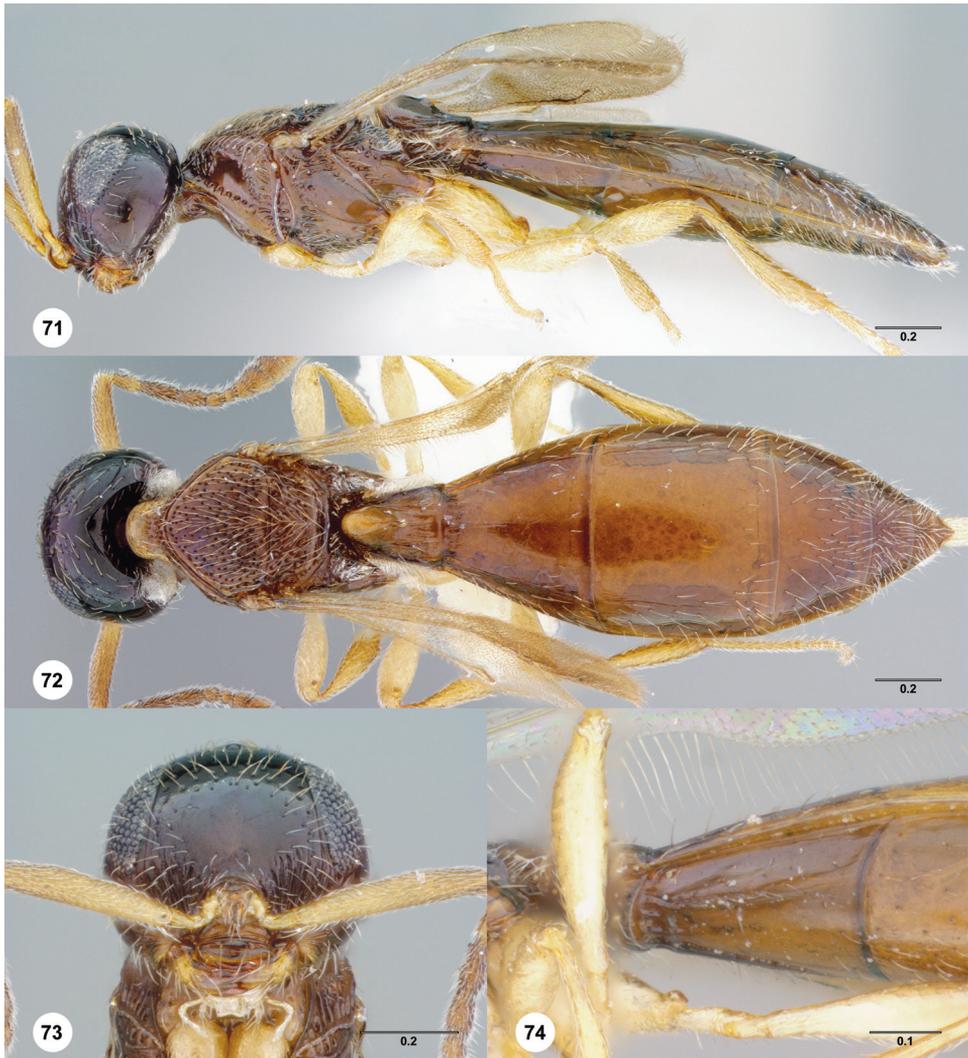
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[http://species-id.net/wiki/Paridris\\_saurotos](http://species-id.net/wiki/Paridris_saurotos)

Figures 8, 71–74, 81; Morphbank<sup>47</sup>

**Description.** Female body length: 2.00–2.88 mm (n=17). Male body length: 2.02–2.62 mm (n=10).

Number of basiconic sensilla on A8: 1.



**Figures 71–74.**<sup>95</sup> *Paridris saurotos*, sp. n. **71** Lateral habitus, female holotype (OSUC 262111) **72** Dorsal habitus, female (OSUC 265171) **73** Head, anterior view, female (OSUC265171) **74** S2, ventrolateral view, female (OSUC 262107)

Color of head: black; reddish brown. Distal margin of clypeus: smooth. Width of clypeus: wider than interantennal process. Lateral corner of clypeus: projecting into acute angle. Development of interantennal process ventrally: not reaching clypeus. Number of mandibular teeth: three. Length of mediofacial striae: not extending above midpoint of eye. Shape of gena in dorsal view: not receding or slightly bulging directly behind compound eye. Striae on gena: weakly indicated. Length of striae on gena: terminating below ventral margin of eye. Form of microsculpture on head: reticulate microfissures. Distribution of microsculpture on head: present only between median and lateral ocellus and on temples, in females present posterior to lateral ocellus. Length of OOL: great-

er than 2 ocellar diameters; less than 2 ocellar diameters. Occipital carina above foramen magnum: present. Anterior margin of occipital carina: simple. Setation of postgena: dense. Ventral extent of occipital carina: absent below midpoint of foramen magnum.

Color of mesosoma: reddish brown; yellowish brown. Dorsal half of pronotal cervical sulcus: present as line of small to minute cells. Ventral half of pronotal cervical sulcus: present as line of small to minute cells. Transverse pronotal carina: absent. Shape of pronotal shoulder in dorsal view: without dorsal surface. Form of pronotal suprahumeral sulcus: line of uniform punctures. Macrosculpture of anterior medial mesoscutum: absent. Density of punctation on anterior medial mesoscutum: dense along mesoscutal suprahumeral sulcus, otherwise sparse; moderate. Reticulate microfissures on anterior half of medial mesoscutum: present only along notaulus. Pustulate microsculpture on anterior mesoscutum: absent. Density of punctation on posterior medial mesoscutum: moderately dense. Notaulus: percurrent, reaching suprahumeral sulcus as a smooth furrow; percurrent, reaching suprahumeral sulcus as a line of punctures; abbreviate, not reaching mesoscutal suprahumeral sulcus. Orientation of notauli: parallel. Shape of notaulus at posterior apex: ovoid. Macrosculpture of mesoscutellum: punctate rugose. Postacetabular sulcus: crenulate. Mesopleural carina: present, complete. Punctures on posterodorsal mesepimeral area: absent. Sculpture of mesopleuron anteroventral to femoral depression: densely punctate; moderately punctate. Sculpture of posterior mesepimeral area: smooth. Form of metascutellum in female: transverse lamella, pointed medially. Form of metascutellum in male: transverse lamella, pointed medially. Paracoxal and metapleural sulci: fused. Posterior margin of metapleuron below propodeal spiracle: with blunt angle near intersection with metapleural sulcus. Setation between metapleural triangle and metapleural sulcus: absent. Sculpture between metapleural triangle and metapleural sulcus: smooth. Sculpture of metapleural triangle: finely punctate. Setation of metapleural triangle: moderately dense; sparse. Anterior propodeal projection: absent. Setation of metasomal depression: present. Lateral propodeal area: undifferentiated from plical area. Plical carina: absent.

Color of metasoma: yellow; reddish brown; yellowish brown. Macrosculpture of T1: longitudinally striate. Interstitial sculpture of T1: smooth. Adornment of horn on T1 in female: posteriorly projecting spine. Macrosculpture of T2 in female: longitudinally and sparsely striate, medial striae not reaching posterior margin. Macrosculpture of T2 in male: longitudinally and sparsely striate, medial striae not reaching posterior margin. Microsculpture on T2: absent. Setal patch of lateral T2: present in thin line along lateral edge. Carina along posterior margin of transverse sulcus on T2 in male: absent. Carina along posterior margin of transverse sulcus on T2 in female: absent. Microsculpture on T3: absent. Macrosculpture of T3 medially in female: absent. Macrosculpture of T3 laterally in female: weakly longitudinally striate; present as 1 or 2 strigae along junction of dorsal and lateral surfaces. Macrosculpture of T3 medially in male: absent. Macrosculpture of T3 laterally in male: weakly longitudinally striate; present as 1 or 2 strigae along junction of dorsal and lateral surfaces; absent. Microsculpture on T4: absent. Macrosculpture of T4 medially in female: absent. Macrosculpture of T4 laterally in female: absent. Macrosculpture of T4 in male: absent.

Macrosculpture of T5 in female: absent. Constriction of apical T6 in female: present. Punctuation of T6 in female: densely and finely punctate throughout. Setation of S1: densely present throughout. Form of S2 felt field: line of dense setae along longitudinal ridge. Macrosculpture of S2 medially: absent. Macrosculpture of S3: absent.

Wing development: macropterous; brachypterous. Basal vein in hind wing: spectral. Setation of hind wing: uniform throughout. Length of postmarginalis: less than half of length of stigmalis. RS+M in fore wing: nebulous.

**Diagnosis.** *Paridris saurotos* is most similar to *P. convexa* and *P. isabelicae* with which it shares elongate flagellomeres in males. The females may be quickly separated by the posteriorly directed spine on the horn of T1. Males of *P. saurotos* are best separated from *P. isabelicae* by the smooth sculpture of medial S2, which is longitudinally striate in the latter; and from *P. convexa* by the absence of microsculpture throughout the posterodorsal head.

**Etymology.** The Greek “saurotos”, meaning “spiked”, refers to the posteriorly projecting spine on the horn of T1 in this species. The epithet is treated as a noun in apposition.

**Link to distribution map.**<sup>48</sup>

**Material examined.** *Holotype*, female: **JAMAICA**: Saint Andrew Parish, Hardwar Gap, 4000ft, 29.VII.1966, Howden & Becker, OSUC 262111 (deposited in CNCI). *Paratypes*: **JAMAICA**: 17 females, 10 males, OSUC 181357, 181373, 262106–262110, 262136, 265169–265172, 396245–396249, 396251–396253, 396256, 396268 (CNCI); OSUC 181394, 396244, 396250, 396254–396255 (OSUC).

***Paridris soucouyant* Talamas & Masner, sp. n.**

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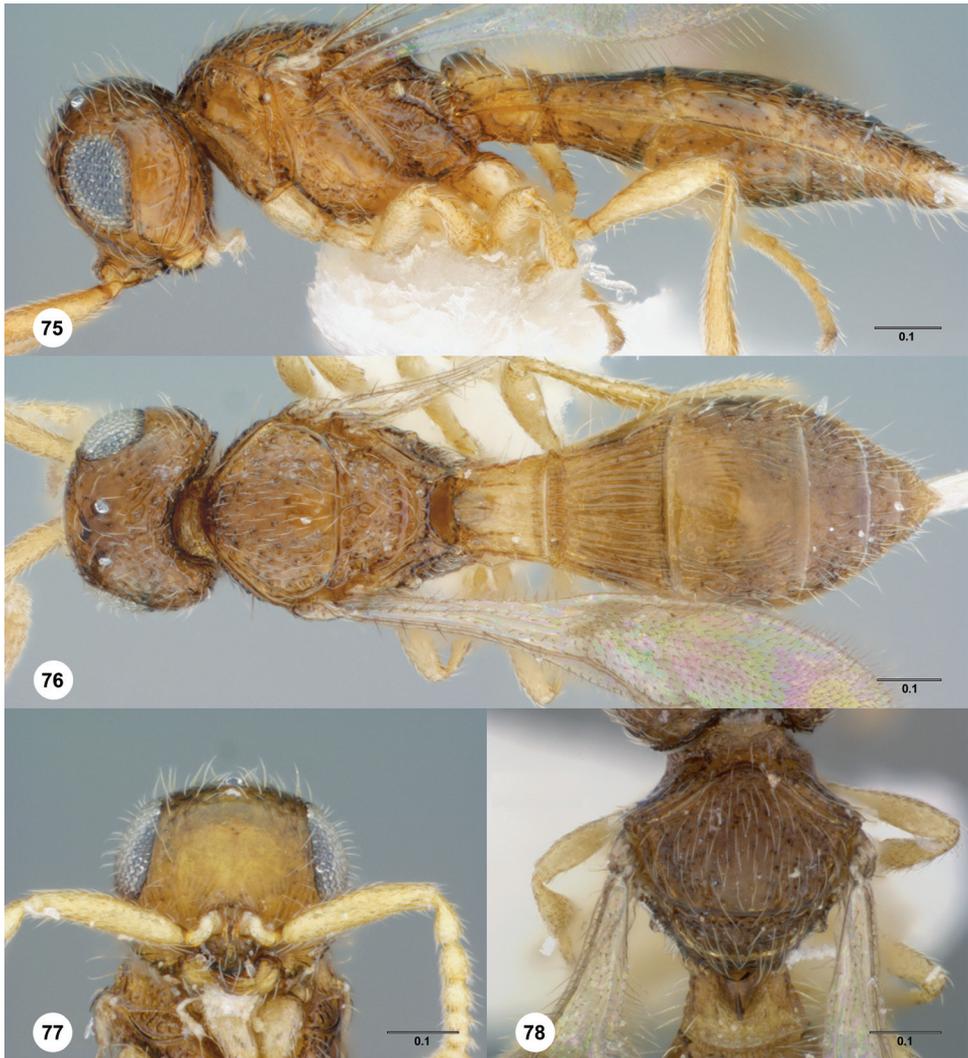
[http://species-id.net/wiki/Paridris\\_soucouyant](http://species-id.net/wiki/Paridris_soucouyant)

Figures 75–78; Morphbank<sup>49</sup>

**Description.** Female body length: 1.36–1.49 mm (n=5).

Number of basiconic sensilla on A8: 1.

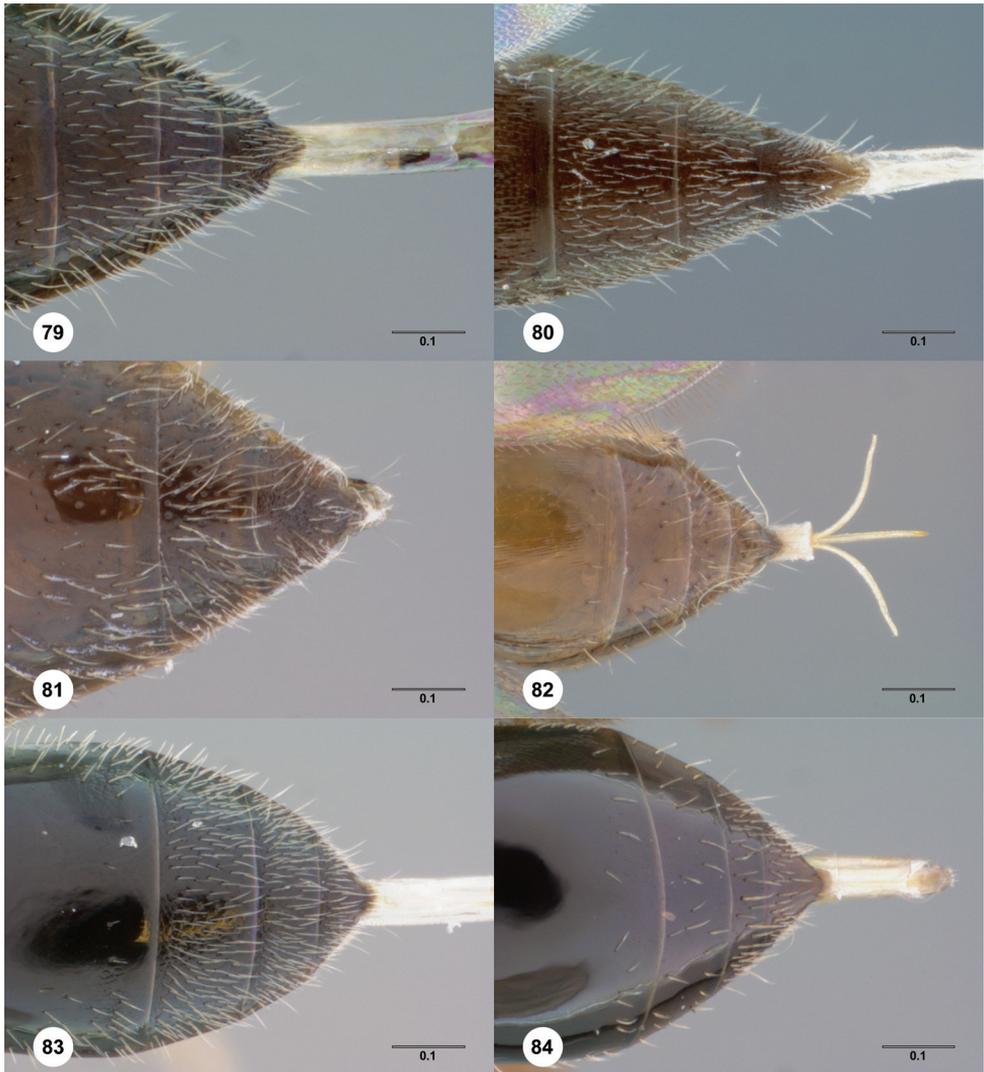
Color of head: reddish brown; yellowish brown. Distal margin of clypeus: serrate. Width of clypeus: equal to or less than width of interantennal process. Lateral corner of clypeus: rounded. Development of interantennal process ventrally: connecting with clypeus. Number of mandibular teeth: three. Length of mediofacial striae: not extending above midpoint of eye. Shape of gena in dorsal view: not receding or slightly bulging directly behind compound eye. Striae on gena: pronounced. Length of striae on gena: extending above ventral margin of eye. Distribution of microsculpture on head: absent. Length of OOL: greater than 2 ocellar diameters; less than 2 ocellar diameters. Occipital carina above foramen magnum: present. Anterior margin of occipital carina: rugose parallel to occipital carina; widely crenulate



**Figures 75–78.**<sup>96</sup> *Paridris soucouyant*, sp. n. **75** Lateral habitus, female holotype (OSUC 396058) **76** Dorsal habitus, female holotype (OSUC 396058) **77** Head, anterior view, female (OSUC 396064) **78** Mesosoma and T1, dorsal view, female (OSUC 396064)

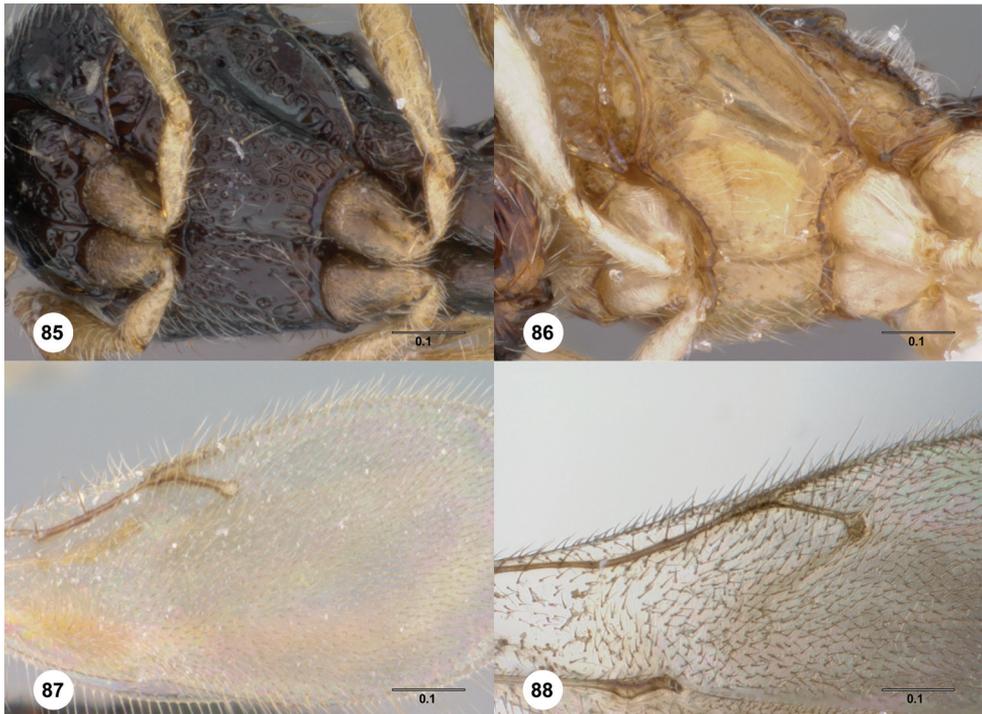
dorsally, smooth laterally. Setation of postgena: sparse. Ventral extent of occipital carina: extending to base of mandible.

Color of mesosoma: reddish brown; yellowish brown. Dorsal half of pronotal cervical sulcus: present as smooth furrow. Ventral half of pronotal cervical sulcus: present as line of small to minute cells. Transverse pronotal carina: present in posterior half of pronotum. Shape of pronotal shoulder in dorsal view: narrow and striplike. Form of pronotal suprahumeral sulcus: areolate. Macrosculpture of anterior medial mesoscutum: punctate rugose. Density of punctation on anterior medial mesoscutum: dense along mesoscutal suprahumeral sulcus, otherwise sparse. Reticulate microfissures



**Figures 79–84.**<sup>97</sup> **79** *Paridris gorn* sp. n., T4–T6, dorsal view, female (OSUC 334054) **80** *Paridris psidrax* sp. n., T4–T6, dorsal view, female holotype (OSUC 181374) **81** *Paridris saurotos* sp. n., T5–T6, dorsal view, female holotype (OSUC 262111) **82** *Paridris convexa* sp. n., T4–T6, dorsal view, female holotype (OSUC 181392) **83** *Paridris pallipes* (Ashmead), T4–T6, dorsal view, female (OSUC 256785) **84** *Paridris nayakorun* sp. n., T4–T6, dorsal view, female (OSUC 262118)

on anterior half of medial mesoscutum: absent. Density of punctation on posterior medial mesoscutum: sparse. Notaulus: absent; abbreviate, not reaching mesoscutal suprahumeral sulcus. Orientation of notauli: parallel. Shape of notaulus at posterior apex: ovoid. Macrosculpture of mesoscutellum: punctate rugose. Postacetabular sulcus: crenulate. Mesopleural carina: present, complete. Punctures on posterodorsal mesepimeral area: absent. Sculpture of mesopleuron anteroventral to femoral depres-



**Figures 85–88.**<sup>98</sup> **85** *Paridris aenea* (Ashmead), Mesopleuron, ventrolateral view, male (OSUC 396127) **86** *Paridris lemete* sp. n., Mesopleuron, ventrolateral view, male (OSUC 334089) **87** *Paridris aenea* (Ashmead), Venation of forewing, ventral view, female (OSUC 334201) **88** *Paridris lemete* sp. n., Venation of forewing, dorsal view, male (OSUC 334094)

sion: areolate to punctate rugose throughout. Sculpture of posterior mesepimeral area: smooth. Form of metascutellum in female: bispinose. Form of metascutellum in male: bispinose. Paracoxal and metapleural sulci: separate. Posterior margin of metapleuron below propodeal spiracle: straight to moderately convex. Setation between metapleural triangle and metapleural sulcus: absent. Sculpture between metapleural triangle and metapleural sulcus: punctate rugose. Sculpture of metapleural triangle: punctate rugose. Setation of metapleural triangle: sparse. Anterior propodeal projection: absent. Setation of metasomal depression: absent. Lateral propodeal area: raised above plical area and indicated by sparser setation. Plical carina: present. Shape of lateral propodeal area: connected to posteromedial corner of prespiracular propodeal area. Sculpture of lateral propodeal area: rugose.

Color of metasoma: yellowish brown; yellow anteriorly, brown posteriorly. Macrosculpture of T1: longitudinally striate. Interstitial sculpture of T1: finely rugulose. Adornment of horn on T1 in female: longitudinal median carina on dorsal surface, forming small point posteriorly. Macrosculpture of T2 in female: longitudinally striate throughout. Microsculpture on T2: absent. Setal patch of lateral T2: present throughout lateral surface of tergite. Posterior margin of transverse sulcus on T2: straight.

Carina along posterior margin of transverse sulcus on T2 in female: present. Microsculpture on T3: present. Macrosculpture of T3 medially in female: absent. Macrosculpture of T3 laterally in female: longitudinally strigose. Microsculpture on T4: present. Macrosculpture of T4 medially in female: absent; rugulose. Macrosculpture of T4 laterally in female: rugulose; longitudinally strigose. Macrosculpture of T5 in female: absent along midline, rugulose laterally. Constriction of apical T6 in female: present. Punctuation of T6 in female: densely and finely punctate throughout. Setation of S1: sparsely distributed throughout; absent. Macrosculpture of S2 medially: longitudinally striate. Macrosculpture of S3: absent.

Wing development: macropterous. Basal vein in hind wing: spectral. Setation of hind wing: uniform throughout. Length of postmarginalis: approximately equal to length of stigmalis. RS+M in fore wing: nebulous.

**Diagnosis.** Among the species of the New World, *P. soucouyant* is most similar to *P. gorn*, with which it shares coarse punctuation of the head and a characteristic shape of the metascutellum. The two are best separated by the presence of a longitudinal carina on the horn of T1 and rugulose sculpture of lateral T4–T5 in *P. soucouyant*. **Etymology.** This species is named for the soucouyant (pronounced sue-coo-yah) of Trinidadian folklore: a vampiric character that takes the form of a fireball and sucks the blood of its victims. The specific epithet is treated as a noun in apposition.

**Link to distribution map.**<sup>50</sup>

**Material examined.** *Holotype*, female: **TRINIDAD AND TOBAGO:** Tunapuna/Piarco Reg., Trinidad Isl., Santa Margarita Circular Road, Curepe, 13.VII–31.VIII.1974, E. D. Bennett, OSUC 396058 (deposited in CNCI). *Paratypes:* (4 females, 1 male) **COLOMBIA:** 1 male, OSUC 181401 (IAVH). **TRINIDAD AND TOBAGO:** 3 females, OSUC 396063–396065 (CNCI). **VENEZUELA:** 1 female, OSUC 181397 (CNCI).

***Probaryconus opacus* (Kieffer), comb. n.**

[http://species-id.net/wiki/Probaryconus\\_opacus](http://species-id.net/wiki/Probaryconus_opacus)

Figures 89–94; Morphbank<sup>51</sup>

*Baryconus opacus* Kieffer, 1910a: 320, 321 (original description, keyed).

*Baryconus* (*Baryconus*) *opacus* Kieffer: Kieffer 1910b: 84 (subgeneric assignment).

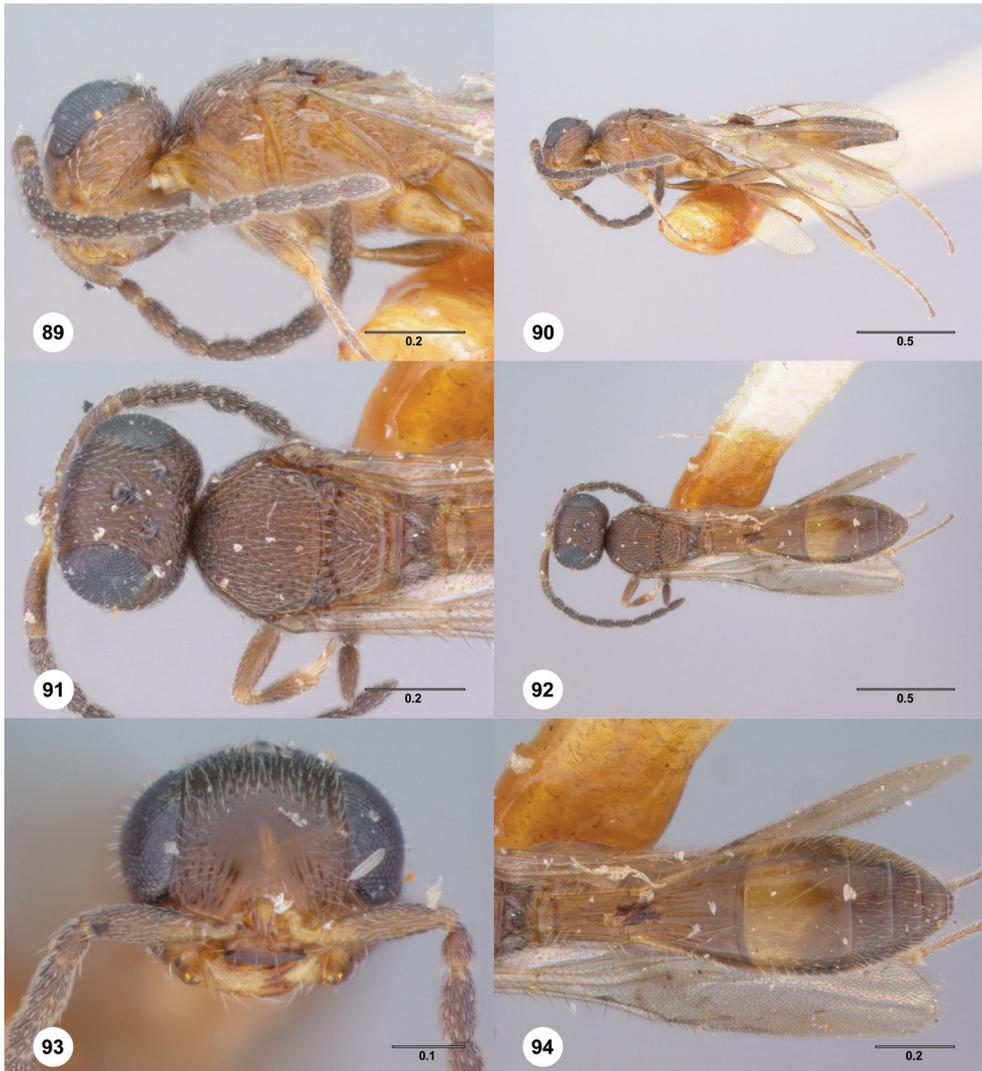
*Paranteris opacus* (Kieffer): Kieffer 1926: 430, 432 (generic transfer, description, keyed).

*Paridris opaca* (Kieffer): De Santis 1980: 314 (generic transfer).

urn:lsid:zoobank.org:act:86EFF18A-0F4A-4368-A11B-B7D9B39B747B

urn:lsid:biosci.ohio-state.edu:osuc\_concepts:5077

**Comments.** Kieffer described *Baryconus opacus* from Brazil, and later transferred it to *Paranteris*, a genus synonymized with *Paridris* by Masner in 1965. Consistent with Kieffer's interpretation of Foerster's original concept of *Baryconus* (Ritchie and Masner 1983), *P. opaca* belongs in *Probaryconus*, a genus prone to confusion with *Paridris*.



**Figures 89–94.**<sup>99</sup> *Probarryconus opacus* (Kieffer), male holotype (CAS Type No. 9711) **89** Head and mesosoma, lateral view **90** Lateral habitus **91** Head and mesosoma, dorsal view **92** Dorsal habitus **93** Head, anterior view **94** Metasoma, dorsal view

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## Endnotes

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## Appendix 1

URI table of HAO morphological terms. (doi: 10.3897/zookeys.233.3455.app1) File format: Microsoft Word Open XML Document (DOCX).

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## Appendix 2

Lucid key to species of *Paridris* in the New World. (doi: 10.3897/zookeys.233.3455.app2) File format: Lucid Key Data (lk4).

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