Zootaxa 5165 (1): 001–055
https://www.mapress.com/zt/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

https://doi.org/10.11646/zootaxa.5165.1.1
http://zoobank.org/urn:lsid:zoobank.org:pub:A03F9711-19D7-4D7A-B30E-842DA141B2A0

Chewing lice of the *Brueelia*-complex (Phthiraptera: Ischnocera) parasitic on members of the Campephagidae (Aves: Passeriformes), with description of a new subgenus and 14 new species

DANIEL R. GUSTAFSSON[1*] & SARAH E. BUSH[2]

[1]*Guangdong Key Laboratory of Animal Conservation and Resource Utilisation, Guangdong Public Library of Wild Animal Conservation and Utilisation, Institute of Zoology, Guangdong Academy of Sciences, 105 Xingang West Road, Haizhu District, Guangzhou, 510260, Guangdong Province, China*

[2]*School of Biological Sciences, University of Utah, 257 S. 1400 E., Salt Lake City, Utah 84112, USA*

https://orcid.org/0000-0002-2913-4876

[*]*Corresponding author.* *kotatsu@fripost.org;* *https://orcid.org/0000-0001-8868-8310*

Table of contents

Abstract

Fourteen new species of chewing lice in the *Brueelia*-complex are described, from hosts in the Campephagidae. In addition, *Malardifax* a **new subgenus** of *Guimaraesiella* Eichler, 1949 is described for the species occurring on minivets

Accepted by R.L. Palma: 21 Jun. 2022; published: 13 Jul. 2022

(Campephagidae: *Pericrocotus*). The new species and their hosts are: *Guimaraesiella* (*Guimaraesiella*) *nouankaoensis* **n. sp.** from *Coracina caledonica seiuncta* Mayr & Ripley, 1941 and *C. caledonica thilenii* (Neumann, 1915); *Guimaraesiella* (*Guimaraesiella*) *sphagmotica* **n. sp.** from *Coracina caeruleogrisea strenua* (Schlegel, 1871) and *C. caeruleogrisea adamsoni* Mayr & Rand, 1936; *Indoceoplanetes* (*Capnodella*) *kamphaengphetensis* **n. sp.** from *Lalage melaschistos avensis* (Blyth, 1852); *Indoceoplanetes* (*Capnodella*) *saucia* **n. sp.** from *Edolisoma montanum montanum* (Meyer, 1874); *Indoceoplanetes* (*Capnodella*) *subarcens* **n. sp.** from *Edolisoma melas melas* (Lesson, 1828); *Indoceoplanetes* (*Indoceoplanetes*) *cinitemnina* **n. sp.** from *Edolisoma melas melas* (Lesson, 1828); *Indoceoplanetes* (*Indoceoplanetes*) *ephippiformis* **n. sp.** from *Edolisoma montanum montanum* (Meyer, 1874); *Indoceoplanetes* (*Indoceoplanetes*) *fodincana* **n. sp.** from *Coracina papuensis oriomo* Mayr & Rand, 1936, *C. papuensis angustifrons* (Salvadori, 1876), and *C. papuensis elegans* (Ramsay, 1881); *Indoceoplanetes* (*Indoceoplanetes*) *incisoma* **n. sp.** from *Coracina macei siamensis* (Baker, 1918) and *C. macei rexpineti* (Swinhoe, 1863); *Indoceoplanetes* (*Indoceoplanetes*) *microgenitalis* **n. sp.** from *Coracina caeruleogrisea strenua* (Schlegel, 1871); *Indoceoplanetes* (*Indoceoplanetes*) *pterophora* **n. sp.** from *Coracina macei nipalensis* (Hodgson, 1836); *Indoceoplanetes* (*Indoceoplanetes*) *saburrata* **n. sp.** from *Coracina lineata ombriosa* (Rothschild & Hartert, 1905); *Indoceoplanetes* (*Indoceoplanetes*) *wandoensis* **n. sp.** from *Coracina novaehollandiae melanops* (Latham, 1802); and *Indoceoplanetes* (*Indoceoplanetes*) *zambica* **n. sp.** from *Coracina pectoralis* (Jardine & Selby, 1828). Checklists and keys to the louse species of the *Brueelia*-complex parasitic on campephagid hosts are provided.

Key words: Philopteridae, *Brueelia*-complex, *Indoceoplanetes*, *Guimaraesiella, Malardifax*, new subgenus, new species, Campephagidae

Introduction

Members of the family Campephagidae are oscine birds found throughout much of the Old-World tropics (Clements *et al*. 2021). The group has no close relatives (Jønsson *et al*. 2016), and comprises less than 100 species, divided into two major groups: minivets (*Pericrocotus* Boie, 1826) and cuckooshrikes and allies (*Coracina* Vieillot, 1816*, Lalage* Boie, 1826*, Edolisoma* Pucheran, 1853) (Fuchs *et al.* 2009; Jønsson *et al*. 2008).

The chewing louse fauna of these birds is poorly known, and includes two species of *Myrsidea* Waterston, 1915, one species of *Ricinus* De Geer, 1778, two species of *Tritrabeculus* Uchida, 1948, and four species in the *Brueelia*-complex: one of *Guimaraesiella* Eichler, 1949, one of *Indoceoplanetes* (*Indoceoplanetes*) Gustafsson & Bush, 2017, and two of *Indoceoplanetes* (*Capnodella*) Gustafsson & Bush, 2017 (Price *et al*. 2003, Mey 2004, Gustafsson & Bush 2017).

Gustafsson & Bush (2017: 139) casually noted that samples of lice from cuckooshrikes often contain a mixture of species of *Guimaraesiella* and of both subgenera of *Indoceoplanetes*. Here, we formalise this assertion by describing nine new species of *Indoceoplanetes* (*Indoceoplanetes*), three new species of *Indoceoplanetes* (*Capnodella*), and two new species of *Guimaraesiella* (*Guimaraesiella*) from these birds, including cases where the same host species is parasitised by lice of different genera or subgenera. Finally, we describe *Guimaraesiella* (*Malardifax*) as a **new subgenus**, for the *Guimaraesiella pandolura* species group.

Material and methods

Slide-mounted specimens are deposited at the Natural History Museum, London, United Kingdom (NHML), the Price Institute for Parasitological Research, University of Utah, Salt Lake City, United States (PIPR), or the Bernice P. Bishop Museum, Honolulu, Hawaii, United States (BPBM). All studied material was mounted in Canada balsam on microscope slides. Specimens were examined and measured with a Nikon Eclipse E600 fitted with an Olympus DP25 camera and digital measuring software (ImageJ 1.48v, Wayne Rasband). Illustrations were drawn by hand, using a drawing tube. Line drawings were scanned, collated, and edited in GIMP (www.gimp.org). All measurements are given in millimeters, as ranges (mean value, when $n \geq 10$). Abbreviations used: TL = total length; HL = head length (along midline); HW = head width (at temples); PRW = prothorax width; PTW = pterothorax width; AW = abdominal width (at segment V).

Morphological terms and abbreviations follow Gustafsson & Bush (2017) and Gustafsson *et al*. (2019a), and include: *a2 = anterior seta 2*; *ads = anterior dorsal seta*; *ames = anterior mesosomal setae*; *aps = accessory post-*

spiracular seta; *dsms = dorsal submarginal seta*; *gpmes = gonoporal posterior mesosomal seta*; *lpmes= lateral posterior mesosomal seta*; *mms = marginal mesometathoracic seta*; *mts3 = marginal temporal seta 3*; *ps = paratergal setae*; *psps = posterior prothoracic seta*; *pst1–2 = parameral setae 1–2*; *ss = sutural seta*; *vms = vulval marginal seta*; *vos = vulval oblique seta*; *vss = vulval submarginal seta*. These are indicated in Figs 1, 3–7; for clarity, male genital setae are also indicated in Figs 74–76 for *Indoceoplanetes* (*Capnodella*), and in Figs 101–102 for *Guimaraesiella* (*Malardifax*).

The pigmentation patterns given in the descriptions below are for slide-mounted specimens, all of which have been treated with KOH, which may affect the intensity of the pigmentation. Therefore, the patterns described should be used as rough guides, and may be slightly different in live lice or specimens that have been slide-mounted using other preparation methods. In all cases, structural characters are more useful for the identification of species than pigmentation.

Host taxonomy follows Clements *et al*. (2021).

Systematics

PHTHIRAPTERA Haeckel, 1896

Phthiraptera Haeckel, 1896: 703.

Ischnocera Kellogg, 1896

Ischnocera Kellogg, 1896: 63.

Philopteridae Burmeister, 1838

Philopteridae Burmeister, 1838: 422.

Brueelia-complex (*sensu* Gustafsson & Bush, 2017)

Indoceoplanetes Gustafsson & Bush, 2017

Indoceoplanetes (*Indoceoplanetes*) Gustafsson & Bush, 2017

Brueelia Kéler, 1936: 257 (*in partim*).
Indoceoplanetes Gustafsson & Bush, 2017: 137.

Type species: *Brueelia indonesiana* Eichler, 1947: 8. By original designation.

Remarks. All species of *Indoceoplanetes* (*Indoceoplanetes*) described here are largely translucent with some brown parts. The extent of the pigmentation is shown in the illustrations of heads by grey, dotted lines. Pigmentation varies among individuals, and illustrations show typical pigmentation patterns for each species. Other morphological characters should be used instead of, or in addition to pigmentation patterns for species identification.

The chaetotaxy of the male genitalia in species of *In.* (*Indoceoplanetes*) is difficult to see, in particular the dorsal anterior mesosomal setae [*ames*], which are often obscured by the dorsal fringe, and some ventral setae may be obscured by the oblique rugose fringes. Here, we describe the setae visible from the specimens we have examined and, in some cases, they differ between species. However, as genital chaetotaxy is generally conserved within a genus of the *Brueelia*-complex, we do not consider differences in genital chaetotaxy as taxonomically important. In future studies, with better quality specimens and/or more powerful imaging methods, it may be possible to determine if these differences are significant.

Indoceoplanetes (*Indoceoplanetes*) *microgenitalis* Gustafsson & Bush, new species
(Figs 1–7)

Type host. *Coracina caeruleogrisea strenua* (Schlegel, 1871) – stout-billed cuckooshrike.

Type locality. Mount Bosavi, Southern Highlands Province, Papua New Guinea.

Diagnosis. Shape of the proximal mesosome and mesosomal lobes suggest a close relationship between *In.* (*In.*) *microgenitalis* **new species** (Figs 4–6) and *In.* (*In.*) *saburrata* **new species** (Figs 11–13).

These two species can be separated by the following characters: proximal mesosome with slight lateral bulges in *In.* (*In.*) *microgenitalis* (Fig. 5), but without such bulges in *In.* (*In.*) *saburrata* (Fig. 12); female subgenital plate gently rounded distally in *In.* (*In.*) *microgenitalis* (Fig. 7), but broadly flattened distally in *In.* (*In.*) *saburrata* (Fig. 14); shape of dorsal fringe and distal margin of mesosome differ between species (Figs 4–5; 11–12); male tergopleurite V with 2 *ss* and male tergopleurites VI–VII with >2 *ss* on each side in *In.* (*In.*) *microgenitalis* (Fig. 1), but tergopleurite V with 1 *ss* and tergopleurites VI–VII with 2 *ss* on each side in *In.* (*In.*) *saburrata* (Fig. 8); abdominal segment VI in both sexes with 3 *ps* on each side in *In.* (*In.*) *microgenitalis* (Figs 1–2), but with 2 *ps* on each side in *In.* (*In.*) *saburrata* (Figs 8–9); lateral margins of preantennal head more convex in *In.* (*In.*) *microgenitalis* (Fig. 3) than in *In.* (*In.*) *saburrata* (Fig. 10).

Description. *Both sexes*. Head rounded trapezoidal (Fig. 3), lateral margins of preantennal head convex, frons slightly concave. Marginal carina broad, narrowing conspicuously near *dsms*, deeply displaced and widened at osculum. Ventral anterior plate slender, crescent-shaped. Head chaetotaxy as in Fig. 3. Preantennal nodi large, bulging. Pre- and post-ocular nodi large, connected dorsally by broad ocular band. Marginal temporal carina slender. Gular plate triangular, tapering anteriorly. Thoracic and abdominal segments as in Figs 1–2. Base pigmentation translucent; preantennal and preocular nodi dark brown; posterior section of marginal carina, margins of antennal sockets, parts of mandibular framework, ocular band, postocular nodi, gular plate, proepimera, metepisterna, medium brown; sternal plates II–VI and subgenital plates pale brown, anterior sternal plates paler than posterior plates.

Male. Thoracic and abdominal chaetotaxy as in Fig. 1; tergopleurite V with 2 *ss* on each side; tergopleurites VI–VII with 3–4 *ss* on each side; segment VI with 3 *ps* on each side. Basal apodeme roundly broadened anteriorly (Fig. 4). Proximal mesosome with lateral bulges but not marked extensions (Fig. 5), and anterior margin convex. Mesosomal lobes more or less parallel. Distal margin of mesosome deeply concave. Gonopore with antero-lateral extensions slightly hooked. Dorsal fringe not tilted posteriorly, with small rounded thumb-like process on anterior margin. Chaetotaxy: 2 ventral *gpmes* sensilla on each side of distal gonopore; *lpmes* not visible in single examined male; 1 dorsal *ames* sensilla on each side distal to dorsal fringe. Parameres and *pst1–2* as in Fig. 6. Measurements as in Table 1.

Female. Thoracic and abdominal chaetotaxy as in Fig. 2; segment VI with 3 *ps* on each side. Subgenital plate with broadly rounded distal margin (Fig. 7). Vulval margin flattened medianly, with 2 short, slender *vms* and 1 short, thorn-like *vss* on each side; 4–6 slender *vos* on each side of subgenital plate; distal 2–3 *vos* median to *vss*, and markedly longer than *vms*. Measurements as in Table 1.

Etymology. The species epithet is derived from Greek "*micros*" for "small" and Latin "*genitalis*" for "genitalia", referring to the relatively small male genitalia of this species.

Type material. Ex ***Coracina caeruleogrisea strenua*: Holotype** ♂, Mt. Bosavi, Southern Highlands Province, Papua New Guinea, 16 May 1973, 103199 (NHML). **Paratypes:** 1♀, same data as holotype (NHML).

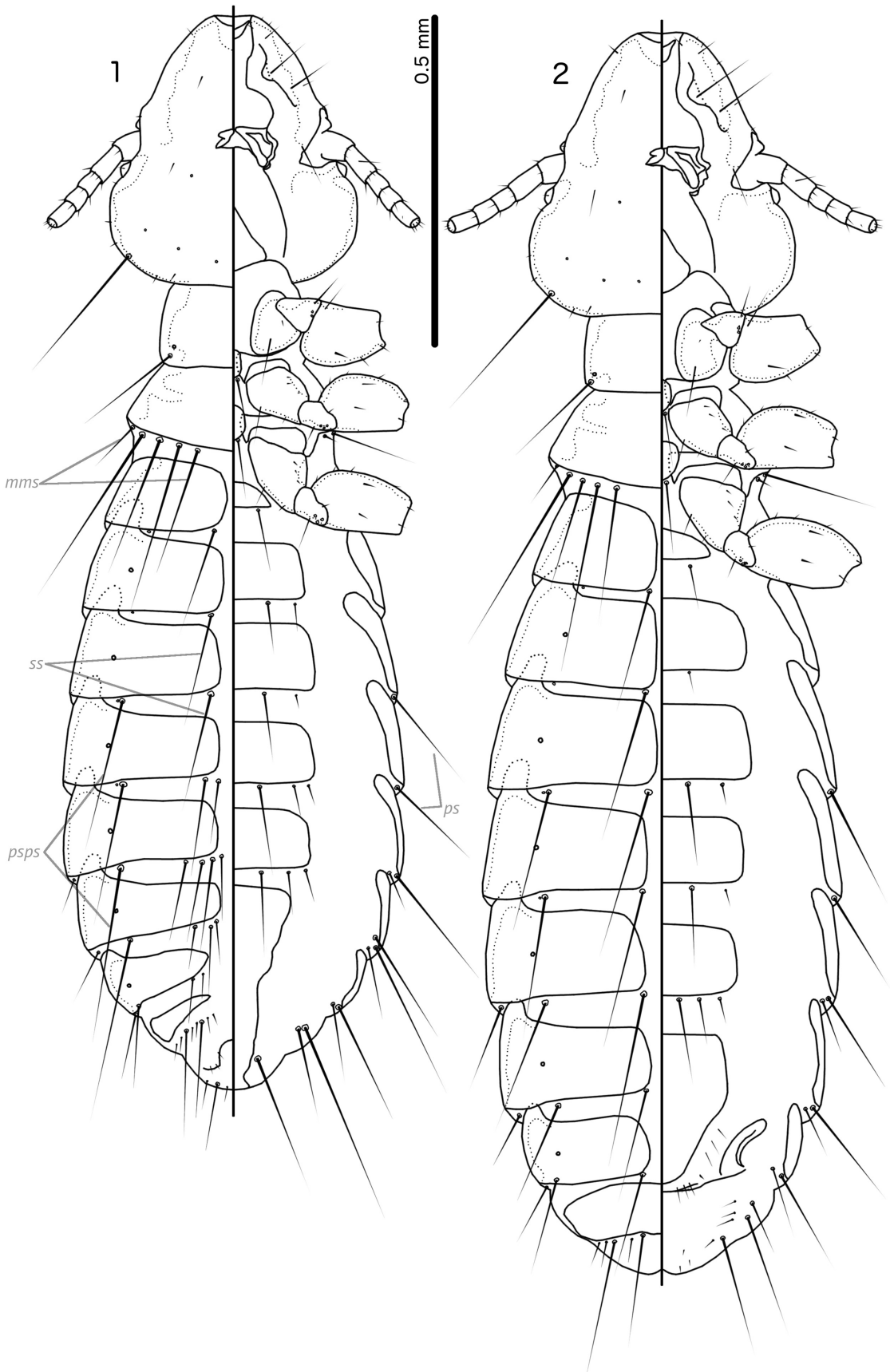
Indoceoplanetes (*Indoceoplanetes*) *saburrata* Gustafsson & Bush, new species
(Figs 8–14)

Type host. *Coracina lineata ombriosa* (Rothschild & Hartert, 1905) – barred cuckooshrike.

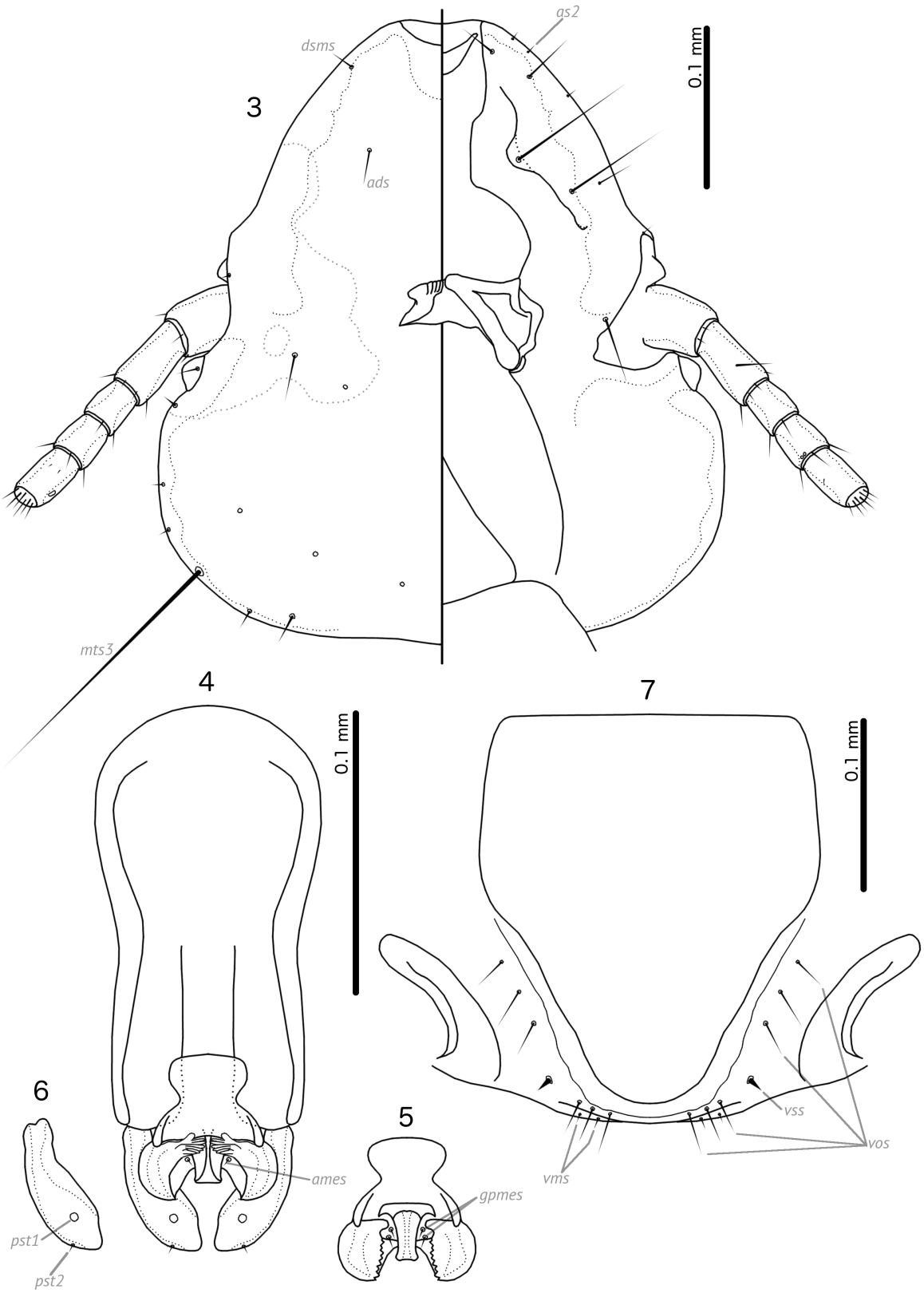
Type locality. Pepele, Kolombangara Island, Solomon Islands.

Diagnosis. *Indoceoplanetes* (*Indoceoplanetes*) *saburrata* **new species** is most similar to *In.* (*In.*) *microgenitalis* **new species**. To distinguish between these two species, see *In.* (*In.*) *microgenitalis*, above.

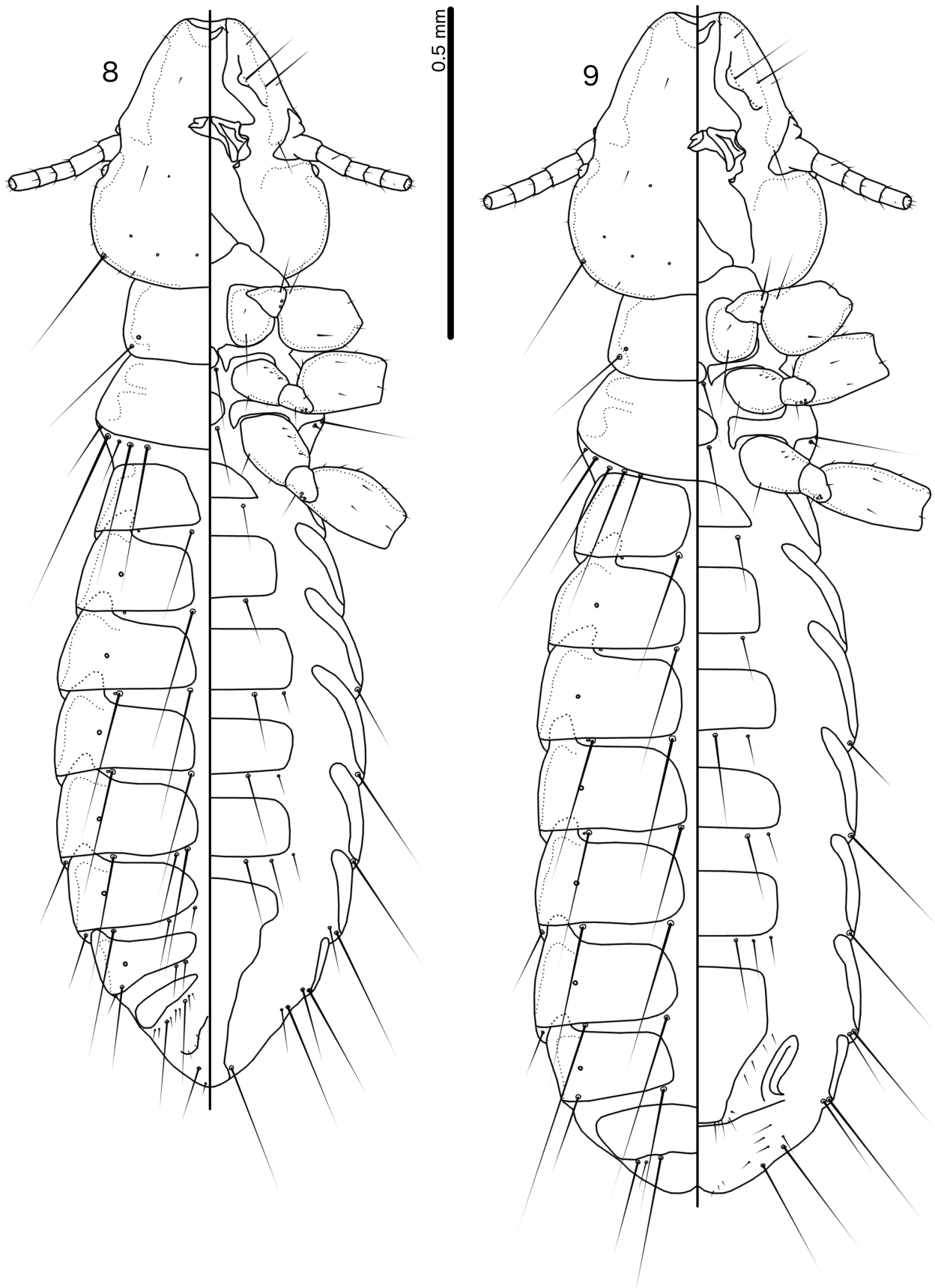
Description. *Both sexes*. Head rounded trapezoidal (Fig. 10), lateral margins of preantennal head slightly convex, frons slightly concave. Marginal carina broad, narrowing gradually anteriorly, deeply displaced and widened at osculum. Ventral anterior plate small, crescent-shaped. Head chaetotaxy as in Fig. 10. Preantennal nodi large, bulging.



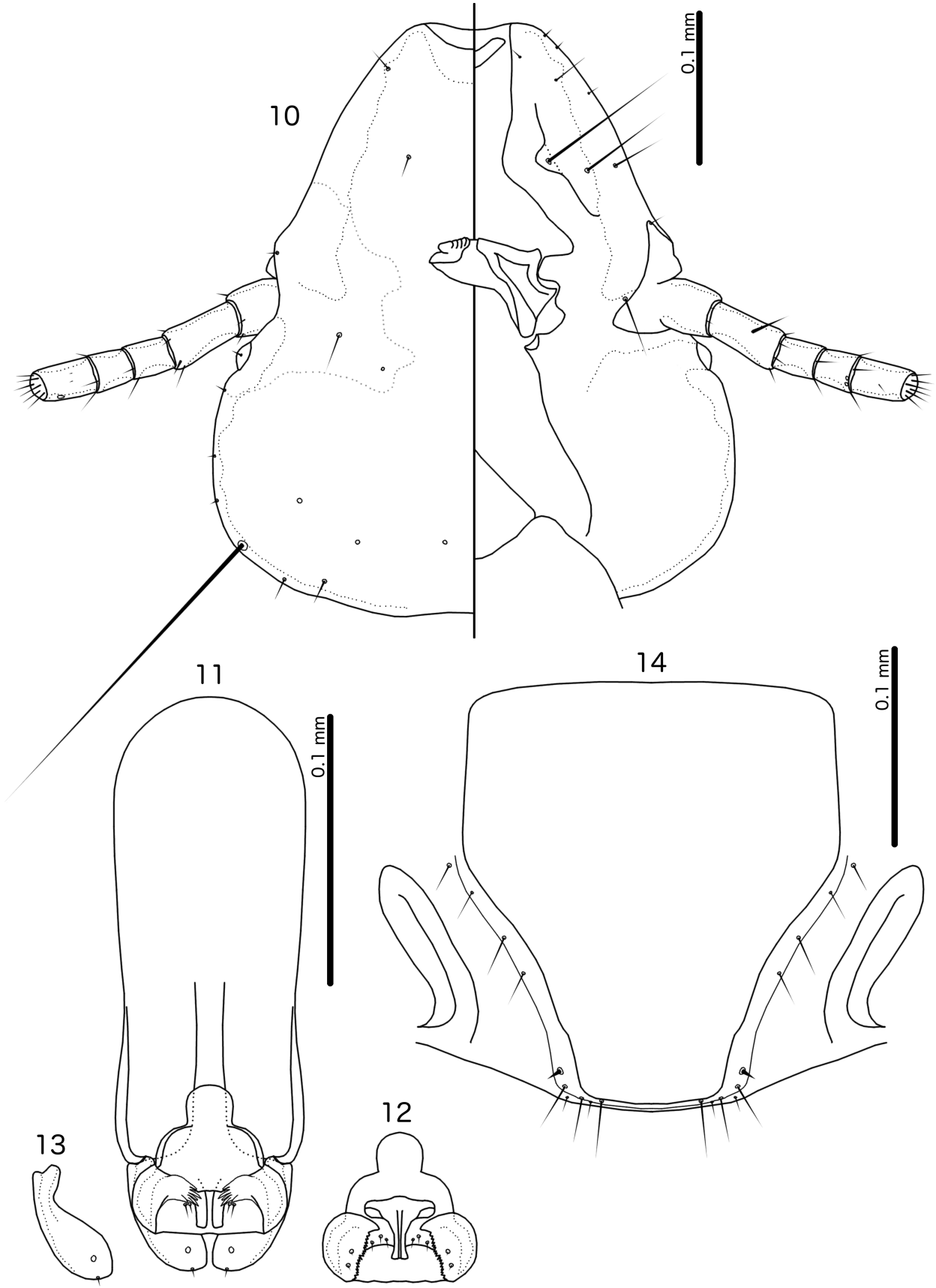
FIGURES 1–2. *Indoceoplanetes* (*Indoceoplanetes*) *microgenitalis* **new species** ex *Coracina caeruleogrisea strenua*. **1,** male habitus, dorsal and ventral views. **2,** female habitus, dorsal and ventral views. Abbreviations: *mms = marginal mesometathoracic seta*; *ps = paratergal seta*; *psps = principal postspiracular seta*; *ss = sutural seta*.



FIGURES 3–7. *Indoceoplanetes* (*Indoceoplanetes*) *microgenitalis* **new species** ex *Coracina caeruleogrisea strenua*. **3,** male head, dorsal and ventral views. **4,** male genitalia, dorsal view. **5,** male mesosome, ventral view. **6,** male paramere, dorsal view. **7,** female subgenital plate and vulval margin, ventral view. Abbreviations: *ads = anterior dorsal seta*; *ames = anterior mesosomal seta*; *as2 = anterior seta 2*; *dsms = dorsal submarginal seta*; *gpmes = gonoporal posterior mesosomal seta*; *lpmes = lateral posterior mesosomal seta*; *mts3 = marginal temporal seta 3*; *pst1–2 = parameral setae 1–2*; *vms = vulval marginal seta*; *vos = vulval oblique seta*; *vss = vulval submarginal seta*.



FIGURES 8–9. *Indoceoplanetes* (*Indoceoplanetes*) *saburrata* **new species** ex *Coracina lineata ombriosa*. **8,** male habitus, dorsal and ventral views. **9,** female habitus, dorsal and ventral views.



FIGURES 10–14. *Indoceoplanetes* (*Indoceoplanetes*) *saburrata* **new species** ex *Coracina lineata ombriosa*. **10,** male head, dorsal and ventral views. **11,** male genitalia, dorsal view. **12,** male mesosome, ventral view. **13,** male paramere, dorsal view. **14,** female subgenital plate and vulval margin, ventral view.

Pre- and post-ocular nodi large, connected dorsally by broad ocular band. Marginal temporal carina slender. Gular plate triangular. Thoracic and abdominal segments as in Figs 8–9. Base pigmentation translucent; preocular and preantennal nodi dark brown; mandibular framework, margins of antennal sockets, ocular band, postocular nodi, gular plate, proepimera, metepisterna, sternal plates IV–VI and subgenital plates medium brown; meso- and metasternal plates and sternal plates II–III pale brown.

Male. Thoracic and abdominal chaetotaxy as in Fig. 8; tergopleurites II–V with 1 *ss* on each side; tergopleurites VI–VII with 2 *ss* on each side; segment VI with 2 *ps* on each side. Basal apodeme rounded rectangular, lateral margins slightly concave (Fig. 11). Proximal mesosome small, rounded, without lateral bulges or extensions (Fig. 12), anterior margin convex. Mesosomal lobes more or less parallel. Distal margin of mesosome flat. Gonopore with antero-lateral extensions rounded. Dorsal fringe tilted posteriorly, without anterior thumb-like process. Chaetotaxy: 2–3 ventral *gpmes* on each side of distal gonopore; 2 *lpmes* sensilla on each side on mesosomal lobes; 1–2 dorsal *ames* on each side distal to dorsal fringe. Parameres and *pst1–2* as in Fig. 13. Measurements as in Table 1.

Female. Thoracic and abdominal chaetotaxy as in Fig. 9; segment VI with 2 *ps* on each side. Subgenital plate as in Fig. 14; distal margin broadly flattened. Vulval margin gently rounded to somewhat flattened medianly, with 2–3 short, slender *vms* and 1 short, thorn-like *vss* on each side; 4–7 slender *vos* on each side of subgenital plate; distal 2–3 *vos* on each side distal to *vss* and near *vms*, but substantially longer than *vms*. Measurements as in Table 1.

Etymology. The species epithet is derived from Latin "*saburro*" for "I ballast; I fill", with the arbitrary ending "*-ata*". This is reference to the bulky-looking male genitalia and the distally broad female subgenital plate.

Type material. Ex ***Coracina lineata ombriosa*: Holotype** ♂, Pepele, elev. 10 m, Kolombangara Island, Solomon Islands [as New Guinea], 5 Feb. 1964, P. Temple, BBM-NG-23470 (BPBM). **Paratypes:** 1♀, same data as holotype (BPBM); 4♂, 2♀, Ulo Crater, elev. 10 m, Vella Lavella Island, Solomon Islands, 10 Dec. 1963, P. Temple, BBM-SI-23285 (BPBM); 2♂, 1♀, Pussisama, elev. 5 m, Vella Lavella Island, Solomon Islands, 29 Nov. 1963, P. Temple, BBM-SI-23250 (BPBM).

Indoceoplanetes (*Indoceoplanetes*) *pterophora* Gustafsson & Bush, new species

(Figs 15–21)

Type host. *Coracina macei nipalensis* (Hodgson, 1836) – large cuckooshrike.

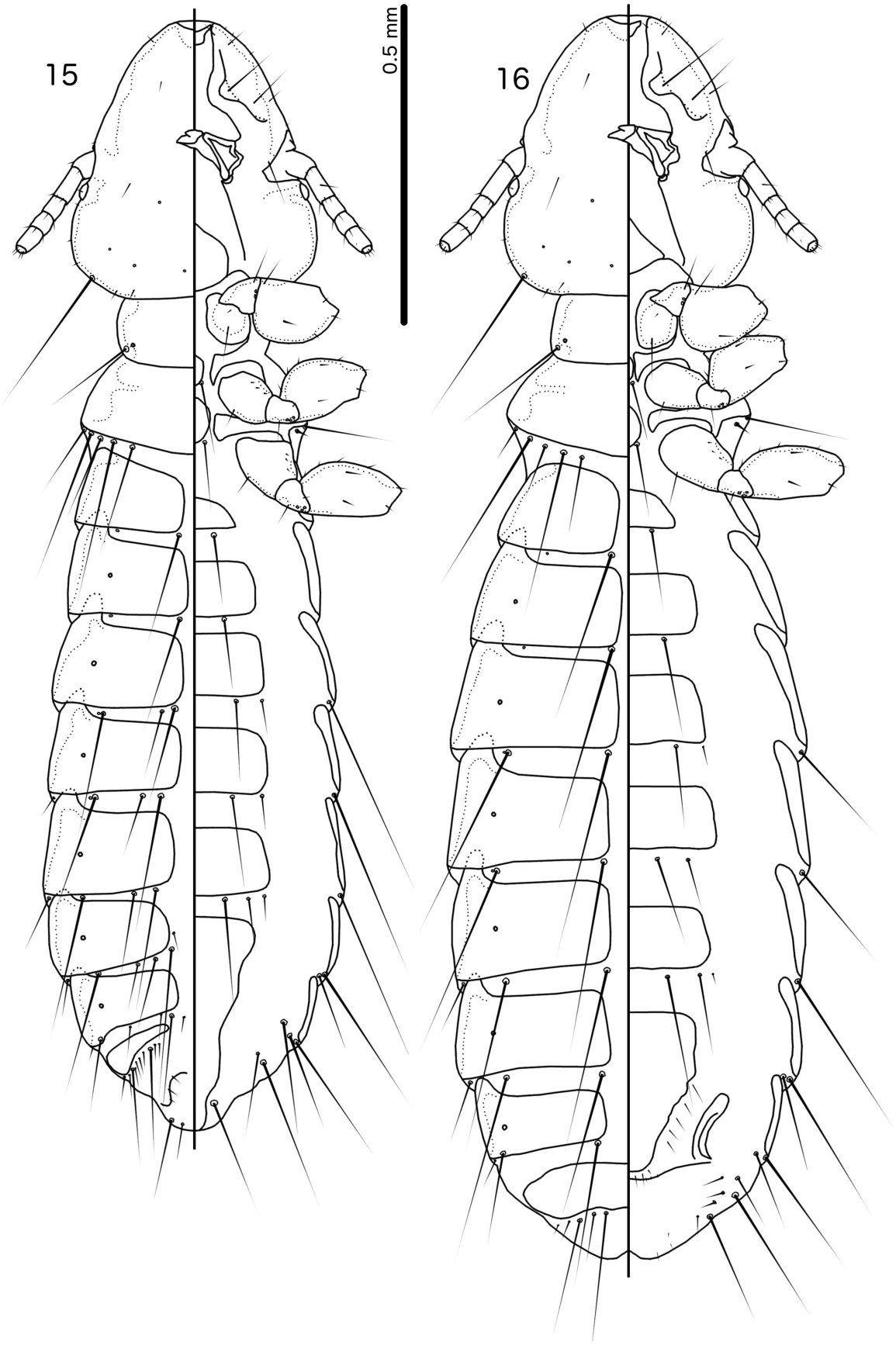
Type locality. Nepal.

Diagnosis. *Indoceoplanetes* (*Indoceoplanetes*) *pterophora* **new species** belongs to a species group with *In.* (*In.*) *wandoensis* **new species** and *In.* (*In.*) *fodincana* **new species**. This group is characterised by having the following combination of characters: similar proximal mesosomes (Figs 19, 33, 40), mesosomal lobes as in Figs 19, 33, 40), and 2 *sts* on each side on male sternite IV (Figs 15, 29, 36). *Indoceoplanetes* (*Indoceoplanetes*) *pterophora* can be separated from the other two members of this group by the following characters: male abdominal segment V with 2 *ps* on each side in *In.* (*In.*) *pterophora* (Fig. 15), but with 1 *ps* on each side in *In.* (*In.*) *wandoensis* (Fig. 29) and *In.* (*In.*) *fodincana* (Fig. 36); proximal mesosome longer and narrower in *In.* (*In.*) *pterophora* (Fig. 19) than in *In.* (*In.*) *wandoensis* (Fig. 33) and *In.* (*In.*) *fodincana* (Fig. 40).

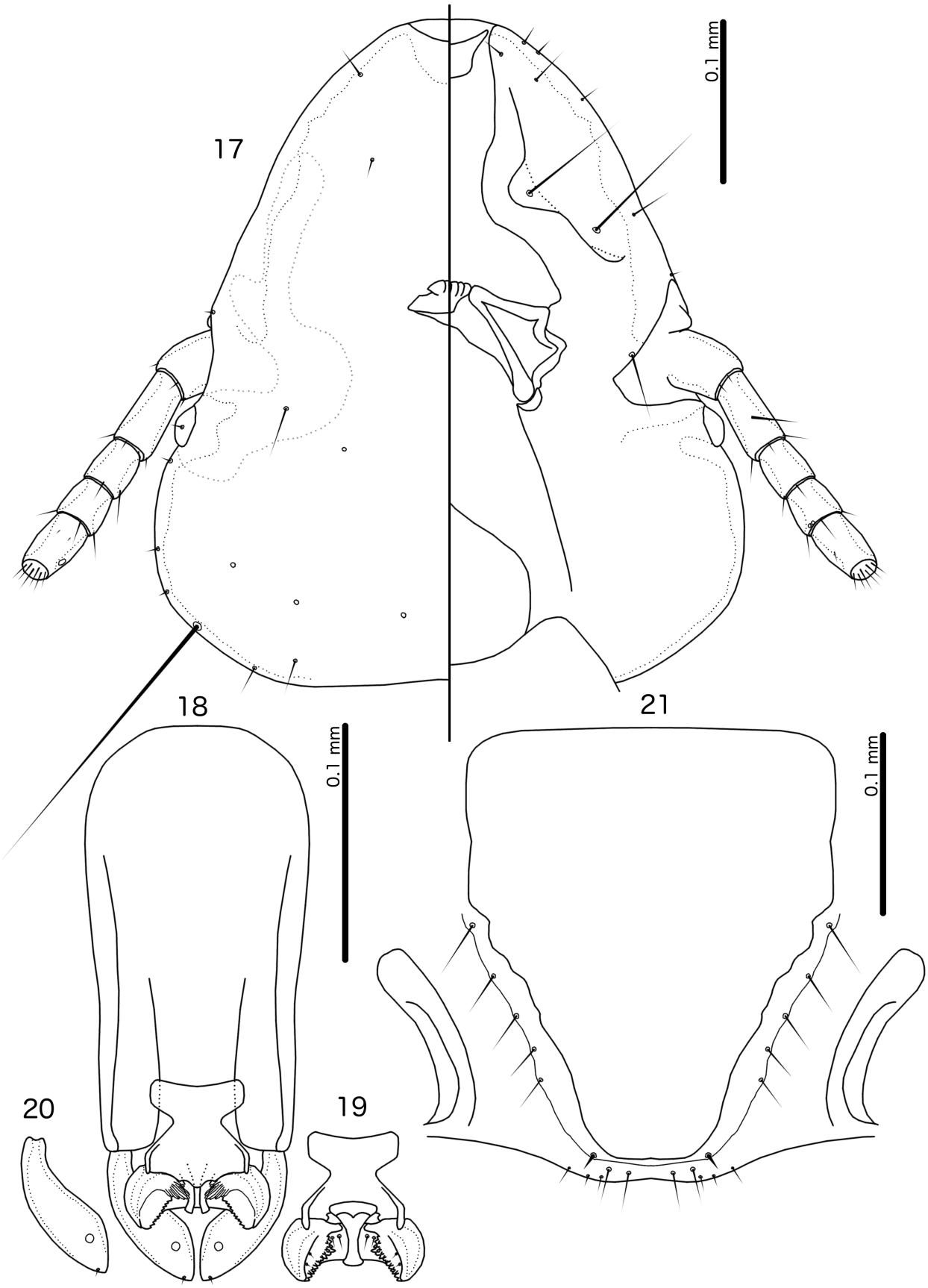
However, *In.* (*In.*) *pterophora* can be separated from *In.* (*In.*) *wandoensis* by the following characters: head proportionately broader in *In.* (*In.*) *pterophora* (Fig. 17) than in *In.* (*In.*) *fodincana* (Fig. 31); female subgenital plate more flattened distally and vulval margin with median concavity in *In.* (*In.*) *pterophora* (Fig. 21), but rounded distally and with vulval margin concave in *In.* (*In.*) *wandoensis* (Fig. 35); male tergopleurites V–VI with 2 *ss* on each side in *In.* (*In.*) *pterophora* (Fig. 15), but with 3 *ss* on each side in *In.* (*In.*) *wandoensis* (Fig. 29); female sternite III with 1 *sts* on each side in *In.* (*In.*) *pterophora* (Fig. 16), but with 2 *sts* on each side in *In.* (*In.*) *wandoensis* (Fig. 30).

Furthermore, *In.* (*In.*) *pterophora* can be separated from *In.* (*In.*) *fodincana* by the following characters: female subgenital plate and vulval margin of different shapes (*cf.* Figs 21, 42); male sternite III with 1 *sts* on each side in *In.* (*In.*) *pterophora* (Fig. 15), but with 2 *sts* on each side in *In.* (*In.*) *fodincana* (Fig. 36); male tergopleurites IV and VI each with 2 *ss* on each side in *In.* (*In.*) *pterophora* (Fig. 15), but male tergopleurite IV with 1 *ss* on each side and tergopleurite VI with 3 *sts* on each side in *In.* (*In.*) *fodincana* (Fig. 36).

Description. *Both sexes*. Head flat dome-shaped (Fig. 17), in some female specimens, more rounded trapezoidal, lateral margins of preantennal area slightly convex, frons rounded to slightly flattened. Marginal carina slender, deeply displaced and widened at osculum. Ventral anterior plate roughly crescent-shaped. Head chaetotaxy as in Fig. 17.



FIGURES 15–16. *Indoceoplanetes* (*Indoceoplanetes*) *pterophora* **new species** ex *Coracina macei nipalensis*. **15,** male habitus, dorsal and ventral views. **16,** female habitus, dorsal and ventral views.



FIGURES 17–21. *Indoceoplanetes* (*Indoceoplanetes*) *pterophora* **new species** ex *Coracina macei nipalensis*. **17,** male head, dorsal and ventral views. **18,** male genitalia, dorsal view. **19,** male mesosome, ventral view. **20,** male paramere, dorsal view. **21,** female subgenital plate and vulval margin, ventral view.

Preantennal nodi slender, bulging. Pre- and post-ocular nodi large, connected dorsally by broad ocular band. Marginal temporal carina slender. Gular plate with convex lateral sides converging to median point. Thoracic and abdominal segments as in Figs 15–16. Base pigmentation translucent; all specimens were stained red prior to mounting, so true pigmentation is unknown; head nodi, ocular band, gular plate, proepimera, metepisterna, sternal plates IV–VI and subgenital plate dark.

Male. Thoracic and abdominal chaetotaxy as in Fig. 15; sternite III with 1 *sts* on each side; abdominal segment V with 2 *ps* on each side; tergopleurites IV–VI with 2 *ss* on each side. Basal apodeme rounded rectangular, lateral margins slightly concave or straight (Fig. 18). Proximal mesosome narrow, with antero-lateral extensions as in Fig. 19, anterior margin concave. Mesosomal lobes slightly divergent distally. Distal margin of mesosome deeply concave. Gonopore with antero-lateral extensions short and blunt. Dorsal fringe distinctly tilted posteriorly, without thumb-like process. Chaetotaxy: 2 ventral *gpmes* microsetae on each side of distal gonopore; 2 ventral *lpmes* sensilla on each side on mesosomal lobes; 1 dorsal *ames* microseta on each side anterior to dorsal fringes. Parameres and *pst1–2* as in Fig. 20. Measurements as in Table 1.

Female. Thoracic and abdominal chaetotaxy as in Fig. 16; sternite III with 1 *sts* on each side. Subgenital plate trapezoidal, with irregularly undulating lateral margins in distal section (Fig. 21). Vulval margin slightly concave medianly, with 2–3 short, slender *vms* and 1–2 short, thorn-like *vss* on each side; 5–7 slender *vos* on each side of subgenital plate; distal 2 *vos* distal to *vss* and near *vms*, but substantially longer that *vms*. Measurements as in Table 1.

Etymology. The species epithet is derived from Greek "*ptero*" for "wing" and "*phora*" for "bearer", referring to the wing-shaped median ends of the mesosomal lobes.

Type material. Ex ***Coracina macei nipalensis*: Holotype** ♂, Nepal, Mar. 1937, R. Meinertzhagen, 9408 (NHML). **Paratypes:** 14♀, same data as holotype (NHML).

Remarks. The single male examined has a distorted thorax; therefore, the thoracic segments are illustrated approximately.

Indoceoplanetes (*Indoceoplanetes*) *incisoma* Gustafsson & Bush, new species
(Figs 22–28)

Type host. *Coracina macei siamensis* (Baker, 1918) – large cuckooshrike.

Type locality. Khao Sawan Mountain, Sieo, Loei Province, Thailand.

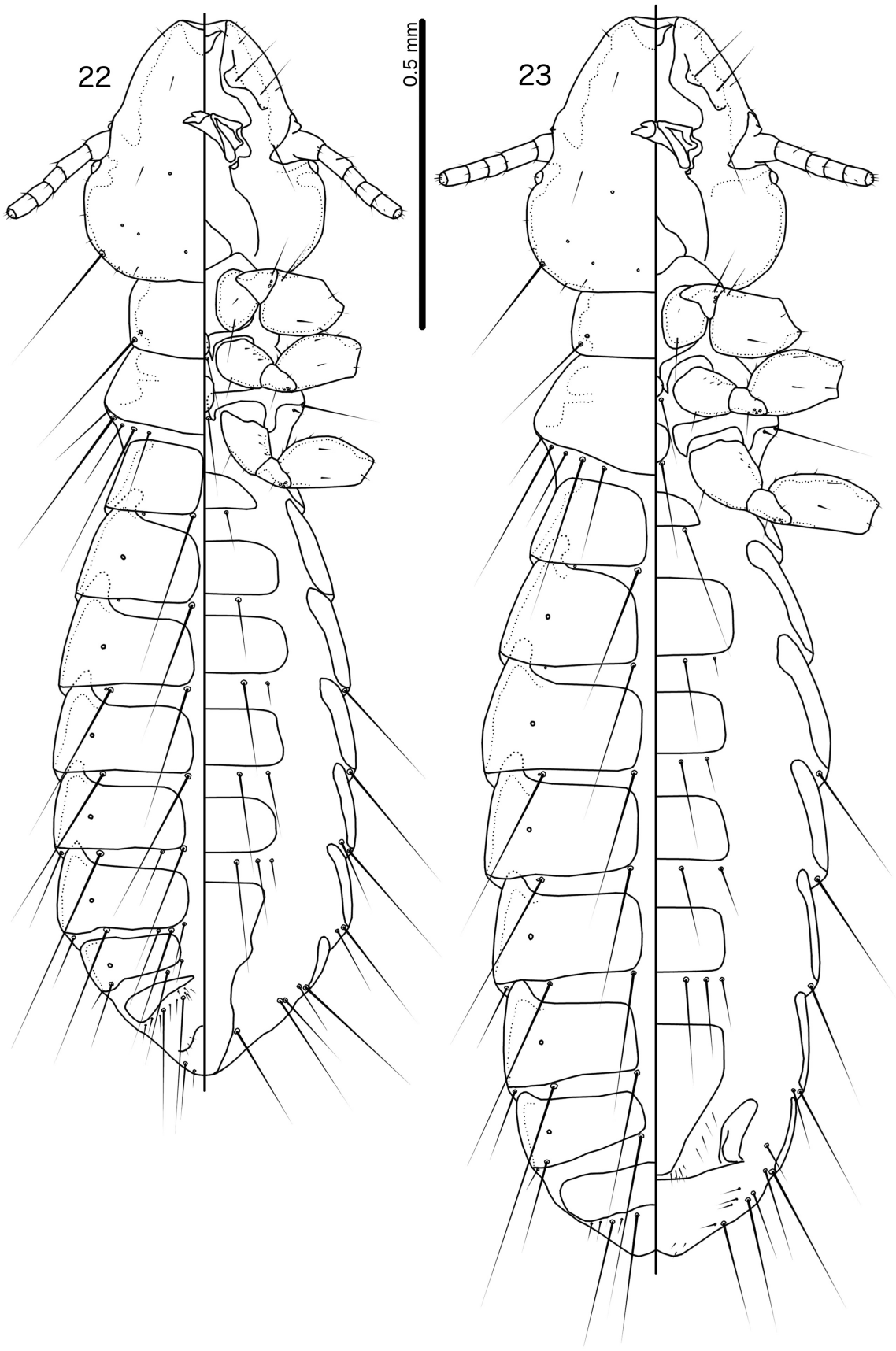
Other host. *Coracina macei rexpineti* (Swinhoe, 1863).

Diagnosis. *Indoceoplanetes* (*Indoceoplanetes*) *incisoma* **new species** is most similar to *In.* (*In.*) *zambica* **new species**, both sharing the following characters: mesosomal lobes widely divergent distally (Figs 26, 47); dorsal fringe of mesosome strongly tilted medio-posteriorly (Figs 25, 46); male tergopleurites IV–V with 1 *ss* on each side and tergopleurite VI with 2 *ss* on each side (Figs 22, 43).

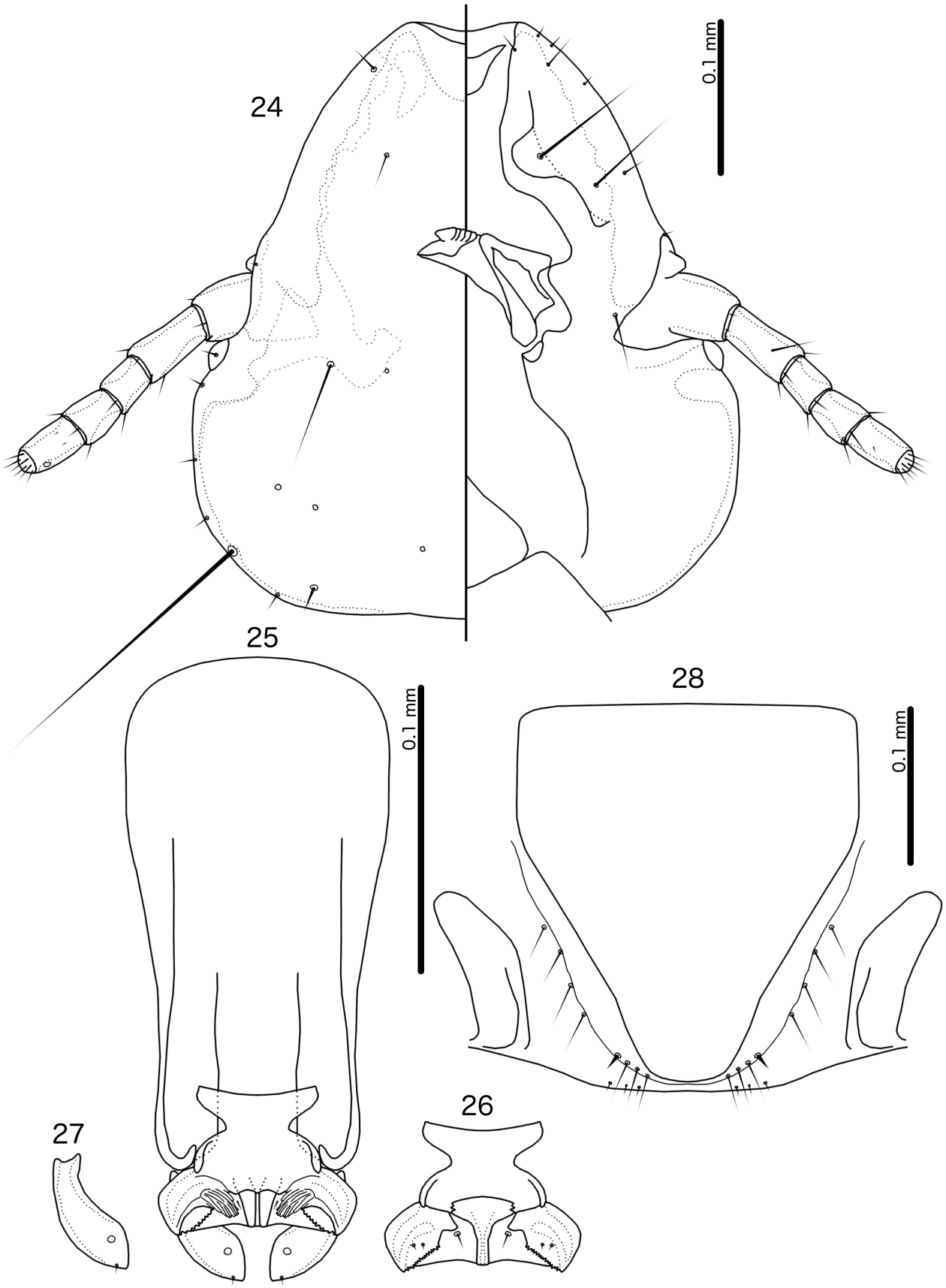
These two species can be separated by the following characters: male sternite IV with 2 *sts* on each side in *In.* (*In.*) *incisoma* (Fig. 22), but with 1 *sts* one each side in *In.* (*In.*) *zambica* (Fig. 43); male abdominal segment VI with 3 *ps* on each side in *In.* (*In.*) *incisoma* (Fig. 22), but with 1 *ps* on each side in *In.* (*In.*) *zambica* (Fig. 43); antero-lateral extensions of proximal mesosome more slender in *In.* (*In.*) *incisoma* (Fig. 26) than in *In.* (*In.*) *zambica* (Fig. 47); mesosome proportionately broader in *In.* (*In.*) *incisoma* (Fig. 26), but narrower in *In.* (*In.*) *zambica* (Fig. 47; female subgenital plates of different shapes (*cf.* Figs 28, 49).

Description. *Both sexes*. Head rounded trapezoidal (Fig. 24), lateral margins of preantennal area convex, frons broadly concave. Marginal carina broad, inner margin irregular, deeply displaced and widened at osculum. Ventral anterior plate rounded triangular, with concave lateral margins. Head chaetotaxy as in Fig. 24. Preantennal nodi broad, bulging. Pre- and post-ocular nodi large, connected dorsally by broad ocular band. Marginal temporal carina slender. Gular plate triangular. Thoracic and abdominal segments as in Figs 22–23. Base pigmentation pale yellow translucent; preantennal and preocular nodi dark brown; margins of antennal sockets, ocular band, postocular nodi, parts of mandibular framework, gular plate, proepimera, metepisterna, sternal plates IV–VI and subgenital plates medium brown.

Male. Thoracic and abdominal chaetotaxy as in Fig. 22; tergopleurites IV–V with 1 *ss* on each side and tergopleurite VI with 2 *ss* on each side; sternite IV with 2 *sts* on each side; abdominal segment VI with 3 *ps* on each side. Basal apodeme broad, narrowing distally (Fig. 25). Proximal mesosome with antero-lateral extensions (Fig. 26), proximal margin concave. Mesosomal lobes widely divergent distally. Distal margin of mesosome slightly concave,



FIGURES 22–23. *Indoceoplanetes* (*Indoceoplanetes*) *incisoma* **new species** ex *Coracina macei siamensis*. **22,** male habitus, dorsal and ventral views. **23,** female habitus, dorsal and ventral views.



FIGURES 24–28. *Indoceoplanetes* (*Indoceoplanetes*) *incisoma* **new species** ex *Coracina macei siamensis*. **24,** male head, dorsal and ventral views. **25,** male genitalia, dorsal view. **26,** male mesosome, ventral view. **27,** male paramere, dorsal view. **28,** female subgenital plate and vulval margin, ventral view.

bulging medianly. Gonopore with slightly fringed lateral margins of antero-lateral extensions. Dorsal fringe tilted distinctly posteriorly, without thumb-like process. Chaetotaxy: 1 *gpmes* microseta on each side of distal gonopore; 2 *lpmes* sensilla on each mesosomal lobe; 1 *ames* microseta anterior to dorsal fringe on each side. Parameres and *pst1–2* as in Fig. 27. Measurements as in Table 1.

Female. Thoracic and abdominal chaetotaxy as in Fig. 23. Subgenital plate trapezoidal, lateral margins slightly concave, distal margin flattened (Fig. 28). Vulval margin flattened to slightly concave medianly, with 2–3 short, slender *vms* and 1–2 short, thorn-like *vss* on each side; 4–7 slender *vos* on each side of subgenital plate; distal 2–3 *vos* median to *vss*, substantially longer than *vms*. Measurements as in Table 1.

Etymology. The species epithet is derived from Latin "*incus*" for "anvil" and Greek "*soma*" for "body", referring to the shape of the proximal mesosome.

Type material. Ex ***Coracina macei siamensis*** **[**as ***C. novaehollandiae siamensis*****]: Holotype** ♂, Khao Sawan Mountain, Sieo, Loei Province, Thailand, 29 Nov. 1955, R.E. Elbel & B. Lekagul, RE-3177, RT-B-22605 (BPBM). **Paratypes:** 1♀, same data as holotype (BPBM); 1♂, 1♀, Pang La, Lampang Province, Thailand, 7 Feb. 1953, R.E. Elbel & H.G. Deignan, RE-2242, RT-B-17752 (PIPR); 1♂, 1♀, Non Han Ban N Nong Thum, Chumphae, Khon Kaen Province, Thailand, 28 Oct. 1953, R.E. Elbel & B. Lekagul, RE-3085, RT-B-22571 (PIPR); 1♂, 1♀, same locality and collectors, 4 Nov. 1953, RE-3124, RT-B-22586 (PIPR).

Additional material examined (non-types): Ex ***Coracina macei rexpineti*****:** 3♂, Jing Xin County, Guanxi Province, China, 29 Sep. 2004, S.E. Bush, P#354, AM-435, PIPR#84 and #53 (PIPR).

Remarks. Samples from the two host subspecies are largely indistinguishable, but abdominal setae are generally longer and the antero-lateral extensions of the proximal mesosome are slightly larger in specimens from *C. m. rexpineti* than in those from the type host. We do not consider these differences significant, and treat all material from both host subspecies as conspecific.

Indoceoplanetes (*Indoceoplanetes*) *wandoensis* Gustafsson & Bush, new species
(Figs 29–35)

Type host. *Coracina novaehollandiae melanops* (Latham, 1802) – black-faced cuckooshrike.

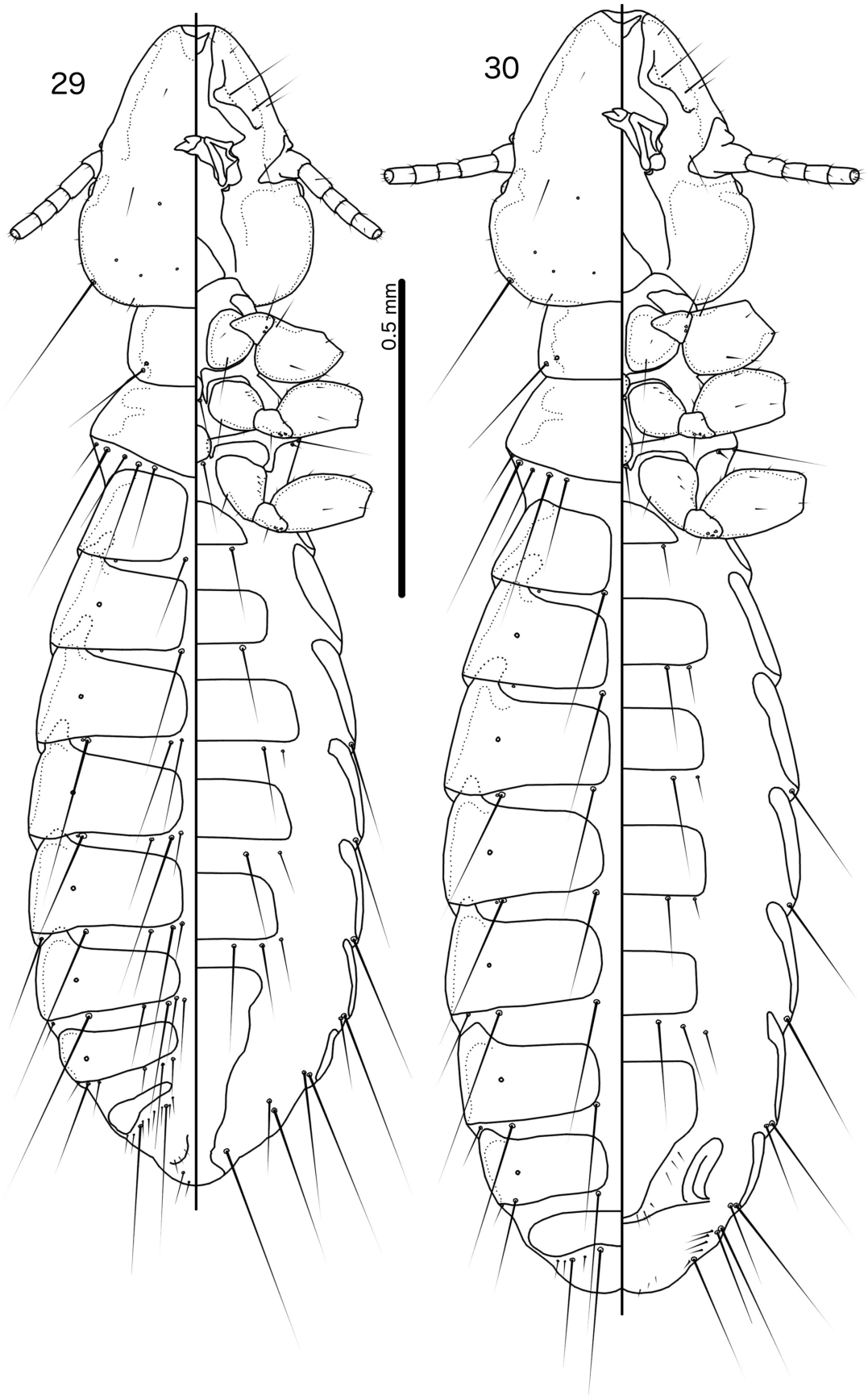
Type locality. Wando, Western Province, Papua New Guinea.

Diagnosis. *Indoceoplanetes* (*Indoceoplanetes*) *wandoensis* **new species** is most similar to *In.* (*In.*) *pterophora* **new species** and *In.* (*In.*) *fodincana* **new species**. For a comparison between *In.* (*In.*) *wandoensis* and *In.* (*In.*) *pterophora*, see the latter species, above.

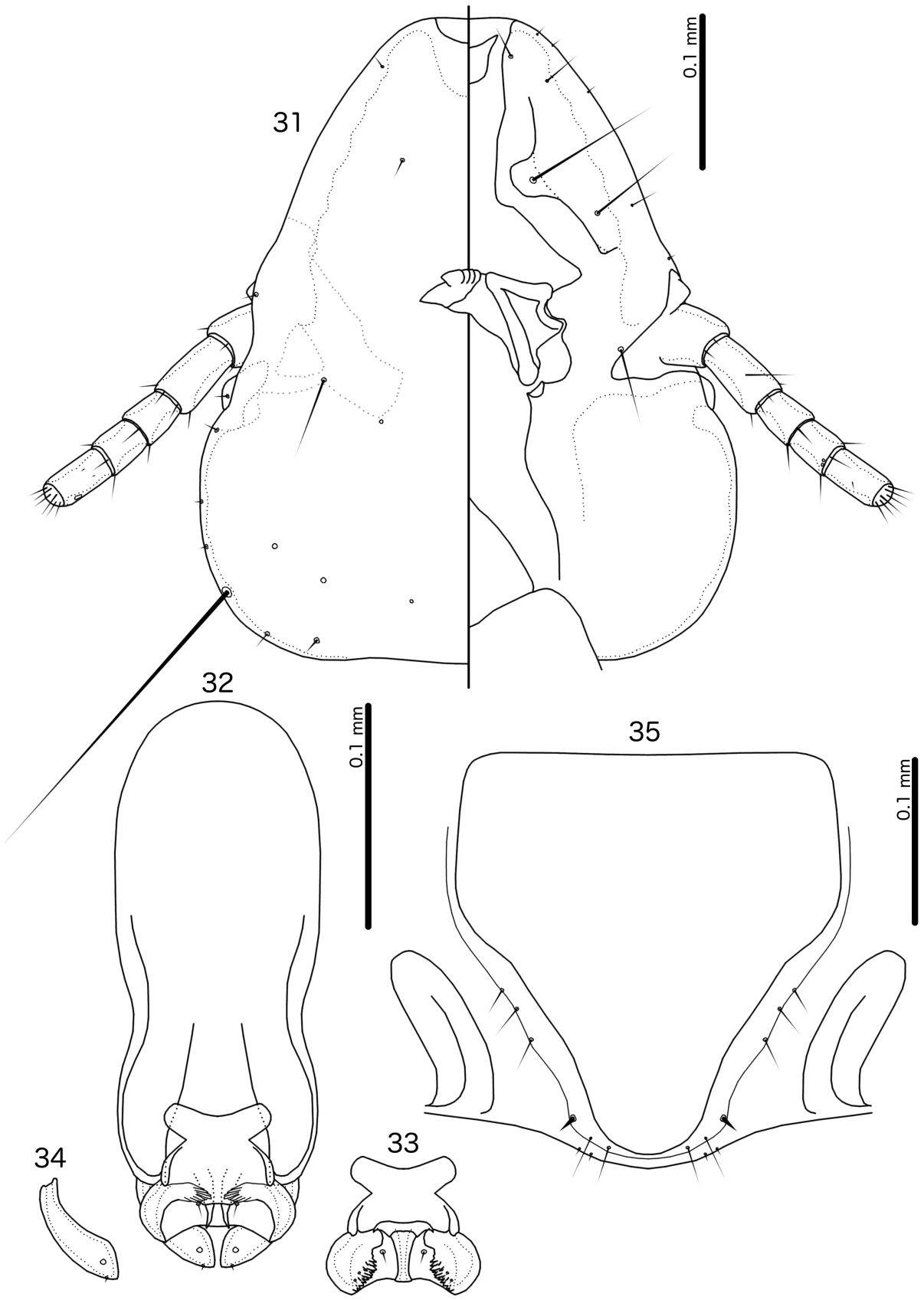
Indoceoplanetes (*Indoceoplanetes*) *wandoensis* can be separated from *In.* (*In.*) *fodincana* by the following characters: male tergopleurite IV with 2 *ss* and male tergopleurite V with 3 *ss* on each side in *In.* (*In.*) *wandoensis* (Fig. 29), but tergopleurite IV with 1 *ss* and tergopleurite V with 2 *ss* on each side in *In.* (*In.*) *fodincana* (Fig. 36); male sternite III with 1 *sts* on each side in *In.* (*In.*) *wandoensis* (Fig. 29), but with 2 *sts* on each side in *In.* (*In.*) *fodincana* (Fig. 36); female subgenital plate rounded distally in *In.* (*In.*) *wandoensis* (Fig. 35), but flattened distally in *In.* (*In.*) *fodincana* (Fig. 42).

Description. *Both sexes*. Head rounded trapezoidal (Fig. 31), lateral margins of preantennal head convex, frons flattened. Marginal carina broad, narrowing anterior to *dsms*, deeply displaced and widened at osculum. Ventral anterior plate rounded, with concave anterior margin and sinuous lateral margins. Head chaetotaxy as in Fig. 31. Preantennal nodi wide, bulging. Pre- and post-ocular nodi large, connected dorsally by broad ocular band. Marginal temporal carina slender. Gular plate triangular, lateral margins slightly convex. Thoracic and abdominal segments as in Figs 29–30. Base pigmentation translucently pale yellow; head nodi, gular plate, proepimera, and metepisterna dark brown; margins of antennal sockets, mandibular framework, sternal plate IV–VI and subgenital plates medium brown; head carinae yellowish.

Male. Thoracic and abdominal chaetotaxy as in Fig. 29; tergopleurite IV with 2 *ss* and tergopleurites V–VI with 3 *ss* on each side; sternite III with 1 *sts* on each side. Basal apodeme rounded, with concave lateral margins (Fig. 32). Proximal mesosome with antero-lateral extensions (Fig. 33), anterior margin deeply concave. Mesosomal lobes divergent distally. Distal margin of mesosome concave, but median section bulging. Gonopore with slightly hooked antero-lateral extensions. Dorsal fringe not tilted posteriorly. Chaetotaxy: 1 ventral *gpmes* microsetae on each side lateral to distal gonopore; 2 *lpmes* sensilla on each side on mesosomal lobes; 1 dorsal *ames* microseta on each side posterior to dorsal fringe. Parameres and *pst1–2* as in Fig. 34. Measurements as in Table 1.



FIGURES 29–30. *Indoceoplanetes* (*Indoceoplanetes*) *wandoensis* **new species** ex *Coracina novaehollandiae melanops*. **29,** male habitus, dorsal and ventral views. **30,** female habitus, dorsal and ventral views.



FIGURES 31–35. *Indoceoplanetes* (*Indoceoplanetes*) *wandoensis* **new species** ex *Coracina novaehollandiae melanops*. **31,** male head, dorsal and ventral views. **32,** male genitalia, dorsal view. **33,** male mesosome, ventral view. **34,** male paramere, dorsal view. **35,** female subgenital plate and vulval margin, ventral view.

Female. Thoracic and abdominal chaetotaxy as in Fig. 30; female sternite III with 2 *sts* on each side. Subgenital plate as in Fig. 35, lateral margins concave in distal section, distal margin rounded. Vulval margin bulging medianly, with 2–3 short, slender *vms* and 1 short, thorn-like *vss* on each side; 4–6 slender *vos* on each side of subgenital plate; distal 2 *vos* distal to *vss*, substantially longer than *vms*. Measurements as in Table 1.

Etymology. The species epithet is derived from the type locality.

Type material. Ex ***Coracina novaehollandiae melanops*: Holotype** ♂, Wando, Western Province, Papua New Guinea, Oct. 1969, I.L. Owen, 691016/13a, Brit. Mus. 1970-381 (NHML). **Paratypes:** 3♂, 1♀, same data as holotype (NHML).

Additional material examined (non-types): Ex ***Coracina novaehollandiae melanops*:** 2♂, 1♀, Weam, elev. 30 ft., Western Province, Papua New Guinea, 14 Jun. 1964, H. Clissold, BBM-NG-50840 (BBM); 2♀, same data except BBM-NG-40841 (BPBM); 6♂, 12♀, same data except BBM-NG-40842 [host not identified with certainty on slide] (BPBM); 1♂, 3♀, same data except BBM-NG-40843 [host not identified with certainty on slide] (BPBM).

Indoceoplanetes (*Indoceoplanetes*) *fodincana* Gustafsson & Bush, new species
(Figs 36–42)

Type host. *Coracina papuensis oriomo* Mayr & Rand, 1936 – white-bellied cuckooshrike.

Type locality. Balimo, Western Province, Papua New Guinea.

Other hosts. *Coracina papuensis angustifrons* (Salvadori, 1876). *Coracina papuensis elegans* (Ramsay, 1881).

Diagnosis. *Indoceoplanetes* (*Indoceoplanetes*) *fodincana* **new species** is most similar to *In.* (*In.*) *wandoensis* **new species** and *In.* (*In.*) *pterophora* **new species**. For comparisons between *In.* (*In.*) *fodincana* and these two species, see above, under their respective diagnoses.

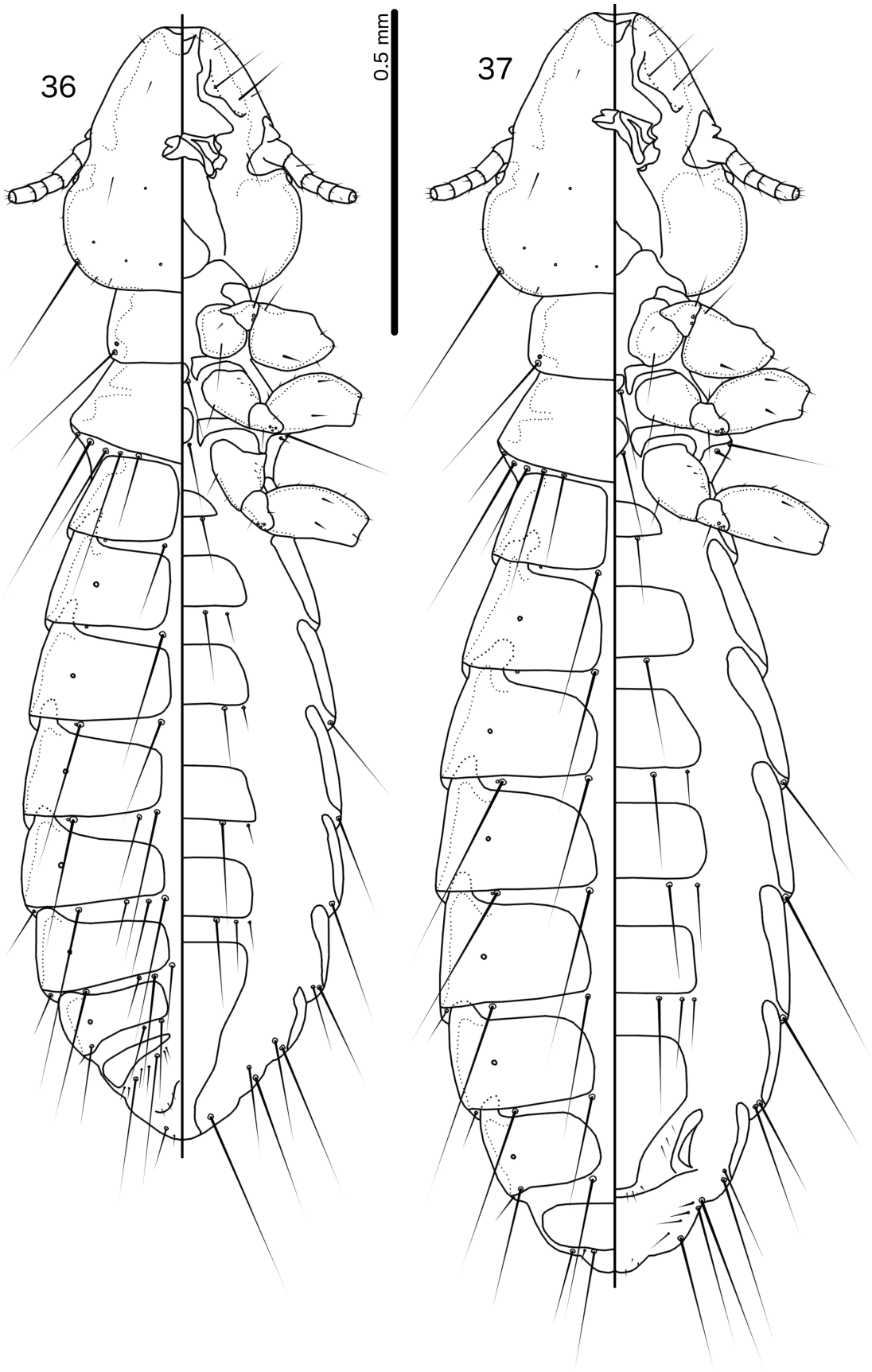
Description. *Both sexes*. Head rounded trapezoidal (Fig. 38), lateral margins of preantennal head convex, frons straight to slightly concave. Marginal carina broad, narrowing anterior to *dsms*, deeply displaced and widened at osculum. Ventral anterior plate rounded, with concave anterior margin and sinuous lateral margins. Head chaetotaxy as in Fig. 38. Preantennal nodi wide, bulging. Pre- and post-ocular nodi large, connected dorsally by broad ocular band. Marginal temporal carina slender. Gular plate triangular, lateral margins concave. Thoracic and abdominal segments as in Figs 36–37. Base pigmentation pale yellow translucent; head nodi, proepimera, and metepisterna dark brown; marginal and anterior section of marginal temporal carinae, margins of antennal sockets, gular plate, sternal plates IV–VI, and subgenital plates medium brown.

Male. Thoracic and abdominal chaetotaxy as in Fig. 36; tergopleurite IV with 1 *ss* on each side, tergopleurite V with 2 *ss* on each side, tergopleurite VI with 3 *sts* on each side; sternite III with 2 *sts* on each side; abdominal segment V with 1 *ps* on each side. Basal apodeme rounded proximally, with concave lateral margins (Fig. 39). Proximal mesosome with broad antero-lateral extensions (Fig. 40), and anterior margin concave. Mesosomal lobes divergent distally. Distal margin of mesosome concave. Gonopore with antero-lateral extensions as in Fig. 40. Dorsal fringe not tilted posteriorly and without thumb-like process. Chaetotaxy: 1 ventral *gpmes* microseta on each side of distal gonopore; 2 *lpmes* sensilla on each mesosomal lobe, situated inside the rugose area and difficult to see in some specimens; 1 dorsal *ames* microseta on each side distal to dorsal fringe. Parameres and *pst1–2* as in Fig. 41. Measurements as in Table 1.

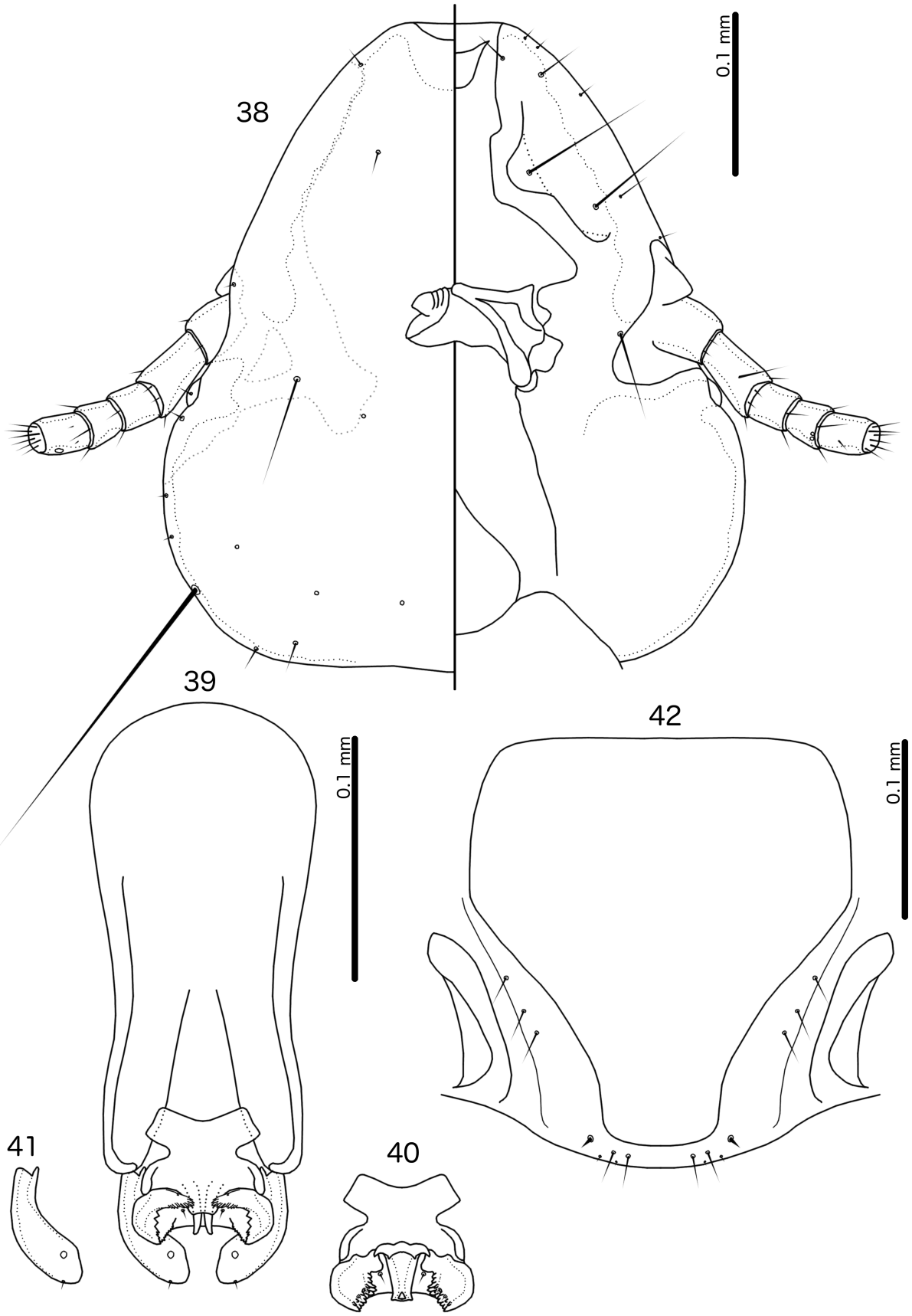
Female. Thoracic and abdominal chaetotaxy as in Fig. 37. Subgenital plate as in Fig. 42, with lateral margins concave distally. Vulval margin gently rounded, with 2 short, slender *vms* and 1–2 short, thorn-like *vss* on each side; 5–6 slender *vos* on each side of subgenital plate; distal 2 *vos* median to *vss* and substantially longer than *vms*. Measurements as in Table 1.

Etymology. The species epithet is derived from "*fodio*", Latin for "dig or mine", and "*incanus*", Latin for "grey", referring to the grey plumage of the host species.

Type material. Ex ***Coracina papuensis oriomo*: Holotype** ♂, Balimo, elev. 30 ft., Western Province, Papua New Guinea, 12 May 1964, H. Clissold, BBM-NG-50186 (BPBM). **Paratypes:** 3♀, same data as holotype (BPBM); 3♀, Oriomo Rover, elev. 20 ft., Western Province, Papua New Guinea, 6 Feb. 1964, H. Clissold, BBM-NG-29409 (BPBM).



FIGURES 36–37. *Indoceoplanetes* (*Indoceoplanetes*) *fodincana* **new species** ex *Coracina papuensis oriomo*. **36,** male habitus, dorsal and ventral views. **37,** female habitus, dorsal and ventral views.



FIGURES 38–42. *Indoceoplanetes* (*Indoceoplanetes*) *fodincana* **new species** ex *Coracina papuensis oriomo*. **38,** male head, dorsal and ventral views. **39,** male genitalia, dorsal view. **40,** male mesosome, ventral view. **41,** male paramere, dorsal view. **42,** female subgenital plate and vulval margin, ventral view.

Additional material examined (non-types): Ex ***Coracina papuensis angustifrons*:** 2♂, 1♀, Mt. Lamington, elev. 500 m, vicinity of Amboga Road, Northern District, Papua New Guinea, 4 Jul. 1966, P.J. Shanahan, BBM-NG-25244 (BPBM); 3♂, 1♀, Wau CK, Morobe Province, Papua New Guinea, 9 Sep. 1962, [H.] Clissold, BM-NG-20557 (BPBM).

Ex ***Coracina papuensis elegans*:** 3♀, Tabalia, elev. 20 m, Guadalcanal Island, Solomon Islands [as New Guinea], 31 May 1964, P.J. Shanahan, BBM-NG-23917 (BPBM).

Remarks. Most of the specimens from *C. p. angustifrons* are poorly preserved, but tentatively identified as *In.* (*In.*) *fodincana* based on the characters that can be observed. More specimens are needed to confirm that the population living on this host subspecies is conspecific with those living on other host subspecies.

Indoceoplanetes (*Indoceoplanetes*) *zambica* Gustafsson & Bush, new species
(Figs 43–49)

Type host. *Coracina pectoralis* (Jardine & Selby, 1828) – white-breasted cuckooshrike.

Type locality. Luanshya, Zambia.

Diagnosis. *Indoceoplanetes* (*Indoceoplanetes*) *zambica* **new species** is most similar to *In.* (*In.*) *incisoma* **new species.** For a comparison between these two species, see the diagnosis for *In.* (*In.*) *incisoma*, above.

Description. *Both sexes*. Head rounded trapezoidal (Fig. 45), lateral margins of preantennal head convex, frons slightly concave. Marginal carina broad, narrowing anterior to *dsms*, deeply displaced and widened at osculum. Ventral anterior plate rounded, with concave anterior margin and sinuous lateral margins. Head chaetotaxy as in Fig. 45. Preantennal nodi wide, bulging slightly. Pre- and post-ocular nodi large, connected dorsally by broad ocular band. Marginal temporal carina slender. Gular plate triangular, lateral margins convex. Thoracic and abdominal segments as in Figs 43–44. Base pigmentation translucent; head nodi, proepimera, and metepisterna medium brown; much of preantennal head (dotted line in Fig. 45), margins of antennal sockets, gular plate, sternal plates V–VI (in some specimens also posterior end of sternal plate IV), subgenital plates, and central part of female tergopleurite IX+X pale brown.

Male. Thoracic and abdominal chaetotaxy as in Fig. 43; tergopleurites IV–V with 1 *ss* on each side and tergopleurite VI with 2 *ss* on each side; sternite IV with 1 *sts* one each side; male abdominal segment VI with 1 *ps* on each side. Basal apodeme rounded, narrowing slightly distally, lateral margins slightly concave (Fig. 46). Proximal mesosome with antero-lateral extensions (Fig. 47), anterior margin concave. Mesosomal lobes divergent distally. Distal margin of mesosome roughly flat. Gonopore with bluntly triangular antero-lateral extensions. Dorsal fringe tilted posteriorly. Chaetotaxy: 1 ventral *gpmes* microseta on each side of distal gonopore; 2 *lpmes* microsetae on each side on mesosomal lobes, with distal *lpmes* near distal margin; 1 dorsal *ames* microseta on each side median to dorsal fringes. Parameres and *pst1–2* as in Fig. 48. Measurements as in Table 1.

Female. Thoracic and abdominal chaetotaxy as in Fig. 44. Subgenital plate hexagonal (Fig. 49), distal margin flat. Vulval margin concave medianly, with 2–3 short, slender *vms* and 0–1 short, thorn-like *vss* on each side; 5–7 slender *vos* on each side of subgenital plate; distal 1–3 *vos* distal to *vss* and substantially longer than *vms*. Measurements as in Table 1.

Etymology. The species epithet is derived from the name of the country of the type locality.

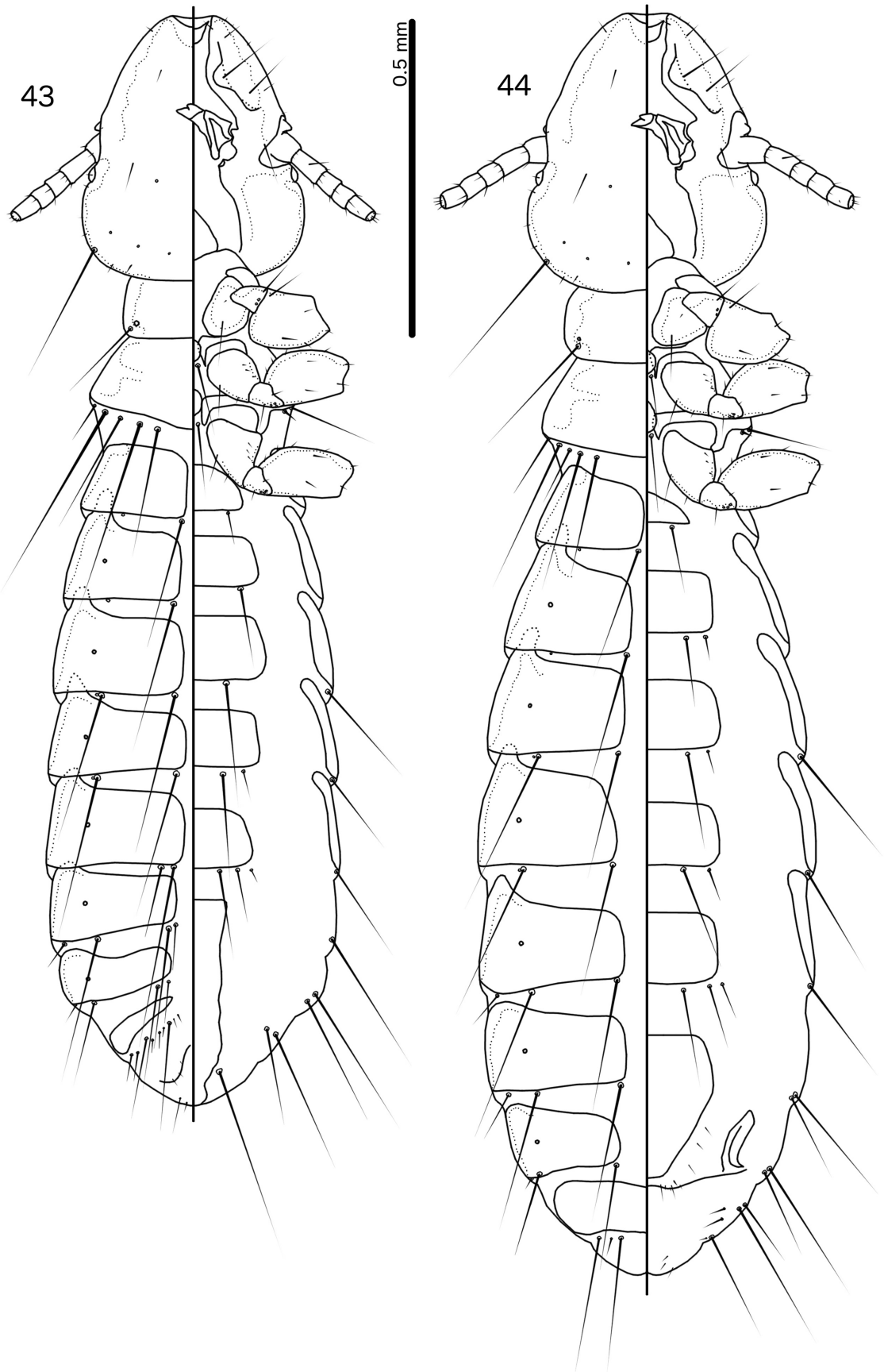
Type material. Ex *Coracina pectoralis*: Holotype ♂, Luanshya, Zambia [as North Rhodesia], 14 Jul. 1952, ML/54, Brit. Mus. 1953-245 (NHML). **Paratypes:** 3♀, same data as holotype (NHML). 2♂, 3♀, Muliashi, Zambia [as North Rhodesia], 10 Jul 1955, ML/124, Brit. Mus. 1956-310 (NHML).

Indoceoplanetes (*Indoceoplanetes*) *cinitemnina* Gustafsson & Bush, new species
(Figs 50–56)

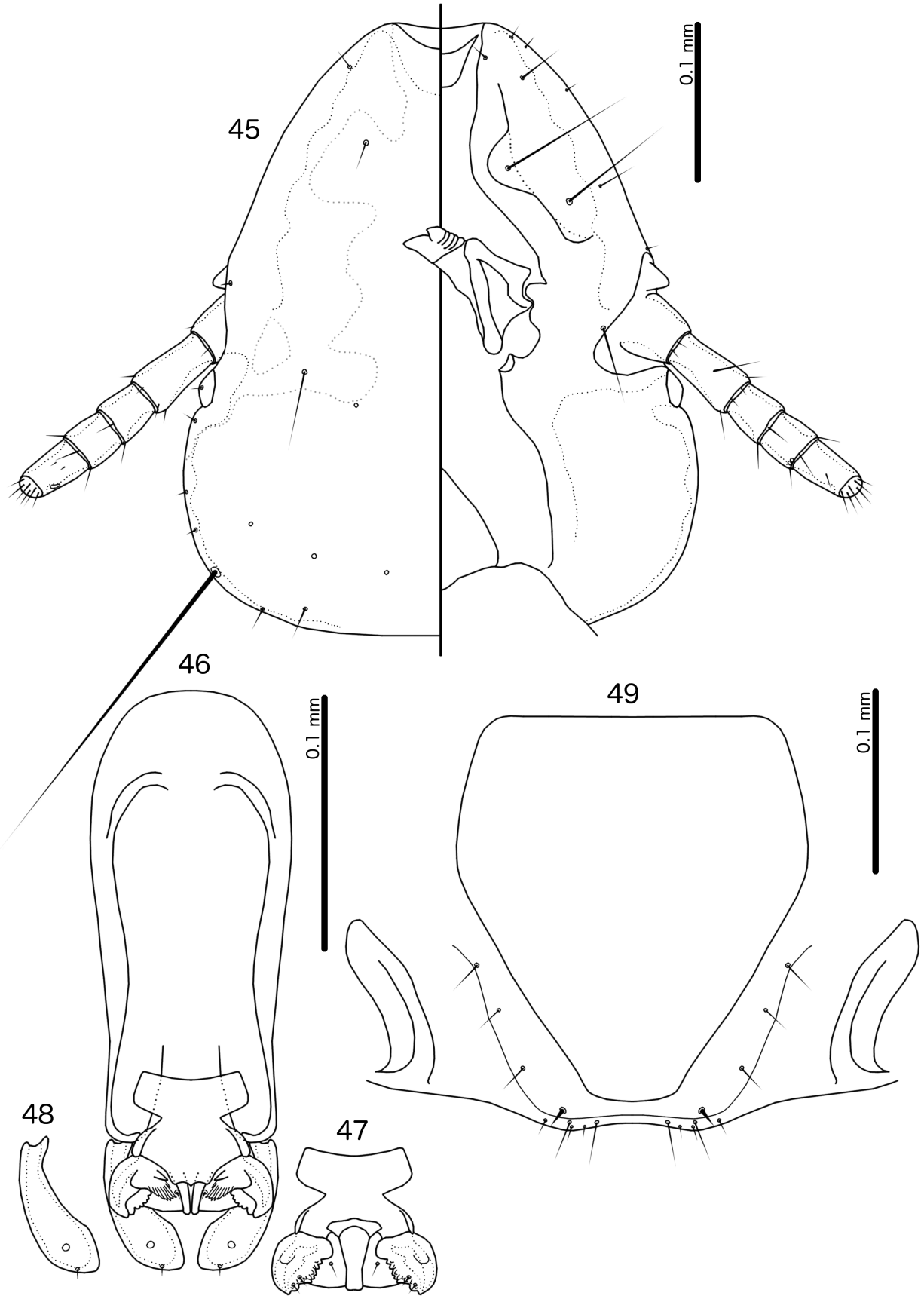
Type host. *Edolisoma melas melas* (Lesson, 1828) – black cicadabird.

Type locality. Oransbari, West Papua Province, Indonesia.

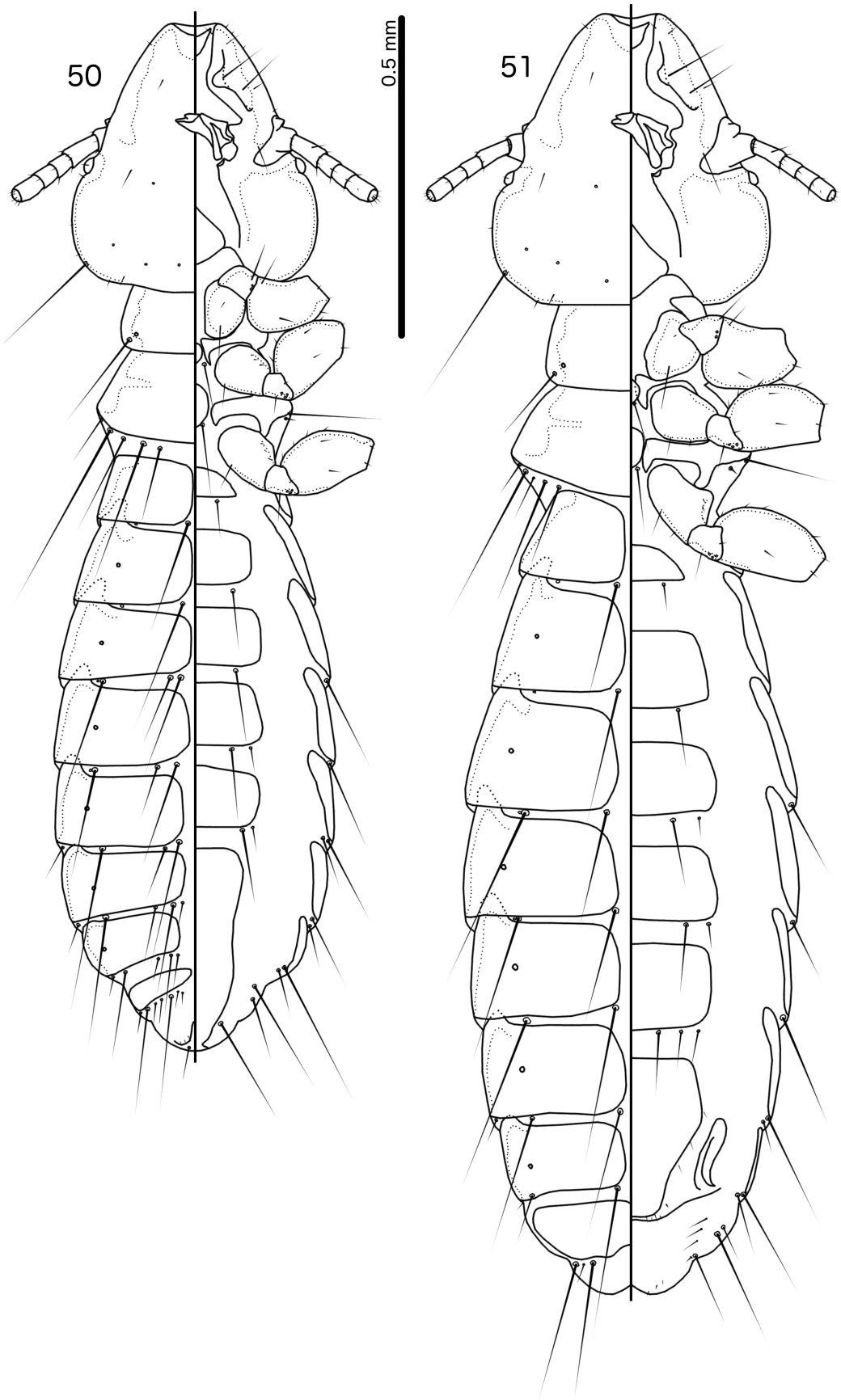
Diagnosis. *Indoceoplanetes* (*Indoceoplanetes*) *cinitemnina* **new species** is most similar to *In.* (*In.*) *incisoma* but can be separated from this and all other known species in the subgenus by the following characters: proximal mesosome with flat proximal margin, and with antero-lateral extensions long and slender, almost reaching lateral



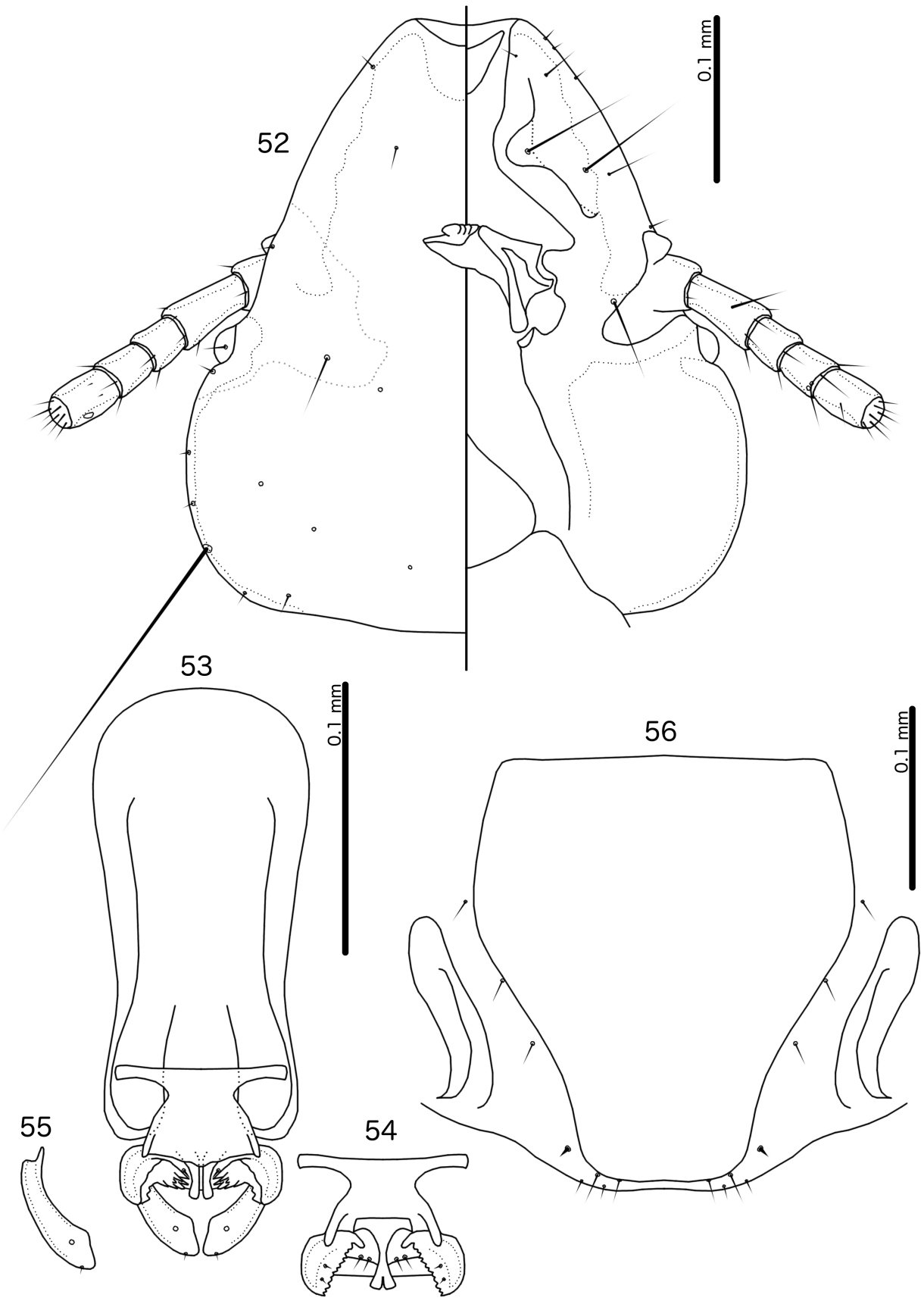
FIGURES 43–44. *Indoceoplanetes* (*Indoceoplanetes*) *zambica* **new species** ex *Coracina pectoralis*. **43,** male habitus, dorsal and ventral views. **44,** female habitus, dorsal and ventral views.



FIGURES 45–49. *Indoceoplanetes* (*Indoceoplanetes*) *zambica* **new species** ex *Coracina pectoralis*. **45,** male head, dorsal and ventral views. **46,** male genitalia, dorsal view. **47,** male mesosome, ventral view. **48,** male paramere, dorsal view. **49,** female subgenital plate and vulval margin, ventral view.



FIGURES 50–51. *Indoceoplanetes* (*Indoceoplanetes*) *cinitemnina* **new species** ex *Edolisoma melas melas*. **50,** male habitus, dorsal and ventral views. **51,** female habitus, dorsal and ventral views.



FIGURES 52–56. *Indoceoplanetes* (*Indoceoplanetes*) *cinitemnina* **new species** ex *Edolisoma melas melas*. **52,** male head, dorsal and ventral views. **53,** male genitalia, dorsal view. **54,** male mesosome, ventral view. **55,** male paramere, dorsal view. **56,** female subgenital plate and vulval margin, ventral view.

margins of basal apodeme (Figs 53–54); gonopore of unique shape among all species of the genus (Fig. 54); female abdominal segment VI with only 1 *ps* on each side (Fig. 51).

Description. *Both sexes.* Head rounded trapezoidal (Fig. 52), lateral margins of preantennal head slightly convex, frons slightly concave. Marginal carina broad, narrowing anterior to *dsms*, deeply displaced and widened at osculum. Ventral anterior plate rounded, with concave anterior margin and straight lateral margins. Head chaetotaxy as in Fig. 52. Preantennal nodi wide, bulging. Pre- and post-ocular nodi large, connected dorsally by ocular band. Marginal temporal carina slender. Gular plate triangular, lateral margins slightly concave. Thoracic and abdominal segments as in Figs 50–51. Base pigmentation translucent; head nodi dark brown; mandibular framework, margins of antennal sockets, gular plate, proepimera, and metepisterna medium brown; sternal plates II–VI and subgenital plates pale brown.

Male. Thoracic and abdominal chaetotaxy as in Fig. 50; sternite IV with 1 *sts* on each side. Basal apodeme rounded proximally (Fig. 53), lateral margins concave. Proximal mesosome with slender antero-lateral extensions that almost reach lateral margins of basal apodeme (Figs 53–54), proximal margin flat. Mesosomal lobes divergent distally. Distal margin of mesosome flat to slightly convex. Gonopore distally bifid, with slightly hooked antero-lateral extensions. Dorsal fringe tilted slightly posteriorly, without thumb-like process. Chaetotaxy: 2 ventral *gpmes* microsetae on each side of distal gonopore; 2 *lpmes* microsetae on each side on mesosomal lobes; 1 dorsal *ames* microseta on each side proximal to dorsal fringe. Parameres and *pst1–2* as in Fig. 55.

Female. Thoracic and abdominal chaetotaxy as in Fig. 51; abdominal segment VI with 1 *ps* on each side. Subgenital plate as in Fig. 56, lateral margins sinuous, distal margin broadly flattened. Vulval margin concave medianly, with 2 short, slender *vms* and 1 short, thorn-like *vss* on each side; 4–7 short, slender *vos* on each side of subgenital plate; distal 2–3 *vos* distal to *vss*, and about twice as long as *vms*. Measurements as in Table 1.

Etymology. The species epithet is derived from Latin "*cinis*" for "ash" and Greek "*temnein*" for "I cut", referring to the ashy plumage of the host.

Type material. Ex ***Edolisoma melas melas*** **[**as ***Coracina meleana*****]: Holotype** ♂, Oransbari, elev. 10 ft., West Papua Province, Indonesia [as West New Guinea District], 4 Feb. 1963, M.C. Thompson, BBM-NG-22381 (BPBM) [marked with black dot on slide]. **Paratypes:** 2♂, 9♀, same data as holotype (BPBM).

Indoceoplanetes (*Indoceoplanetes*) *ephippiformis* Gustafsson & Bush, new species
(Figs 57–63)

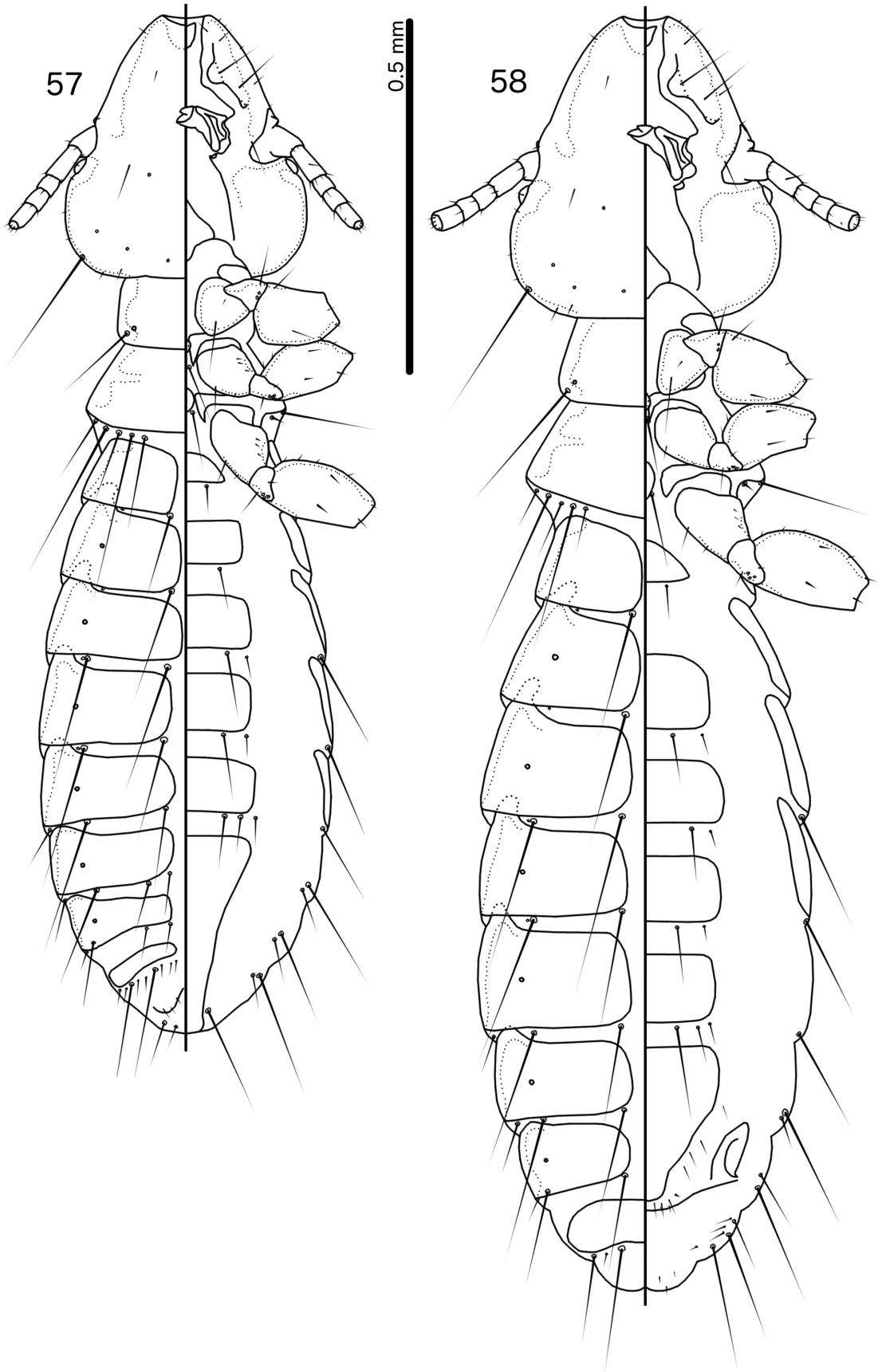
Type host. *Edolisoma montanum montanum* (Meyer, 1874) – black-bellied cicadabird.

Type locality. Nakata Range, Wau, Morobe Province, Papua New Guinea.

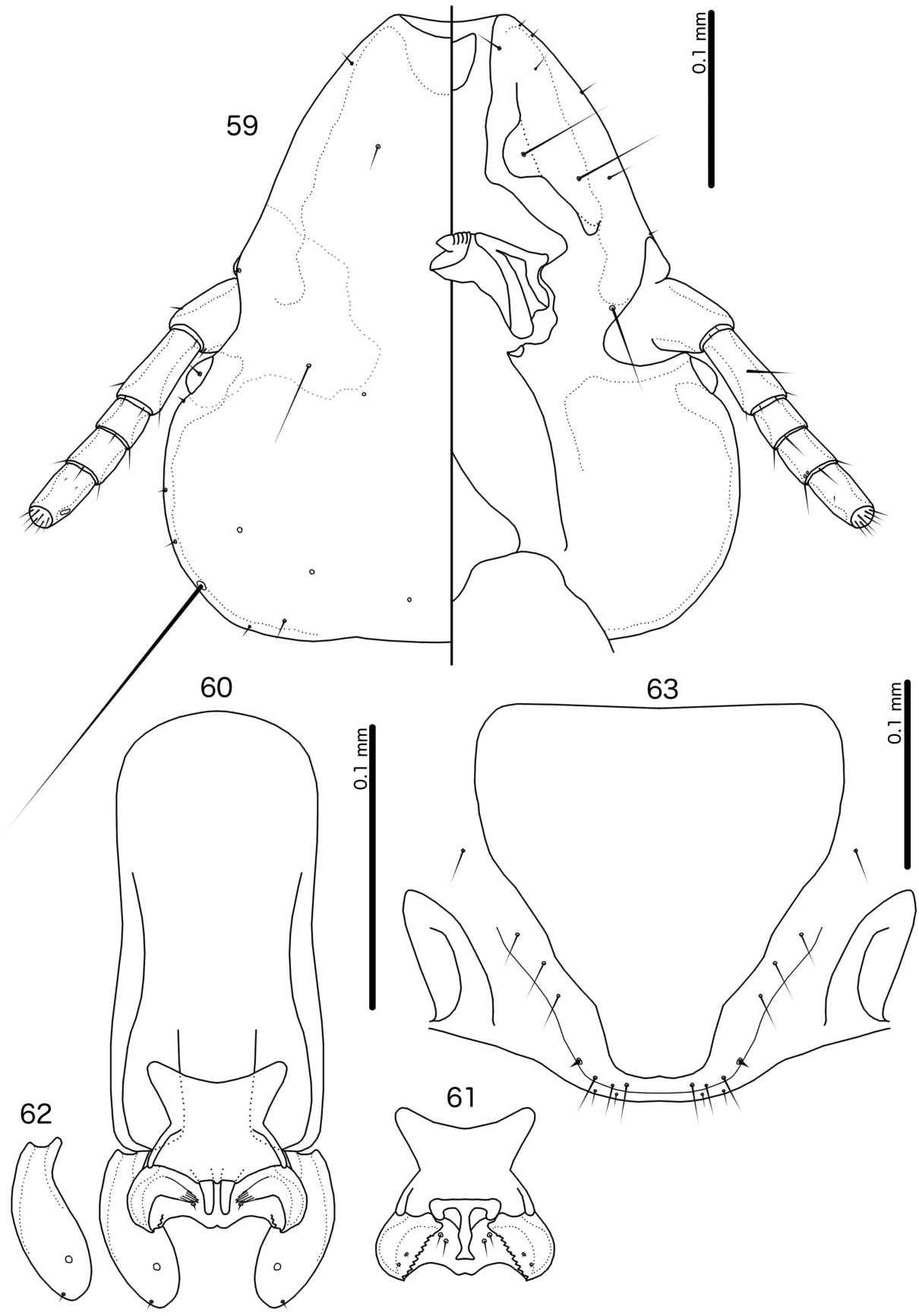
Diagnosis. *Indoceoplanetes* (*Indoceoplanetes*) *ephippiformis* **new species** is not morphologically close to any other species in the subgenus, and can be separated from all other known species of *In.* (*Indoceoplanetes*) by the following characters: male tergopleurite IV–VI each with 1 *ss* on each side and tergopleurites VII–VIII with 2 *ss* on each side (Fig. 57); shape of proximal mesosome (Fig. 61); large, hook-shaped antero-lateral extensions of gonopore (Fig. 61); medianly bulging distal margin of mesosome (Fig. 61); proportionately broad and bulky parameres (Fig. 62).

Description. *Both sexes.* Head rounded trapezoidal (Fig. 59), lateral margins of preantennal head convex, frons slightly concave. Marginal carina broad, narrowing anterior to *dsms*, deeply displaced and widened at osculum. Ventral anterior plate rounded triangular, with concave anterior margin. Head chaetotaxy as in Fig. 59. Preantennal nodi wide, bulging. Pre- and post-ocular nodi large, connected dorsally by broad ocular band. Marginal temporal carina slender. Gular plate triangular, lateral margins concave. Thoracic and abdominal segments as in Figs 57–58. Base pigmentation translucent; preantennal and preocular nodi dark brown; area delimited by dotted line in Fig. 59, gular plate, proepimera, and metepisterna medium brown; sternal plates III–VI and subgenital plates pale brown.

Male. Thoracic and abdominal chaetotaxy as in Fig. 57; tergopleurite IV–VI each with 1 *ss* on each side and tergopleurites VII–VIII with 2 *ss* on each side. Basal apodeme rounded rectangular (Fig. 60), lateral margins slightly concave. Proximal mesosome with oblique, bluntly rounded antero-lateral extensions (Fig. 61), proximal margin concave. Mesosomal lobes divergent distally. Distal margin of mesosome concave laterally but bulging medianly. Gonopore shaped as in Fig. 61, with large hook-shaped antero-lateral extensions. Dorsal fringe small, tilted slightly distally, without thumb-like process. Chaetotaxy: 2 ventral *gpmes* microsetae on each side of distal gonopore; 2 *lpmes* sensilla on each side on mesosomal lobes; 1 dorsal *ames* microseta on each side distal to dorsal fringe. Parameres and *pst1–2* as in Fig. 62. Measurements as in Table 1.



FIGURES 57–58. *Indoceoplanetes* (*Indoceoplanetes*) *ephippiformis* **new species** ex *Edolisoma montanum montanum*. **57,** male habitus, dorsal and ventral views. **58,** female habitus, dorsal and ventral views.



FIGURES 59–63. *Indoceoplanetes* (*Indoceoplanetes*) *ephippiformis* **new species** ex *Edolisoma montanum montanum*. **59,** male head, dorsal and ventral views. **60,** male genitalia, dorsal view. **61,** male mesosome, ventral view. **62,** male paramere, dorsal view. **63,** female subgenital plate and vulval margin, ventral view.

Female. Thoracic and abdominal chaetotaxy as in Fig. 58. Subgenital plate as in Fig. 63, distal end flattened. Vulval margin bulging, median section may be slightly concave, with 1–2 short, slender *vms* and 1 short, thorn-like *vss* on each side; 4–7 slender *vos* on each side of subgenital plate; distal 2–3 *vos* distal to *vss* and substantially longer than *vms*. Measurements as in Table 1.

Etymology. The species epithet is derived from "*ephippion*", Greek for "saddle", and the ending "*-formis*" for "having the shape of", referring to the shape of the proximal mesosome.

Type material. Ex ***Edolisoma montanum montanum*** **[**as ***Coracina montana*****]: Holotype** ♂, Nakata Ridge, elev. 5000 ft., Wau, Morobe Province, Papua New Guinea, 15 May 1963, P.J. Shanahan, BBM-NG-27808 (BPBM) [marked with black dot on slide]. **Paratypes:** 2♂, 3♀, same data as holotype (BPBM). 1♀, top of Kassam Pass, elev. 1300 m, Eastern Highlands Province, Papua New Guinea, 25 Aug. 1967, P.H. Colman, BBM-NG-60042 (BPBM).

Indoceoplanetes (*Capnodella*) Gustafsson & Bush, 2017

Indoceoplanetes (*Capnodella*) Gustafsson & Bush, 2017: 143.

Type species: *Indoceoplanetes* (*Capnodella*) *laurocorythes* Gustafsson & Bush, 2017: 146. By original designation.

Indoceoplanetes (*Capnodella*) *subarcens* Gustafsson & Bush, new species
(Figs 64–65, 69, 72, 77–79)

Type host. *Edolisoma melas melas* (Lesson, 1828) – black cicadabird.

Type locality. Vogelkop, West Papua Province, Indonesia.

Diagnosis. *Indoceoplanetes* (*Capnodella*) *subarcens* **new species** is most similar to *In.* (*Cp.*) *saucia* **new species**, both sharing the following characters: preantennal head gently rounded (*cf.* Figs 72–73); dorsal preantennal suture extends median to *ads* (*cf.* Figs 72–73); abdominal segment IV in both sexes with 2 *ps* on each side (*cf.* Figs 64–67); vulval margin gently rounded (*cf.* Figs 69–70).

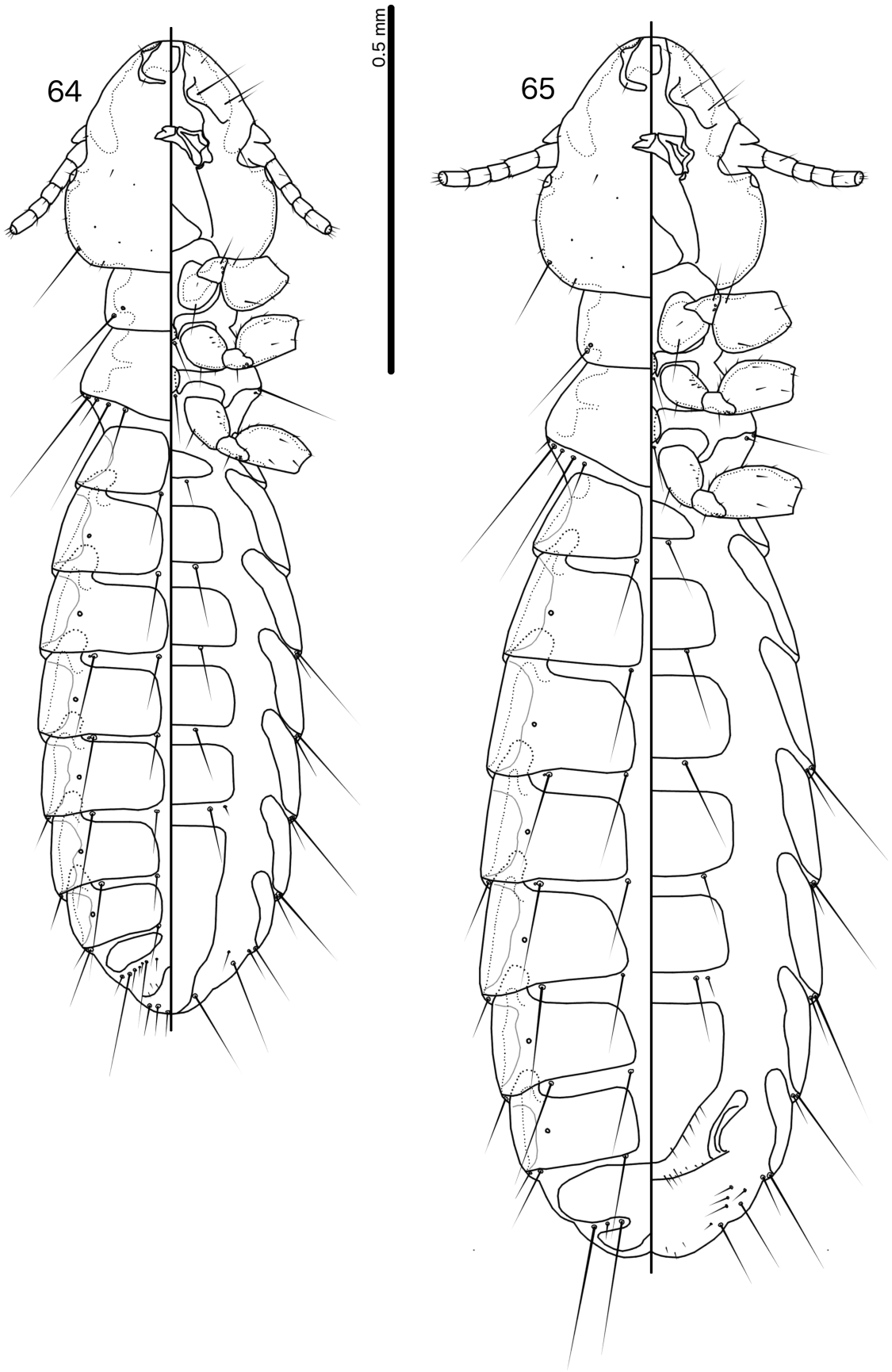
These two species can be separated by the following characters: female abdominal segments V–VI with 2 *ps* on each side in *In.* (*Cp.*) *saucia* (Fig. 67), but with 3 *ps* on each side in *In.* (*Cp.*) *subarcens* (Fig. 65); proximal mesosome broadly flattened in *In.* (*Cp.*) *subarcens* (Fig. 78), but rounded in *In.* (*Cp.*) *saucia* (Fig. 81); shape of gonopores (*cf.* Figs 78, 81); female subgenital plate broader and more rounded distally in *In.* (*Cp.*) *saucia* (Fig. 70) than in *In.* (*Cp.*) *subarcens* (Fig. 69).

Description. *Both sexes*. Head flat dome-shaped (Fig. 72), lateral margins of preantennal head convex, frons rounded. Marginal carina broad, narrowing conspicuously near *dsms*, interrupted submedianly. Dorsal preantennal suture reaching *dsms* and *ads*, continuing median to *ads*, but not completely separating dorsal anterior plate, and not reaching lateral head margins. Dorsal anterior plate broader than long, lateral margins irregular; sinuous thickening in posterior part. Ventral anterior plate diffuse, rounded rectangular. Head chaetotaxy as in Fig. 72. Preantennal nodi large, elongated, bulging. Pre- and postocular nodi of roughly equal size. Marginal temporal carina slender, of roughly even width. Gular plate with slightly concave lateral margins converging on median point. Thoracic and abdominal segments as in Figs 64–65.

Male. Thoracic and abdominal chaetotaxy as in Fig. 64; segment IV with 2 *ps* on each side. Basal apodeme roughly rectangular, but expanding markedly in distal section (Fig. 77). Proximal mesosome broadly flattened (Fig. 78). Mesosomal lobes only partially overlapping parameral heads. Gonopore as in Fig. 78; distal margin deeply incised medianly, antero-lateral extensions slightly curved. Parameres broad throughout; *pst1–2* as in Fig. 79. Measurements as in Table 1.

Female. Thoracic and abdominal chaetotaxy as in Fig. 65; segment IV with 2 *ps* on each side; segments V–VI with 3 *ps* on each side. Subgenital plate pentagonal (Fig. 69). Vulval margin gently rounded, with 1–2 short, slender *vms* and 3–5 short, thorn-like *vss* on each side; 5–10 slender *vos* on each side of subgenital plate; distal 2–4 *vos* positioned median to *vss*, and markedly longer than *vms*. Measurements as in Table 1.

Etymology. The species epithet is derived from Latin "*sub-*" for "almost" and Latin "*arcens*" for "enclosing", referring to the almost transversally complete dorsal preantennal suture.



FIGURES 64–65. *Indoceoplanetes* (*Capnodella*) *subarcens* **n. sp.** ex *Edolisoma melas melas*: **64,** male habitus, dorsal and ventral views. **65,** female habitus, dorsal and ventral views.

Type material. Ex ***Edolisoma melas melas*** **[**as ***Edolisoma melan*****]: Holotype** ♂, Vogelkop, West Papua Province [as Netherlands New Guinea], Indonesia, 19 Jan. 1962, L.W. Quate, BBM-NG-793 (NHML). **Paratypes:** 3♂, 4♀, same data as holotype (NHML).

Indoceoplanetes (*Capnodella*) *saucia* Gustafsson & Bush, new species

(Figs 66–67, 70, 73, 80–82)

Type host. *Edolisoma montanum montanum* (Meyer, 1874) – black-bellied cicadabird.

Type locality. Mount Kaindi, Morobe Province, Papua New Guinea.

Diagnosis. *Indoceoplanetes* (*Capnodella*) *subarcens* **new species** is most similar to *In.* (*Cp.*) *saucia* **new species**. For a comparison of these two species, see *In.* (*Cp.*) *subarcens*, above.

Description. *Both sexes*. Head flat dome-shaped (Fig. 73), lateral margins of preantennal area convex, frons rounded. Marginal carina broad, narrowing conspicuously near *dsms*, interrupted submedianly. Dorsal preantennal suture reaches *dsms* and *ads*, and continues median to *ads*, but not completely separating dorsal anterior plate and not reaching lateral head margins. Dorsal anterior plate about as broad as long, with sinuous thickening in posterior half. Ventral anterior plate rounded triangular. Head chaetotaxy as in Fig. 73. Preantennal nodi large, bulging. Pre- and postocular nodi of similar size. Marginal temporal carina of moderate width. Gular plate with rounded lateral margins converging on median point. Thoracic and abdominal segments as in Figs 66–67.

Male. Thoracic and abdominal chaetotaxy as in Fig. 66; segment IV with 2 *ps* on each side. Basal apodeme slender, lateral margins slightly concave in proximal section, bulging markedly in distal section (Fig. 80). Proximal mesosome rounded (Fig. 80), in some specimens slightly narrowed medianly (Fig. 81). Mesosomal lobes narrowed laterally. Gonopore as in Fig. 81; distal margin straight to slightly convex, antero-lateral extensions curved, rounded. Parameres with narrow heads; *pst1–2* as in Fig. 82. Measurements as in Table 1.

Female. Thoracic and abdominal chaetotaxy as in Fig. 67; segments IV–VI with 2 *ps* on each side. Subgenital plate rounded triangular (Fig. 70). Vulval margin gently rounded, with 0–1 short, slender *vms* and 4–6 short, thorn-like *vss* on each side; 6–9 slender *vos* on each side of subgenital plate; distal 2–3 *vos* positioned median to *vss*, and markedly longer than *vms*. Measurements as in Table 1.

Etymology. The species epithet is derived from Latin "*saucius*" for "ill", referring to the pale pigmentation of this species.

Type material. Ex *Edolisoma montanum montanum*: Holotype ♂, Mt. Kaindi, elev. 2250 m, Morobe Province, Papua New Guinea, 15 Jul. 1967, P.H. Colman, BBM-NG-51201 (BPBM). **Paratypes:** 12♀, same data as holotype (BBM); 3♂, 2♀, same data, except BBM-NG-51202 (BPBM); 3♀, same data except BBM-NG-51203 (BPBM); 1♂, 3♀, Enarotali, Papua Province [as Netherlands New Guinea], Indonesia, 25 Jul. 1962, [H.G.] Clissold, BBM-21439 (BPBM).

Indoceoplanetes (*Capnodella*) *kamphaengphetensis* Gustafsson & Bush, new species

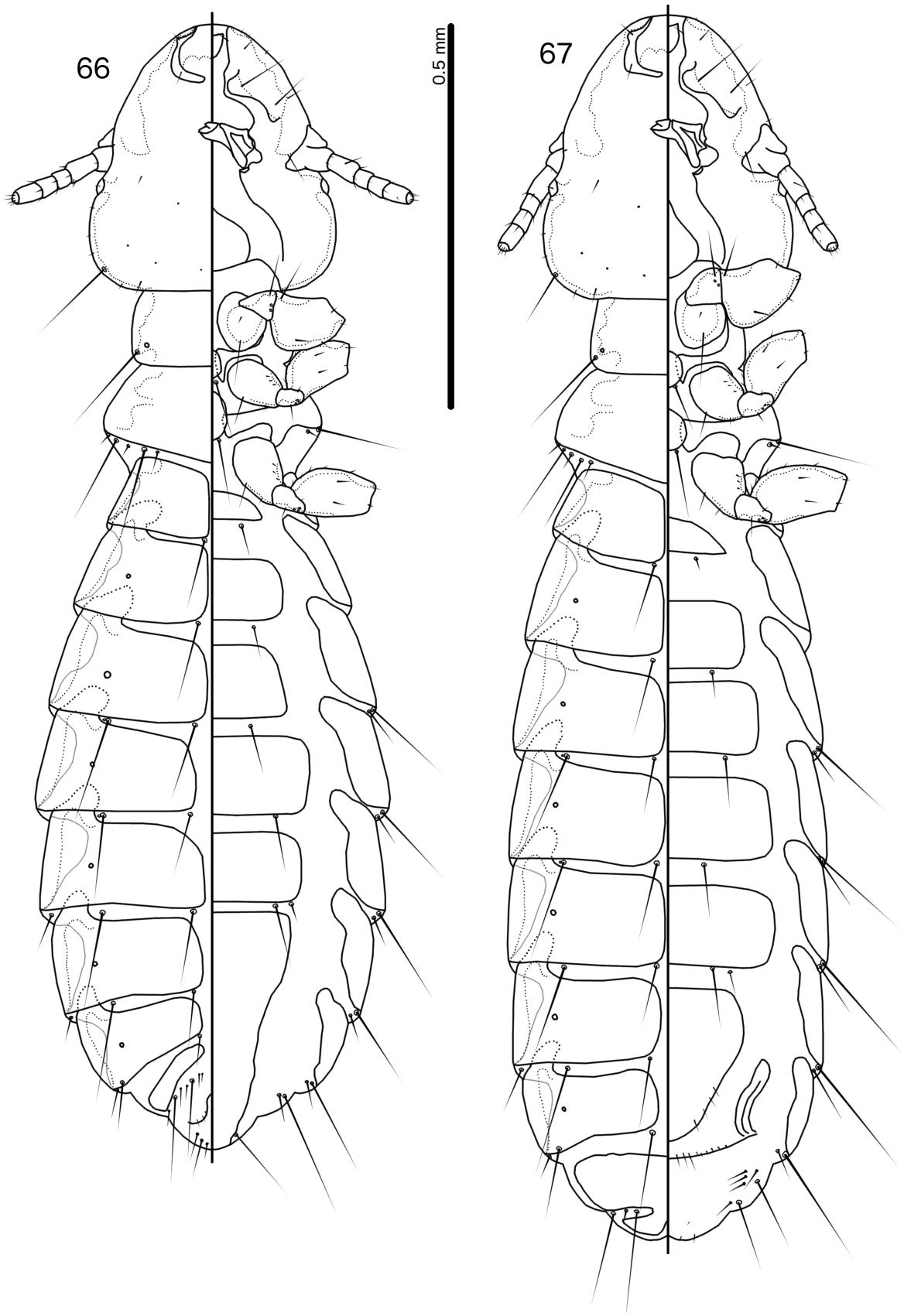
(Figs 68, 71, 74–76)

Type host. *Lalage melaschistos avensis* (Blyth, 1852) – black-winged cuckooshrike.

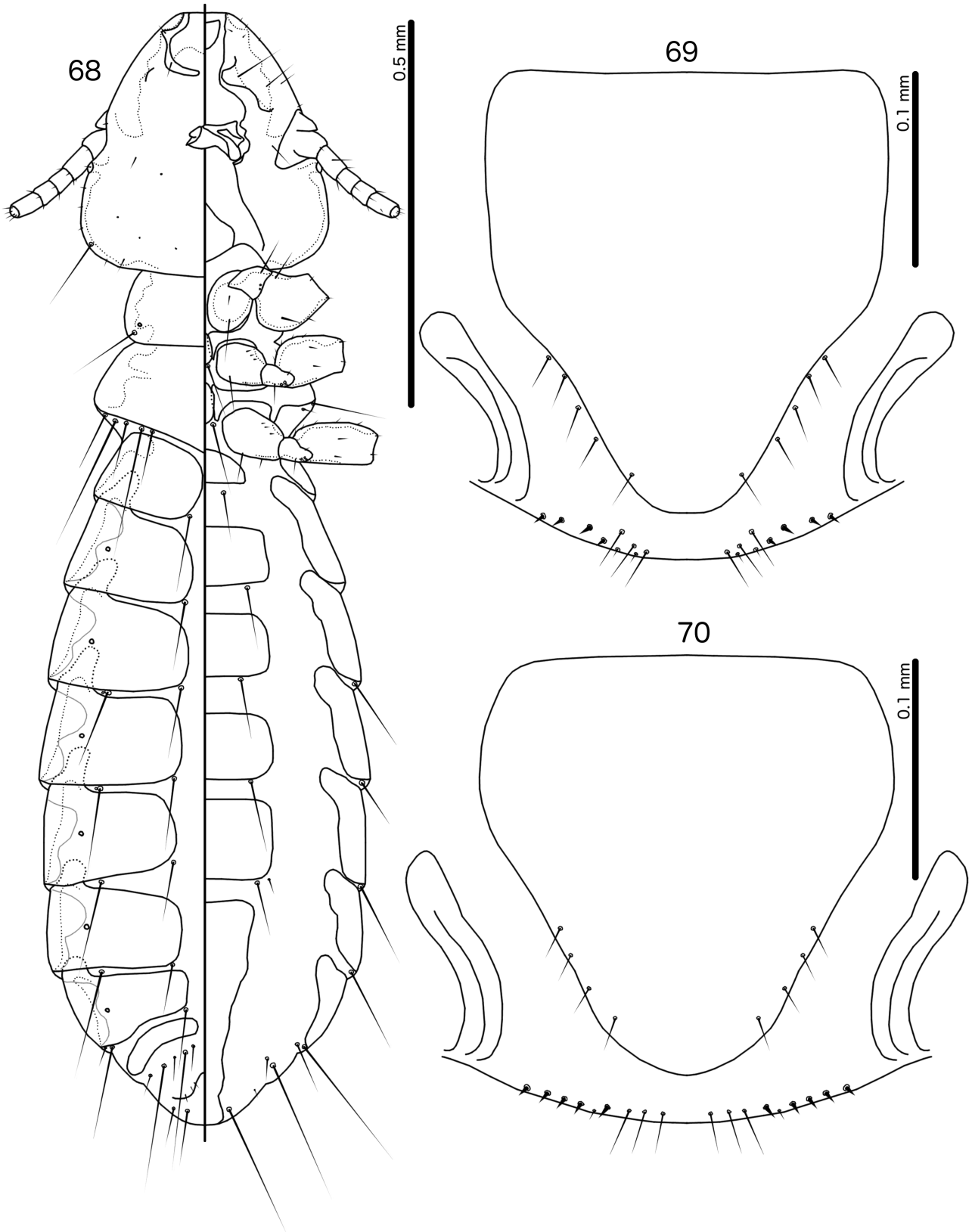
Type locality. Khlong Khlung, Kamphaeng Phet Province, Thailand.

Diagnosis. *Indoceoplanetes* (*Capnodella*) *kamphaengphetensis* **new species** is most similar to *In.* (*Cp.*) *laurocorythes* Gustafsson & Bush, 2017, both sharing the following characters: male abdominal segment IV with 1 *ps* on each side (Fig. 68); mesosome short with proximal margin gently rounded (Fig. 75); gonopore of similar shape (Fig. 75). Female of *In.* (*Cp.*) *kamphaengphetensis* not known, and no comparison can be made.

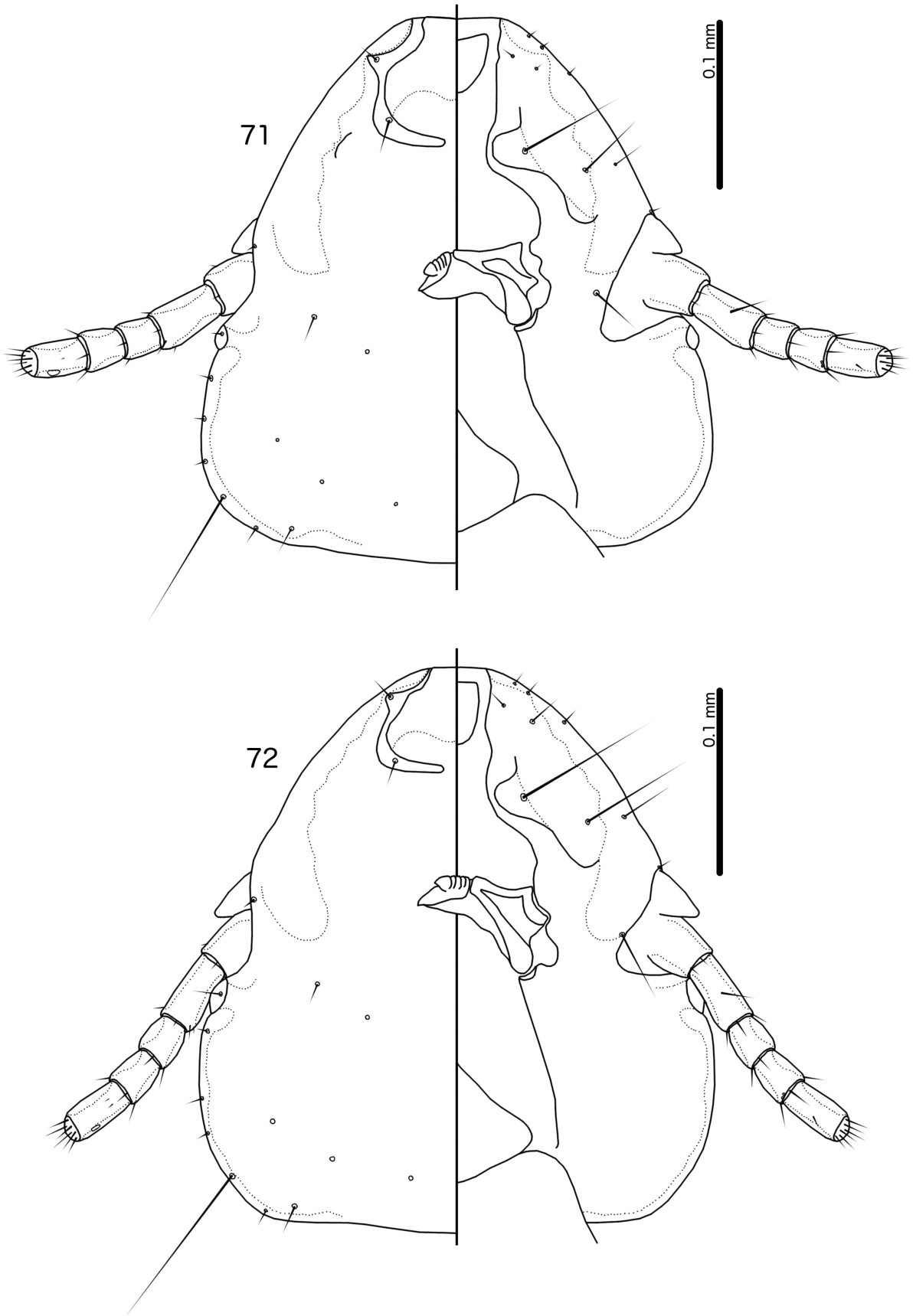
These two species can be separated by the following characters: male abdominal segments V–VII with 2–3 *ps* on each side in *In.* (*Cp.*) *laurocorythes,* but each with 1 *ps* on each side in *In.* (*Cp.*) *kamphaengphetensis* (Fig. 68); dorsal preantennal suture reaching medianly of *ads* in *In.* (*Cp.*) *kamphaengphetensis* (Fig. 71) but not in *In.* (*Cp.*) *laurocorythes*; frons more angular in *In.* (*Cp.*) *kamphaengphetensis* (Fig. 71) than in *In.* (*Cp.*) *laurocorythes*; mesosome proportionately broader, reaching lateral to parameral heads in *In.* (*Cp.*) *kamphaengphetensis* (Fig. 74), but narrower, not overlapping parameral heads completely in *In.* (*Cp.*) *laurocorythes*.



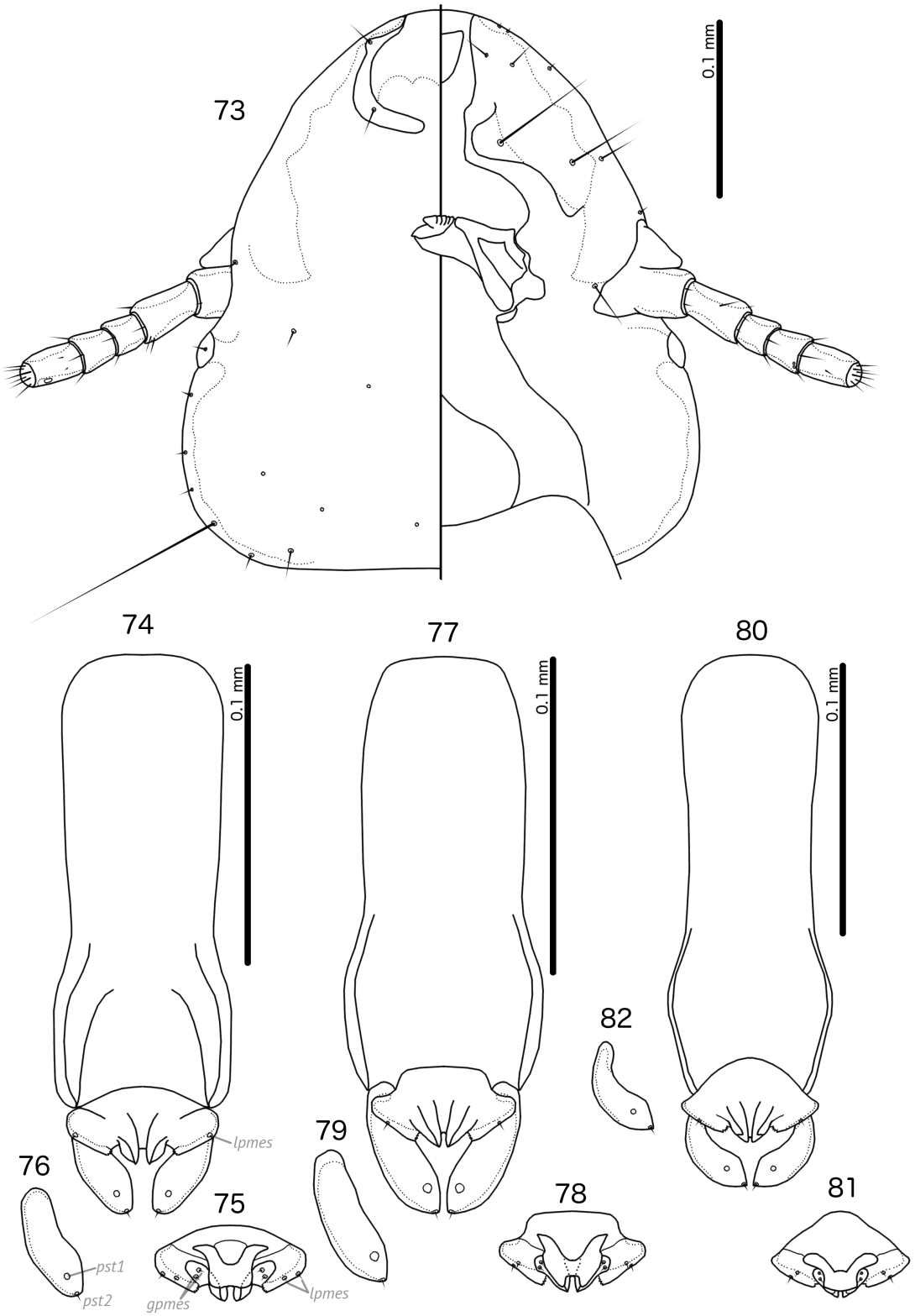
FIGURES 66–67. *Indoceoplanetes* (*Capnodella*) *saucia* **n. sp.** ex *Edolisoma montanum montanum*. **66,** male habitus, dorsal and ventral views. **67,** female habitus, dorsal and ventral views.



FIGURES 68–70. 68, *Indoceoplanetes* (*Capnodella*) *kamphaengphetensis* **n. sp.** ex *Lalage melaschistos avensis*, male habitus, dorsal and ventral views. **69,** *Indoceoplanetes* (*Capnodella*) *subarcens* **n. sp.** ex *Edolisoma melas melas*, female subgenital plate and vulval margin, ventral view. **70,** *Indoceoplanetes* (*Capnodella*) *saucia* **n. sp.** ex *Edolisoma montanum montanum*, female subgenital plate and vulval margin, ventral view.



FIGURES 71–72. Male heads, dorsal and ventral views. **71,** *Indoceoplanetes* (*Capnodella*) *kamphaengphetensis* **n. sp.** ex *Lalage melaschistos avensis*. **72,** *Indoceoplanetes* (*Capnodella*) *subarcens* **n. sp.** ex *Edolisoma melas melas*.



FIGURES 73–82. 73, *Indoceoplanetes* (*Capnodella*) *saucia* **n. sp.** ex *Edolisoma montanum montanum*, male head, dorsal and ventral views. **74–82.** Male Genitalia. *Indoceoplanetes* (*Capnodella*) *kamphaengphetensis* **n. sp.** ex *Lalage melaschistos avensis*: **74,** dorsal view. **75,** male mesosome, ventral view. **76,** male paramere, dorsal view. *Indoceoplanetes* (*Capnodella*) *subarcens* **n. sp.** ex *Edolisoma melas melas*: **77,** dorsal view. **78,** male mesosome, ventral view. **79,** male paramere, dorsal view. *Indoceoplanetes* (*Capnodella*) *saucia* **n. sp.** ex *Edolisoma montanum montanum*: **80,** dorsal view. **81,** male mesosome, ventral view. **82,** male paramere, dorsal view. Abbreviations: *ames = anterior mesosomal seta*; *gpmes = gonoporal posterior mesosomal seta*; *lpmes = lateral posterior mesosomal seta*; *pst1–2 = parameral setae 1–2.*

Description. ***Male.*** Head rounded trapezoidal (Fig. 71), lateral margins of preantennal area slightly convex, frons broadly flattened. Marginal carina broad, narrowing conspicuously at *dsms*, interrupted sublaterally. Dorsal preantennal suture reaches *dsms* and *ads* and continues median to *ads*, but does not completely separate dorsal anterior plate and does not reach lateral head margin. Dorsal anterior plate about as broad as long, with sinuous thickening in posterior half. Ventral anterior plate rounded triangular, with slightly concave anterior margin. Head chaetotaxy as in Fig. 71; many ventral head setae broken off in single examined male, and length here illustrated tentatively. Preantennal nodi large, bulging. Preocular nodi lager than postocular nodi. Marginal temporal carina of moderate width. Gular plate pentagonal, antero-lateral margins concave. Thoracic and abdominal segments and chaetotaxy as in Fig. 68; *ppss, mms* and some abdominal setae are broken off in the holotype, so estimated length is here illustrated tentatively. Basal apodeme roughly rectangular, expanding distally (Fig. 74). Proximal mesosome gently rounded (Fig. 75). Mesosomal lobes broad, overlapping parameral heads laterally, distal margins gently rounded laterally. Gonopore with slightly concave distal margin, antero-lateral extensions slightly hooked. Parameres broad throughout (Fig. 76); *pst1–2* as in Fig. 76. Measurements as in Table 1.

Female. Unknown.

Etymology. The species epithet is derived from the name of the province of the type locality.

Type material. Ex ***Lalage melaschistos avensis*****: Holotype** ♂, Khlong Khlung, Kamphaeng Phet Province, Thailand, 15 Apr. 1953, R.E. Elbel & H.G. Deignan, RE-2434 RT-B-17907 (BPBM).

Guimaraesiella Eichler, 1949

Nirmus Nitzsch, 1818: 291 (*in partim*).
Degeeriella Neumann, 1906: 60 (*in partim*).
Brueelia Kéler, 1936: 257 (*in partim*).
Guimaraesiella Eichler, 1949: 11.
Xobugirado Eichler 1949: 13.
Allobrueelia Eichler, 1951: 36 (*in partim*).
Allobrueelia Eichler, 1952: 74 (near-verbatim redescription).
Allonirmus Złotorzycka, 1964: 263.
Nitzschnirmus Mey & Barker, 2014: 101.
Callaenirmus Mey, 2017: 92.
Philemoniellus Mey, 2017: 145.

Type species: *Docophorus subalbicans* Piaget, 1885: 6 [= *Docophorus papuanus* Giebel, 1879: 475]. By original designation.

Remarks. The genus *Guimaraesiella* is divided into four subgenera: *Gu.* (*Guimaraesiella*) Eichler, 1949, *Gu.* (*Mohoaticus*) Mey, 2017, *Gu.* (*Cicchinella*) Gustafsson *et al.,* 2019a, and *Gu.* (*Dicrurobates*) Gustafsson & Bush, 2020. However, many species are either too poorly described to be placed in either of these subgenera, or represent groups that are so different from these four subgenera that they may warrant the erection of further subgenera within *Guimaraesiella*.

Among the taxa described here, *Guimaraesiella sphagmotica* **new species** and *Guimaraesiella nouankaoensis* **new species** belong in the subgenus *Gu.* (*Guimaraesiella*), based on the following characters: female subgenital plate without cross-piece (Figs 89–90); gonopore terminal (Figs 96, 99); mesosomal lobes not protruding (Fig. 96, 99); distal thickening of mesosome interrupted medianly (Figs 95, 98); dorsal preantennal suture not transversally continuous median to *ads* (Figs 87–88). Gustafsson *et al*. (2019a) also included the absence of *aps* on the male abdominal segment IV as a character for *Gu.* (*Guimaraesiella*), but these setae are present in at least *Guimaraesiella flavala* (Najer & Sychra [in Najer *et al*.], 2012) and in *Guimaraesiella menuraelyrae* (Coinde, 1859), which also has three post-spiracular setae on tergopleurite IV in males; hence, absence of *aps* is not a good character for defining *Gu.* (*Guimaraesiella*).

Both *Guimaraesiella sphagmotica* and *Gu. nouankaoensis* are also part of the "core group" of *Gu.* (*Guimaraesiella*), as defined by Gustafsson *et al*. (2019b), based primarily on following characters: mesosome without distal rugose nodi or area and ventral sclerite with a single anterior extension (Figs 96, 99); dorsal preantennal suture not transversally continuous median to *ads* and dorsal anterior plate thus continuous with roof of head posteriorly (Figs 87–88). Most species in the "core group" have head shapes similar to the type species (see Gustafsson & Bush 2017;

Gustafsson *et al*. 2019b), with the lateral margins of the preantennal head either clearly concave, or at most straight. The head shape of the two species of "core" *Guimaraesiella* described here differ from most other described species in this "core" group, suggesting that *Gu. nouankaoensis* and *Gu. sphagmotica* may be closely related.

Guimaraesiella (*Guimaraesiella*) *sphagmotica* Gustafsson & Bush, new species

(Figs 83–84, 87, 89, 95–97)

Type host. *Coracina caeruleogrisea strenua* (Schlegel, 1871) – stout-billed cuckooshrike.

Type locality. Mount Bosavi, Southern Highlands Province, Papua New Guinea.

Other host. *Coracina caeruleogrisea adamsoni* Mayr & Rand, 1936 – stout-billed cuckooshrike.

Diagnosis. Head shape indicates that the closest relative of *Gu. sphagmotica* **new species** is *Gu. nouankaoensis* **new species**, as this differs from all known species of the "core group" of *Guimaraesiella*, except *Guimaraesiella amsel* (Eichler, 1951) and *Guimaraesiella haftorni* (Balát, 1958). In both *Gu. amsel* and *Gu. haftorni* the dorsal preantennal suture reaches the *ads*, which is not the case in *Gu. sphagmotica* and *Gu. nouankaoensis*.

Guimaraesiella sphagmotica can be separated from *Gu, nouankaoensis* by the following characters: frons more angular and lateral margins of preantennal head straight in *Gu. sphagmotica* (Fig. 87), but frons more rounded and lateral margins of preantennal head convex in *Gu. nouankaoensis* (Fig. 88); *ps* present on abdominal segment III in both sexes in *Gu. sphagmotica* (Figs 83–84), but absent in *Gu. nouankaoensis* (Figs 85–86); female subgenital plate more angular in *Gu. sphagmotica* (Fig. 89) than in *Gu. nouankaoensis* (Fig. 90); proximal mesosome, ventral sclerite of mesosome, and gonopore all differ in shape between the two species (Figs 96, 99); parameres longer in *Gu. sphagmotica* (Fig. 97) than in *Gu. nouankaoensis* (Fig. 100).

Description. ***Both sexes*.** Head broad, flat dome-shaped (Fig. 87), lateral margins of preantennal area more or less straight, frons slightly rounded to flattened. Marginal carina broad, narrowing conspicuously near *dsms*, interrupted submedianly. Dorsal preantennal suture reaches *dsms* but not *ads* or lateral head margin, and does not separate dorsal anterior plate posteriorly. Ventral anterior plate crescent-shaped. Head chaetotaxy as in Fig. 87. Preantennal nodi very large, bulging. Preocular nodi larger than postocular nodi. Marginal temporal carina slender, of more or less even width. Gular plate with concave lateral margins converging into median point. Thoracic and abdominal segments as in Figs 83–84; *ps* present on abdominal segment III in both sexes. All examined specimens stained prior to mounting, and true pigmentation unknown.

Male. Thoracic and abdominal chaetotaxy as in Fig. 83. Basal apodeme with rounded proximal end, and concave lateral margins (Fig. 95). Proximal mesosome rounded trapezoidal, with concave anterior margin (Fig. 96). Mesosomal lobes convex, convergent. Ventral sclerite as in Fig. 96, with deep median concavity on distal margin. Gonopore somewhat elongated, with rugged proximal margin. Parameres and *pst1–2* as in Figs 95, 97. Measurements as in Table 1.

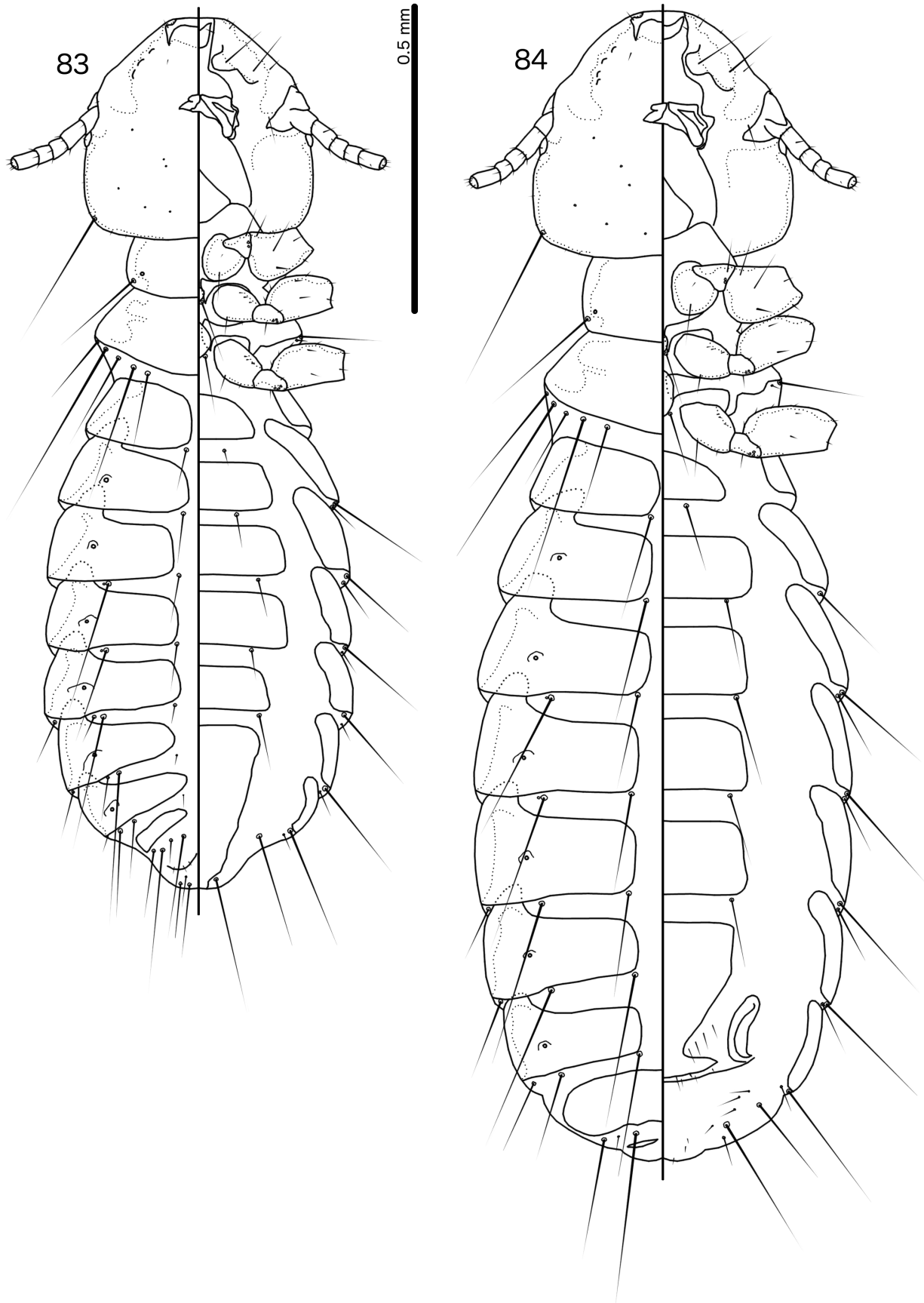
Female. Thoracic and abdominal chaetotaxy as in Fig. 84. Subgenital plate angular, broad distally, with broad lateral submarginal bulges (Fig. 89). Vulval margin gently rounded, with 2 short, slender *vms* and 1–2 short, thorn-like *vss* on each side; 4–6 short, slender *vos* on each side of subgenital plate; distal 1 *vos* median to *vss*. Measurements as in Table 1.

Etymology. The species epithet is derived from "*sphagmos*", Greek for "pulse", referring to the rather regularly undulating median margin of the marginal carina.

Type material. Ex ***Coracina caeruleogrisea strenua*: Holotype** ♂, Mt. Bosavi, Southern Highlands Province, Papua New Guinea, 16 May 1973, 103199 (NHML). **Paratypes:** 4♂, 5♀, same data as holotype (NHML).

Additional material examined (non-types): Ex ***Coracina caeruleogrisea adamsoni*:** 7♂, 4♀, 10 km W of Bulolo, elev. 780 m, Morobe Province, Papua New Guinea, 19 Aug. 1967, A.C. Ziegler, BBM-NG-54058 (BPBM); 1♂, 3♀, 6 km NW of Wau, elev. 1070 m, Morobe Province, Papua New Guinea, 12 Sep. 1967, A.B. Mirza, BBM-NG-54489 (BPBM); 2♀, Wakata Ridge, elev. 5000 ft., Wau, Morobe Province, Papua New Guinea, 8 May 1963, P.J. Shanahan, BBM-NG-27783 (BPBM); 2♀, Wau Creek, elev. 3800 ft., Morobe Province, Papua New Guinea, 11 Mar. 1963, H. Clissold, BBM-NG-20397 (BPBM).

Remarks. Specimens from the type host are larger in all measurements than specimens from *C. c. adamsoni*. Otherwise, specimens from the two host subspecies are similar but, since most specimens from *C. c. adamsoni* are poorly preserved, examination of fresh specimens is needed to confirm that the same species of *Guimaraesiella* occurs on both host subspecies.



FIGURES 83–84. *Guimaraesiella* (*Guimaraesiella*) *sphagmotica* **n. sp.** ex *Coracina caeruleogrisea strenua*. **83,** male habitus, dorsal and ventral views. **84,** female habitus, dorsal and ventral views.

Guimaraesiella (*Guimaraesiella*) *nouankaoensis* Gustafsson & Bush, new species
(Figs 85–86, 88, 90, 98–100)

Type host. *Coracina caledonica seiuncta* Mayr & Ripley, 1941 – South Melanesian cuckooshrike.

Type locality. Nouankao, Erromango Island, Vanuatu.

Other host. *Coracina caledonica thilenii* (Neumann, 1915).

Diagnosis. *Guimaraesiella nouankaoensis* **new species** is most similar to *Gu. sphagmotica* **new species**; see diagnosis of *Gu. sphagmotica* above for a comparison between these two taxa.

Description. *Both sexes*. Head broad, flat dome-shaped (Fig. 88), lateral margins of preantennal area convex, frons rounded. Marginal carina broad, narrowed near *dsms*, interrupted submedianly. Dorsal preantennal suture reaches *dsms* but not *ads* or lateral head margin, and does not separate dorsal anterior plate posteriorly. Dorsal anterior plate with transverse posterior thickening. Ventral anterior plate roughly crescent-shaped. Head chaetotaxy as in Fig. 88. Preantennal nodi large, bulging. Pre- and postocular nodi of about equal size. Marginal temporal carina slender, of roughly even width. Gular plate with slightly concave lateral margins converging to median point. Thoracic and abdominal segments as in Figs 85–86; *ps* absent on abdominal segment III in both sexes.

Male. Thoracic and abdominal chaetotaxy as in Fig. 85. Basal apodeme with rounded proximal end, and concave lateral margins (Fig. 98). Proximal mesosome with antero-lateral extensions, proximal margin straight to slightly concave (Fig. 99). Mesosomal lobes bulging slightly. Ventral sclerite as in Fig. 99. Gonopore with several prominent extensions along proximal margin. Parameres and *pst1–2* as in Figs 98, 100. Measurements as in Table 1.

Female. Thoracic and abdominal chaetotaxy as in Fig. 86. Subgenital plate rounded trapezoidal, broad distally, with broad lateral submarginal bulges (Fig. 90). Vulval margin gently rounded to somewhat flattened, with 2 short, slender *vms* and 1–3 short, thorn-like *vss* on each side; 3–4 short, slender *vos* on each side of subgenital plate; distal 1 *vos* near *vss*. Measurements as in Table 1.

Etymology. The species epithet is derived from the type locality.

Type material. Ex *Coracina caledonica seiuncta*: Holotype ♂, R[iver?] Nouankao, West of Ipota, Erromango Island [as Erramanga], Vanuatu [as New Hebrides], 7 Aug. 1971, A.G. Marshall, 35-04, British Museum 1972-578 (NHML). **Paratypes:** 1♂, 9♀, same data as holotype (NHML).

Additional material examined (non-types): Ex ***Coracina caledonica thilenii* [as *Artamides caledonicus*]:** 1♀, Malakula Island, Vanuatu [as New Hebrides], 15 Jul. 1925, P.A. Buxton, NH34 (NHML).

Remarks. The single female from *C. c. thilenii* is larger in all measurements than females from the type host (Table 1), but is otherwise morphologically similar. We tentatively consider this specimen to be conspecific with female paratypes, but more material is needed to confirm its true identity.

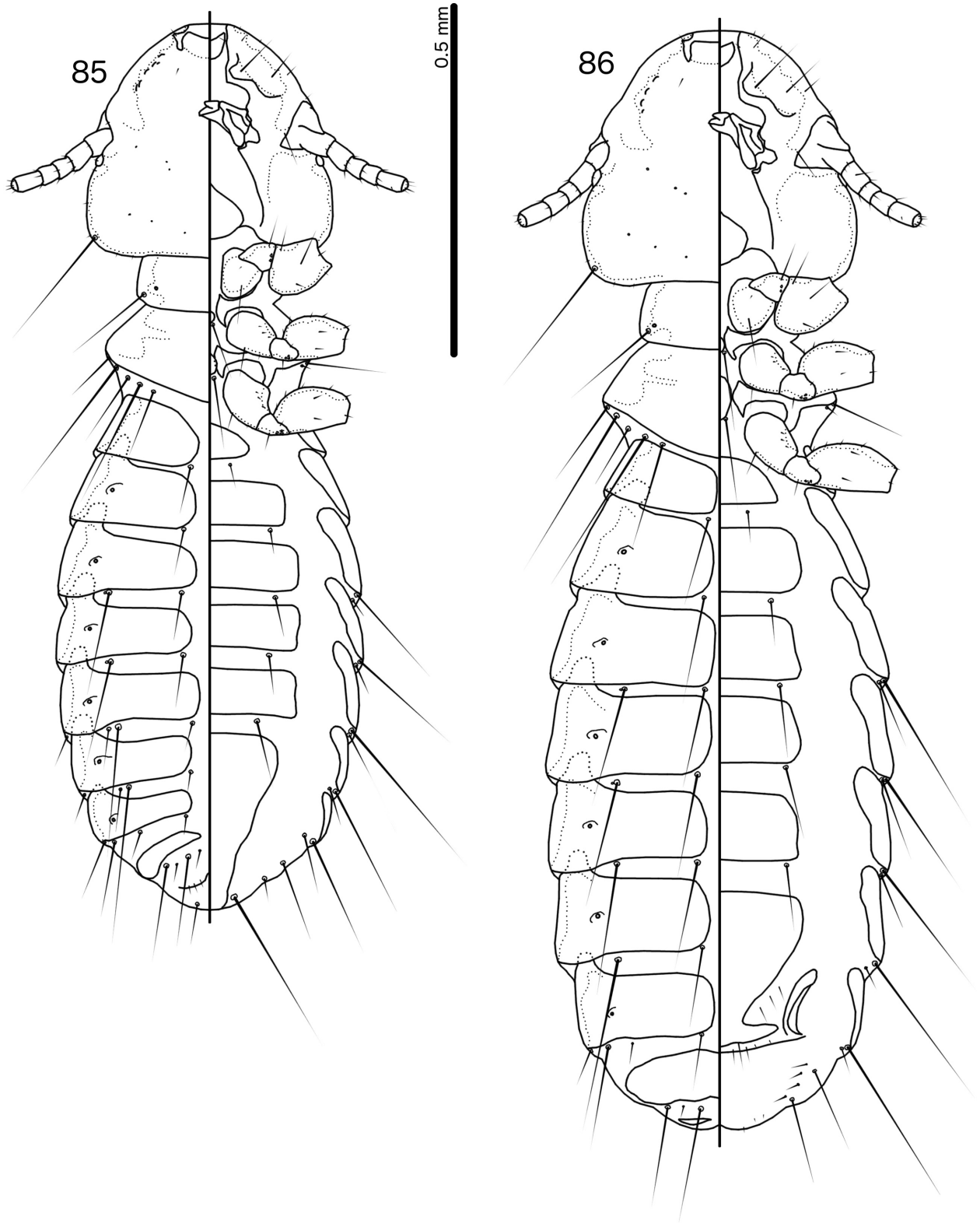
Malardifax Gustafsson & Bush, new subgenus

Type species: *Guimaraesiella pandolura pandolura* Gustafsson & Bush, 2017: 231.

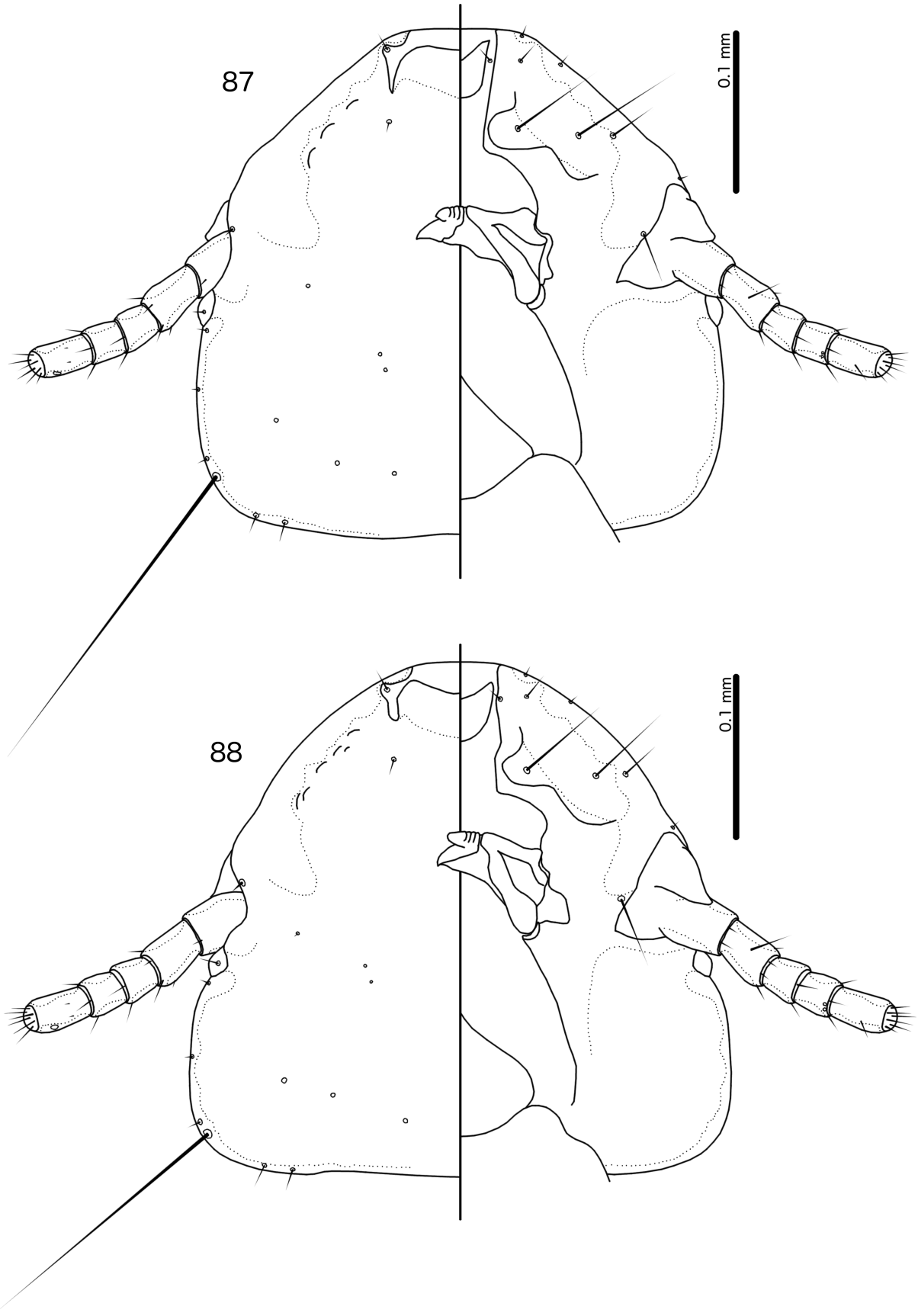
Diagnosis. Species in the subgenus *Gu.* (*Malardifax*) can be separated from species in the nominate subgenus by the following combination of characters: dorsal preantennal suture transversally continuous median to *ads* in *Gu.* (*Malardifax*) (Fig. 93), but not medianly continuous in *Gu.* (*Guimaraesiella*) [Fig. 87; in many species the suture reaches *ads* but does not extend medianly to this seta (*e.g.,* Gustafsson *et al*. 2019b)]; distal mesosome with continuous dorsal thickening in *Gu.* (*Malardifax*) (Fig. 101), but with dorsal thickenings interrupted medianly in *Gu.* (*Guimaraesiella*) (Fig. 95); area around gonopore rugose in *Gu.* (*Malardifax*) (Fig. 102), but without any rugose area in *Gu.* (*Guimaraesiella*) (Fig. 96); *aps* present on female tergopleurites VI–VII in *Gu.* (*Malardifax*) (Fig. 92), but absent on all female tergopleurites in *Gu.* (*Guimaraesiella*) [Fig. 84; except possibly in *Gu. haftorni* (Balát, 1958), but the abdominal chaetotaxy in the single female known of this species may be aberrant (Gustafsson *et al.* (2019c)]; parameres broadly rounded distally in *Gu.* (*Malardifax*) (Fig. 103), but narrowing to distal point in *Gu.* (*Guimaraesiella*) (Fig. 97).

In *Gu.* (*Malardifax*), the ventral sclerite of the mesosome is continuous with the ventral surface of the distal mesosome, including the area around the gonopore, without any visible interruption (*e.g.,* Fig. 102); in most *Gu.* (*Guimaraesiella*), there is a clear distal margin of the ventral sclerite that separates it from the gonopore (*e.g.,* Fig.

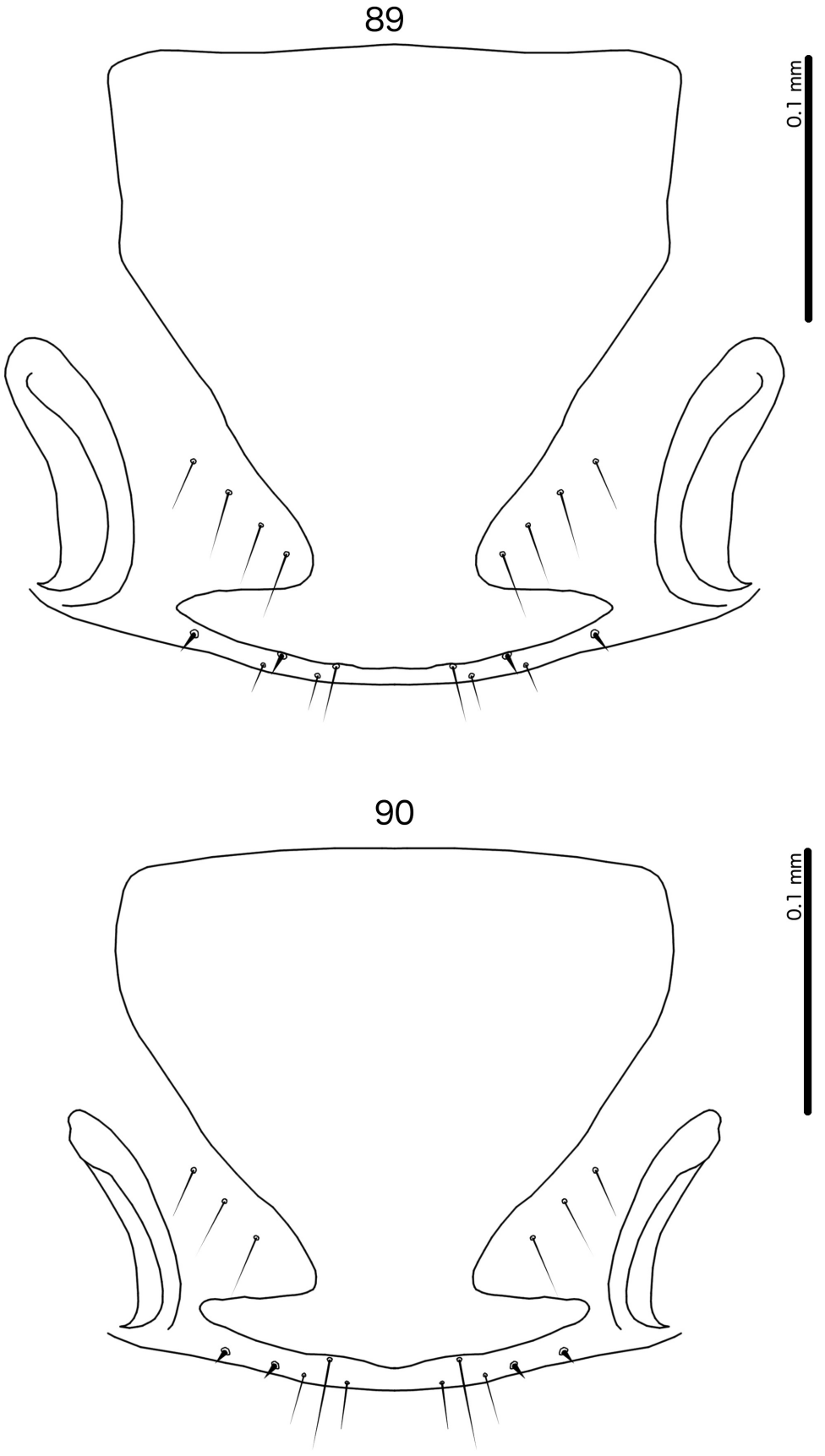
96), but this character is not consistent throughout the nominate subgenus, and is for instance not found in the type species *Gu.* (*Gu.*) *papuana* (Giebel, 1879) (see Gustafsson & Bush 2017: fig. 358) and *Gu.* (*Gu.*) *forcipata* Gustafsson *et al.*, 2019b.



FIGURES 85–86. *Guimaraesiella* (*Guimaraesiella*) *nouankaoensis* **n. sp.** ex *Coracina caledonica seiuncta*. **85,** male habitus, dorsal and ventral views. **86,** female habitus, dorsal and ventral views.



FIGURES 87–88. Male heads, dorsal and ventral views. **87,** *Guimaraesiella* (*Guimaraesiella*) *sphagmotica* **n. sp.** ex *Coracina caeruleogrisea strenua*. **88,** *Guimaraesiella* (*Guimaraesiella*) *nouankaoensis* **n. sp.** ex *Coracina caledonica seiuncta*.



FIGURES 89–90. Female subgenital plates and vulval margins. **89,** *Guimaraesiella* (*Guimaraesiella*) *sphagmotica* **n. sp.** ex *Coracina caeruleogrisea strenua*. **90,** *Guimaraesiella* (*Guimaraesiella*) *nouankaoensis* **n. sp.** ex *Coracina caledonica seiuncta*.

Some species of *Guimaraesiella* have a dorsal preantennal suture similar to that of species in the subgenus *Gu.* (*Malardifax*). For instance, this character is found in *Guimaraesiella myiophoneae* (Clay, 1936) and many of the species known from Neotropical hosts (*e.g.,* Cicchino 1983), but they can all be separated from species of *Gu*. (*Guimaraesiella*) by the structure of the male genitalia and other characters, and are likely not part of the nominate subgenus. However, most of these species are in need of redescription before their subgeneric placement within *Guimaraesiella* can be established, and should presently be considered *incerta sedis* within *Guimaraesiella*.

A similar preantennal structure is also found in the subgenus *Gu.* (*Mohoaticus*) Mey, 2017, and in the *tenella* species-group of subgenus *Gu.* (*Cicchinella*) Gustafsson *et al.*, 2019a. These groups can be separated from *Gu.* (*Malardifax*) by the structure of the male genitalia. Compare Figs 101–103 with those in Gustafsson & Bush (2017: fig. 369), Mey (2017: figs 98–99) and Gustafsson *et al*. (2019a: figs 100–102).

Description. Head rounded trapezoidal, frons broadly concave, lateral margins of preantennal head concave to straight (Fig. 93). Frons hyaline, continuous with dorsal preantennal suture that reaches *dsms, ads* and lateral margin of head, as well as completely surrounds the dorsal preantennal plate. Marginal carina interrupted laterally and submarginally. Head chaetotaxy as in Fig. 93; *as2* absent; *mts3* only temporal macroseta. Prothorax rectangular, *psps* on postero-lateral corner (Fig. 91). Pterothorax roughly pentagonal, with lateral margins divergent and posterior margin rounded; *mms* moderately separated medianly. Meso- and metasterna not fused, each with 1 seta on each side on postero-lateral corners. Male tergopleurites II–IX+X and female tergopleurites II–VIII medianly divided (Figs 91–92); sternal plates as large central plates; accessory sternal plates absent.

Male. Abdominal chaetotaxy sparse (Fig. 91). Subgenital plate trapezoidal, indented or convex laterally. Genitalia: basal apodeme rectangular, with anterior end rounded and lateral margins slightly concave (Fig. 101). Proximal mesosome roughly rectangular (Fig. 102). Ventral sclerite with elongated proximal extension approaching proximal margin of mesosome; proximal thickening present [in nominate subspecies of *Gu. pandolura*; see Gustafsson & Bush 2017; fig. 374) or absent (Fig. 102). Distally, ventral sclerite is not interrupted, but appears to be continuous to distal margin of mesosome (Fig. 102). Gonopore subterminal, open distally; area around gonopore densely rugose. Mesosomal chaetotaxy: 3 *ames* sensilla on each side antero-lateral to gonopore; 2 *lpmes* sensilla on each side on lateral margin, lateral or antero-lateral to gonopore. Dorsal thickening of mesosome medianly continuous around distal margin. Parameres with medianly folded heads (Fig. 103); parameral blades stout, blunt distally, not elongated; *pst1* sensilla, *pst2* microseta.

Female. Abdominal chaetotaxy sparse (Fig. 92); *aps* present on tergopleurites VI–VII. Subgenital plate pentagonal, reaching to or near vulval margin, but without bulges or cross-pieces (Fig. 94). Vulval margin generally convergent or bulging medianly; few *vms* and many *vss* on each side; *vos* follow lateral margins of subgenital plate, with at least 1 distal *vos* separated from others by a distinct gap, and located near the *vss*.

Host distribution. Members of the Campephagidae. In addition, an undescribed species has been examined from a vangid host (Gustafsson & Bush, *in prep.*).

Geographical range: Southeast Asia.

Etymology. The name of the new subgenus is derived from "*malo*", Latin for "I prefer", "*ardens",* Latin for "fiery", and "*fax*", Latin for "fireball, comet", referring to the coloration of minivets, the hosts of most of the specimens of this group we have examined.

Remarks. Gustafsson & Bush (2017: 234) listed records of lice morphologically similar to *Gu.* (*Malardifax*) *pandolura* from five host species besides the type host, but stated that the available specimens from these hosts were not suitable to establish whether they belonged to different species. Further examination of some of these specimens has revealed some variation in abdominal chaetotaxy and male genitalia, which may indicate that more than one taxon are involved. Here, we illustrate and briefly describe specimens of *Gu.* (*Malardifax*) from *Pericrocotus ethologus laetus* Mayr, 1940, and *Pericrocotus roseus stanfordi* Vaughan & Jones, 1913, to indicate some of the characters that differ among populations from different hosts. However, due to their close similarity, and the small number of specimens examined, we consider specimens from *P. e. laetus* and *P. r. stanfordi* as conspecific with specimens from the type host of *Gu.* (*Ma.*) *pandolura*.

Included taxon

Guimaraesiella (*Malardifax*) *pandolura* Gustafsson & Bush, 2017: 231.
Type host: *Pericrocotus speciosus semiruber* Whistler & Kinnear, 1933.

***Guimaraesiella* (*Malardifax*) *pandolura* Gustafsson & Bush, 2017**
(Figs 91–94, 101–106)

Type host. *Pericrocotus speciosus semiruber* Whistler & Kinnear, 1933 – scarlet minivet.
Type locality. Pang La, Lampang Province, Thailand.

Other hosts. *Pericrocotus ethologus laetus* Mayr, 1940 – long-tailed minivet **new host record**. *Pericrocotus roseus stanfordi* Vaughan & Jones, 1913 – rosy minivet **new host record**.

Diagnosis. As specimens of *Gu.* (*Ma.*) *pandolura* from *P. ethologus laetus* (Figs 91–94, 101–103) and *P. roseus stanfordi* (Figs 104–106) are morphologically very similar to specimens from the type host (see Gustafsson & Bush 2017; figs 373–375), we consider the three populations as conspecific. Specimens from non-type hosts can be separated from specimens from the type host by the following characters: male abdominal segment V with two *ps* on each side in specimens from *P. e. laetus* (Figs 91–92) and *P. r. stanfordi* (not shown), but with 1 *ps* on each side in specimens from the type host; ventral sclerite of mesosome with proximal thickening in specimens from type host, but without thickening in specimens from *P. e. laetus* (Fig. 102) and *P. r. stanfordi* (Fig. 105); overall shape of mesosome differing between specimens from all three host species (Figs 101–102, 104–105); rugose area of ventral mesosome more extensive in specimens from type host than in specimens from *P. e. laetus* (Fig. 102) and *P. r. stanfordi* (Fig. 105); parameres proportionately longer and stouter in specimens from *P. e. laetus* (Fig. 103) than in specimens from the type host, but parameres of specimens from *P. r. stanfordi* largely identical to those of specimens from the type host (Fig. 106). No characters reliably separate females from *P. e laetus* (Fig. 94) from those from the type host, as subgenital plates are somewhat variable in shape distally between specimens, and vulval chaetotaxy overlaps. Females of the population infesting *P. r. stanfordi* are unknown.

Description. *Both sexes*. Head broad, rounded trapezoidal (Fig. 93), lateral margins of preantennal head concave, frons broadly concave. Marginal carina slender, interrupted laterally and submedianly. Dorsal preantennal suture reaches *dsms, ads*, lateral margin of head, and completely separates dorsal anterior plate. Dorsal anterior plate with concave anterior margin, convex lateral margins, and more or less flat posterior margin. Ventral anterior plate elongated crescent-shaped. Head chaetotaxy as in Fig. 93. Preantennal nodi slender, but turned medianly, bulging. Preocular nodi larger than postocular nodi. Marginal temporal carina narrow, or more of less even width. Gular plate with concave lateral margins converging to median point. Thoracic and abdominal segments as in Figs 91–92.

Males from ***Pericrocotus ethologus laetus.*** Thoracic and abdominal chaetotaxy as in Fig. 91; abdominal segment V with 2 *ps* on each side. Basal apodeme rounded rectangular, with slightly concave lateral margins (Fig. 101). Proximal mesosome rounded, narrowing slightly distally (Fig. 102). Mesosomal lobes with convergent, more or less straight lateral margins. Ventral sclerite without proximal thickening; rugose area not reaching lateral margins of mesosome. Gonopore broadly rounded. Parameral heads broad (Fig. 103); parameral blades of more or less even width, somewhat rounded distally; *pst1–2* as in Fig. 101). Measurements as in Table 1.

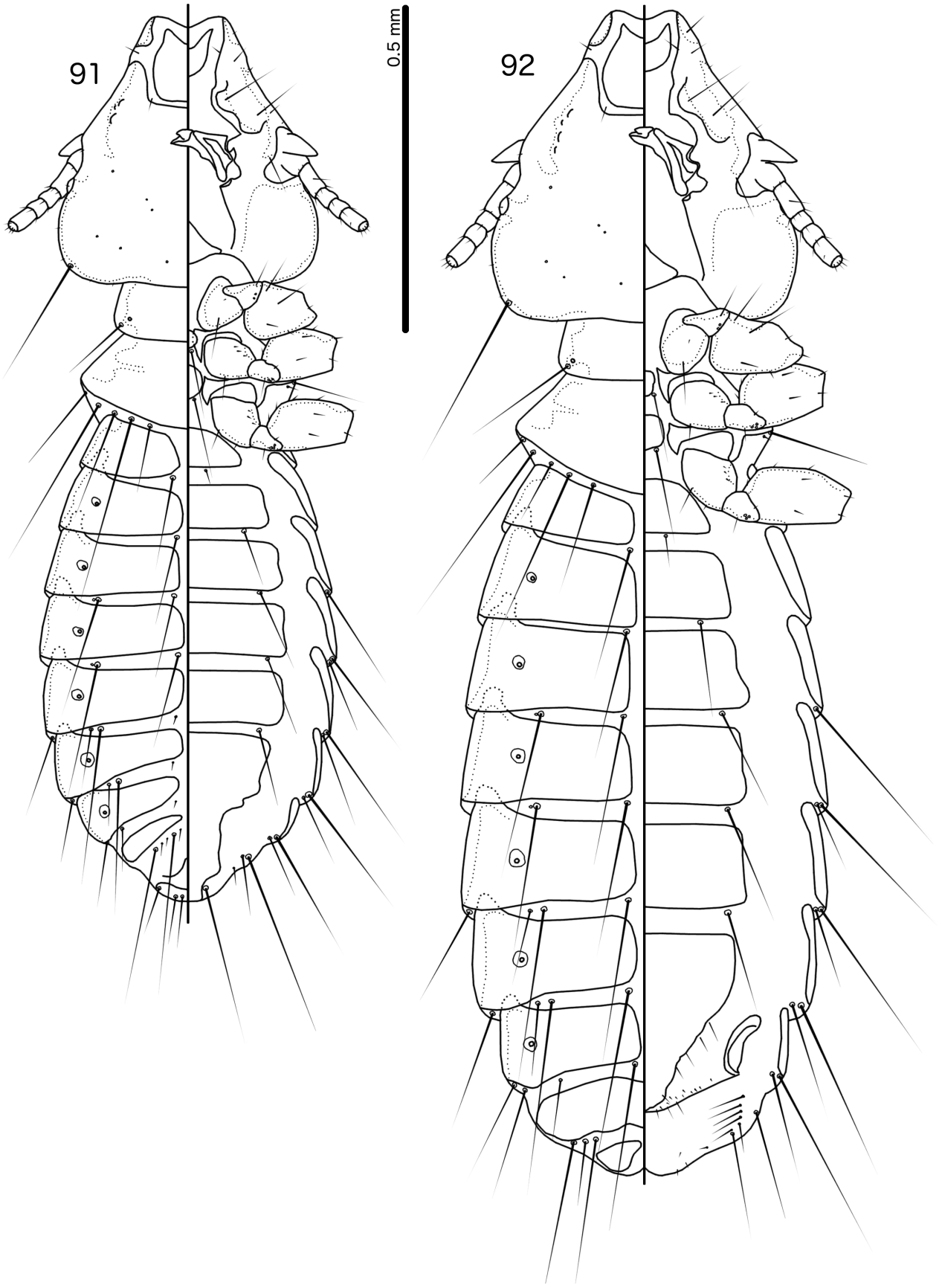
Males from ***Pericrocotus roseus stanfordi*.** Thoracic and abdominal chaetotaxy as above. Basal apodeme rounded proximally, lateral margins concave (Fig. 104). Proximal mesosome rounded rectangular (Fig. 105), with small bulge at about mid-length. Mesosomal lobes convergent, narrowing markedly near distal end. Ventral sclerite without proximal thickening; rugose area not reaching lateral margins of mesosome. Gonopore somewhat rounded quadratic. Parameral heads broad, extended slightly distally (Fig. 106); *pst1–2* as in Fig. 104. Measurements as in Table 1.

Females from ***Pericrocotus ethologus laetus.*** Thoracic and abdominal chaetotaxy as in Fig. 92. Subgenital plate pentagonal, median point almost reaching vulval margin (Fig. 94). Vulval margin bulging medianly, with 3–4 short, slender *vms* and 7–12 short, thorn-like *vss* on each side; 3–6 short, slender *vos* on each side of subgenital plate; distal 1 *vos* on each side near *vss*. Measurements as in Table 1.

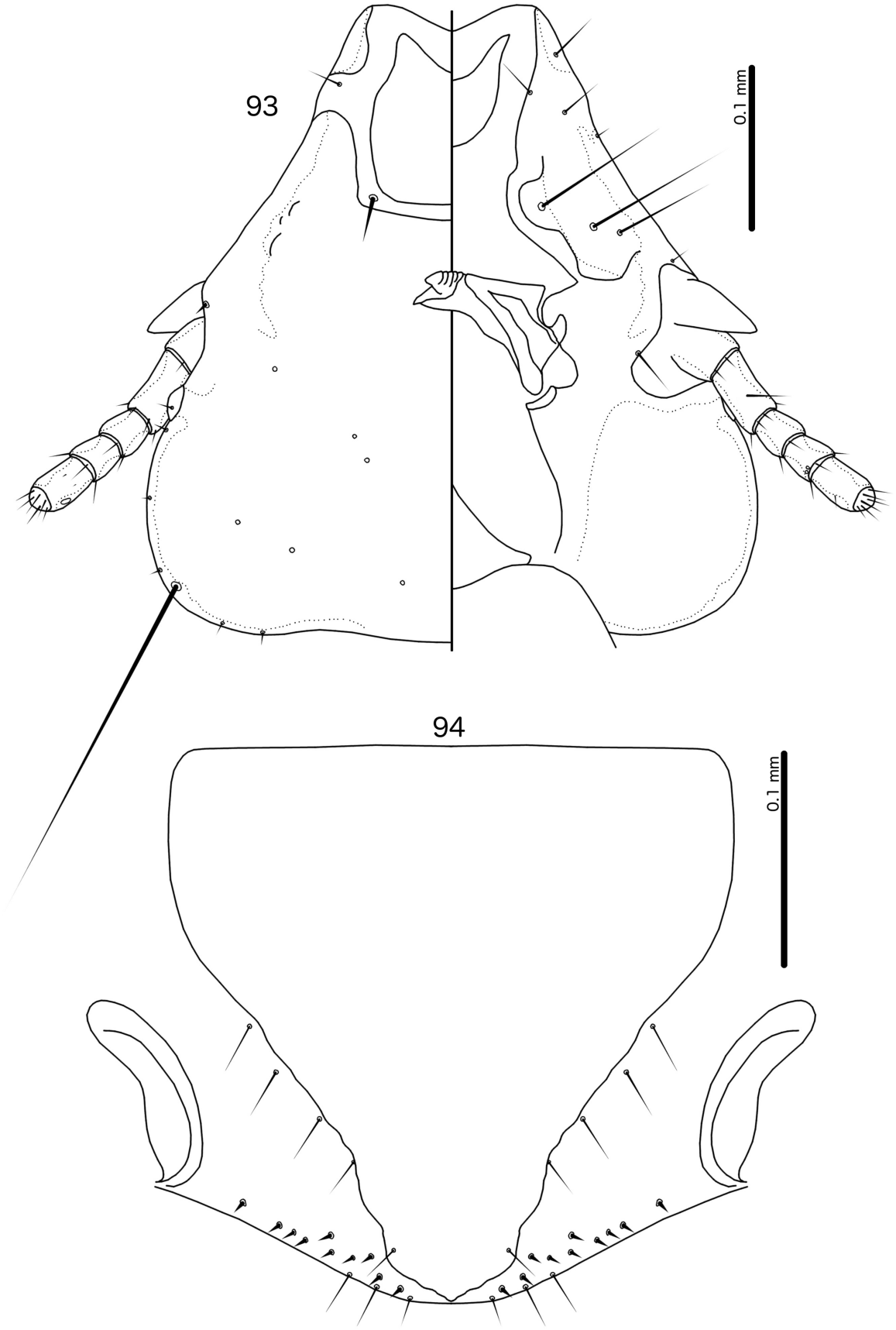
Female from ***Pericrocotus roseus stanfordi*.** Unknown.

Material examined (non-types): Ex ***Pericrocotus ethologus laetus*:** 1♂, 5♀, Kangpokpi, Manipur, India, 23 Jan. 1952, R. Meinertzhagen, 19836, B.M. 1952-143 (NHML). Ex ***Pericrocotus roseus stanfordi***: 1♂, Chiang Saen Kao, Chiang Rai province, Thailand, 20 Feb. 1953, R.E. Elbel & H.G. Deignan, RE-2300, RT-B-17805 (BPBM).

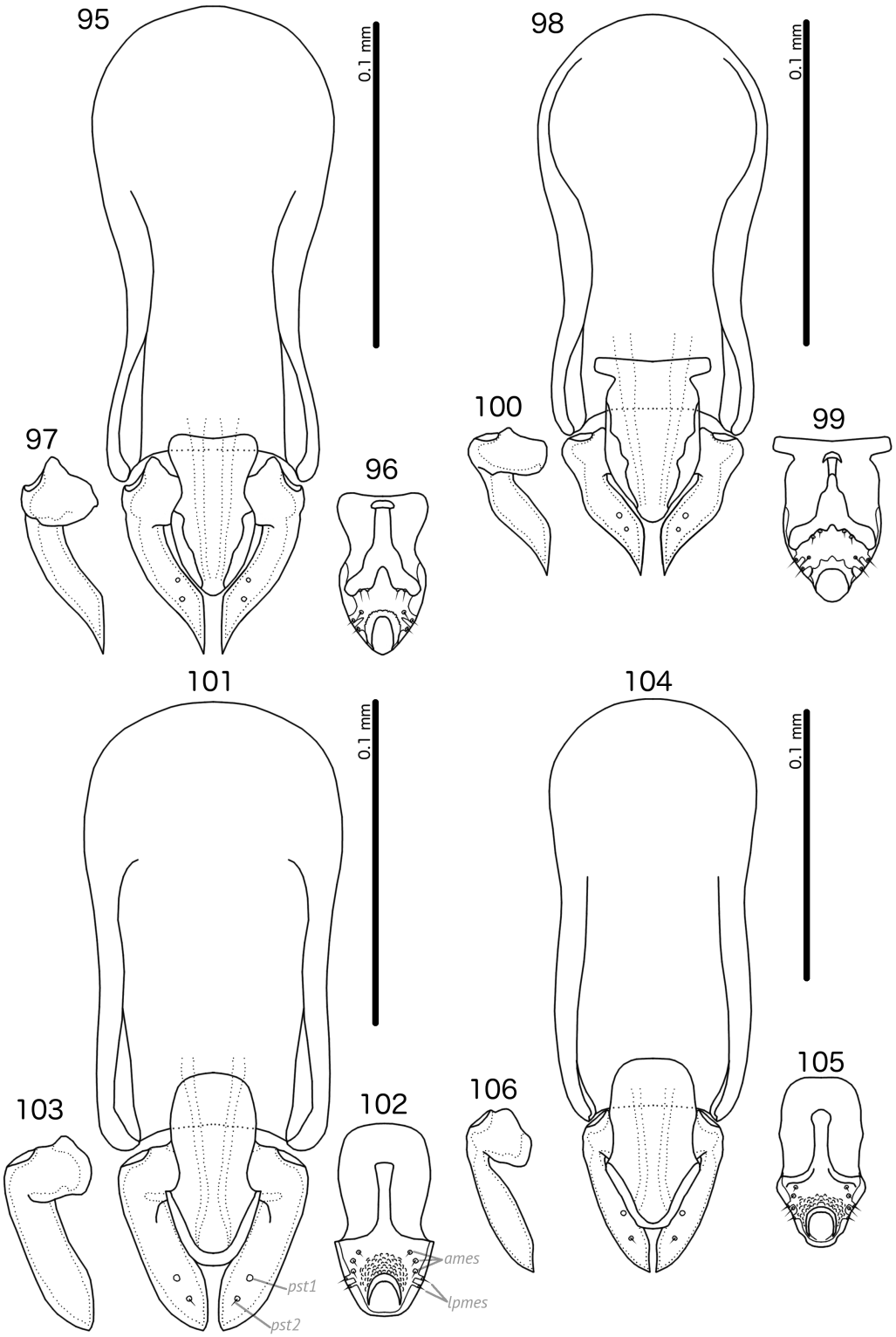
Remarks. We also examined a sample of two females from *P. roseus stanfordi* held in PIPR. However, as both lice have distorted abdomens with damaged distal ends, the shape of the subgenital plate and the vulval chaetotaxy could not be determined to identify them with certainty.



FIGURES 91–92. *Guimaraesiella* (*Malardifax*) *pandolura* Gustafsson & Bush, 2017, ex *Pericrocotus ethologus laetus*. **91,** male habitus, dorsal and ventral views. **92,** female habitus, dorsal and ventral views.



FIGURES 93–94. *Guimaraesiella* (*Malardifax*) *pandolura* Gustafsson & Bush, 2017, ex *Pericrocotus ethologus laetus*. **93,** male head, dorsal and ventral views. **94,** female subgenital plate, ventral view.



FIGURES 95–106. Male genitalia. *Guimaraesiella* (*Guimaraesiella*) *sphagmotica* **n. sp.** ex *Coracina caeruleogrisea strenua*: **95,** dorsal view. **96,** male mesosome, ventral view. **97,** male paramere, ventral view. *Guimaraesiella* (*Guimaraesiella*) *nouankaoensis* **n. sp.** ex *Coracina caledonica seiuncta*: **98,** dorsal view. **99,** male mesosome, ventral view. **100,** male paramere, ventral view. *Guimaraesiella* (*Malardifax*) *pandolura* Gustafsson & Bush, 2017, ex *Pericrocotus ethologus laetus*: **101,** dorsal view. **102,** male mesosome, ventral view. **103,** male paramere, ventral view. *Guimaraesiella* (*Malardifax*) *pandolura* Gustafsson & Bush, 2017, ex *Pericrocotus roseus stanfordi*: **104,** dorsal view. **105,** male mesosome, ventral view. **106,** male paramere, ventral view. Abbreviations: *ames = anterior mesosomal seta*; *gpmes = gonoporal posterior mesosomal seta*; *lpmes = lateral posterior mesosomal seta*; *pst1–2 = parameral setae 1–2.*

TABLE 1. Measurements (in mm) of species treated in this paper. Abbreviations used: TL = total length; HL = head length (along midline); HW = head width (at temples); PRW = prothorax width; PTW = pterothorax width; AW = abdominal width (at segment V). Note: many specimens had distorted abdomens, as noted below; consequently, the TL of many specimens could not be measured. Mean values are given in parentheses only where 10 or more individuals were measured. N = number of specimens examined.

Louse	Host	Sex	#	TL	HL	HW	PRW	PTW	AW
Guimaraesiella (*Guimaraesiella*) *nouankaoensis*	*Coracina caledonica seiuncta*	M	2	1.24–1.25	0.33–0.34	0.35	0.20–0.21	0.30	0.42–0.45
		F	9	1.42–1.58	0.34–0.37	0.36–0.39	0.22–0.23	0.32–0.34	0.46–0.51
	Coracina caledonica thilenii	F	1	1.71	0.38	0.41	0.24	0.35	0.53
Guimaraesiella (*Guimaraesiella*) *sphagmotica*	*Coracina caeruleogrisea strenua*	M	5	1.31–1.43	0.33–0.36	0.35–0.38	0.21–0.23	0.31–0.33	0.46–0.50
		F	5	1.71–1.83	0.37–0.40	0.40–0.42	0.24–0.26	0.35–0.38	0.52–0.62
	Coracina caeruleogrisea adamsoni	M	8 [1]	1.28–1.31	0.32–0.34	0.35–0.37	0.21–0.23	0.31–0.33	0.43–0.45
		F	11 [2]	1.54–1.65 (1.60)	0.36–0.40 (0.38)	0.39–0.42 (0.40)	0.23–0.26 (0.24)	0.33–0.38 (0.35)	0.48–0.61 (0.55)
Guimaraesiella (*Malardifax*) *pandolura*	*Pericrocotus ethologus laetus*	M	1	1.33	0.38	0.38	0.22	0.32	0.49
		F	5	1.53–1.70	0.41–0.45	0.40–0.44	0.24–0.26	0.36–0.39	0.52–0.55
	Pericrocotus roseus stanfordi	M	1						
Indoceoplanetes (*Capnodella*) *kamphaengphetensis*	*Lalage melaschistos avensis*	M	1	1.46	0.35	0.32	0.21	0.29	0.40
Indoceoplanetes (*Capnodella*) *saucia*	*Edolisoma montanum montanum*	M	5 [3]	1.20–1.38	0.29–0.33	0.26–0.30	0.17–0.21	0.25–0.28	0.32–0.40
		F	18 [4]	1.49–1.66 (1.57)	0.34–0.37 (0.36)	0.30–0.34 (0.32)	0.18–0.22 (0.20)	0.27–0.31 (0.29)	0.40–0.48 (0.44)
Indoceoplanetes (*Capnodella*) *subarcens*	*Edolisoma melas melas*	M	4	1.33–1.40	0.32–0.33	0.29–0.30	0.19	0.26–0.27	0.35–0.42
		F	4	1.63–1.74	0.34–0.38	0.31–0.35	0.20–0.23	0.28–0.30	0.44–0.49
Indoceoplanetes (*Indoceoplanetes*) *cinitemnina*	*Edolisoma melas melas*	M	3 [5]	1.43–1.44	0.37–0.38	0.33–0.34	0.21–0.22	0.28–0.31	0.39–0.42
		F	9 [6]	1.75–1.90	0.40–0.44	0.36–0.39	0.23–0.26	0.32–0.36	0.43–0.50
Indoceoplanetes (*Indoceoplanetes*) *ephippiformis*	*Edolisoma montanum montanum*	M	2 [7]	1.75–1.78	0.40–0.42	0.36–0.38	0.24–0.25	0.31–0.35	0.44–0.49
		F	4 [8]	1.55	0.40	0.34–0.35	0.22–0.23	0.31	0.40–0.44
Indoceoplanetes (*Indoceoplanetes*) *fodincana*	*Coracina papuensis angustifrons*	M	5 [9]	1.61–1.70	0.35–0.41	0.36	0.19–0.23	0.29–0.34	0.36–0.46
		F	2 [10]	1.72	0.40–0.43	0.38	0.21–0.24	0.33–0.34	0.44–0.46
	Coracina papuensis elegans	F	3	1.80–1.84	0.41–0.43	0.38–0.39	0.23–0.24	0.33–0.34	0.47–0.48

.....continued on the next page

TABLE 1. (Continued)

Louse	Host	Sex	#	TL	HL	HW	PRW	PTW	AW
	Coracina papuensis oriomo	M	1	1.76	0.43	0.38	0.25	0.36	0.51
		F	5 [11]	1.90–1.96	0.43–0.46	0.39–0.41	0.25–0.28	0.35–0.40	0.52–0.56
Indoceoplanetes (*Indoceoplanetes*) *incisoma*	*Coracina macei rexpineti*	M	3	1.76–1.87	0.43–0.45	0.39–0.41	0.23–0.25	0.34–0.35	0.48–0.53
	Coracina macei siamensis	M	4 [12]	1.64–1.77	0.42–0.43	0.37–0.38	0.23–0.24	0.32–0.34	0.47–0.51
		F	4 [13]	1.95–2.08	0.44–0.46	0.40–0.44	0.26–0.27	0.37–0.40	0.55–0.58
Indoceoplanetes (*Indoceoplanetes*) *microgenitalis*	*Coracina caeruleogrisea strenua*	M	1	1.65	0.41	0.37	0.23	0.33	0.50
		F	1	1.88	0.42	0.40	0.24	0.35	0.55
Indoceoplanetes (*Indoceoplanetes*) *pterophora*	*Coracina macei nipalensis*	M	1	1.74	0.46	0.40	0.25	0.35	0.45
		F	14 [14]	1.72–2.00 (1.86)	0.43–0.47 (0.45)	0.38–0.42 (0.40)	0.23–0.26 (0.24)	0.33–0.38 (0.35)	0.48–0.58 (0.53)
Indoceoplanetes (*Indoceoplanetes*) *saburrata*	*Coracina lineata ombriosa*	M	7 [15]	1.40–1.56	0.37–0.39	0.33–0.35	0.21–0.24	0.29–0.33	0.40–0.45
		F	5 [16]	1.68–1.89	0.39–0.45	0.36–0.41	0.23–0.26	0.31–0.38	0.50–0.53
Indoceoplanetes (*Indoceoplanetes*) *wandoensis*	*Coracina novaehollandiae melanops*	M	12 [17]	1.68–1.91 (1.79)	0.41–0.46 (0.43)	0.35–0.40 (0.37)	0.23–0.25 (0.24)	0.32–0.35 (0.34)	0.46–0.56 (0.51)
		F	20 [18]	1.85–2.11 (1.98)	0.43–0.48 (0.45)	0.37–0.41 (0.39)	0.23–0.28 (0.26)	0.34–0.39 (0.36)	0.50–0.59 (0.54)
Indoceoplanetes (*Indoceoplanetes*) *zambica*	*Coracina pectoralis*	M	3	1.57–1.65	0.40–0.42	0.34–0.36	0.22	0.31–0.32	0.42–0.45
		F	6	1.88–1.95	0.42–0.44	0.36–0.38	0.23–0.25	0.32–0.35	0.49–0.53

[1] N for TL = 7, N for AW = 6.
[2] N for HW = 10.
[3] N for TL = 16.
[4] N for TL and HW = 4.
[5] N for TL = 2.
[6] N for TL = 8.
[7] N for TL = 1; one specimen with broken head and twisted abdomen, and not measured.
[8] N for TL = 2.
[9] N for TL = 2, N for HL and HW = 4.
[10] N for TL = 1.
[11] N for TL = 2, N for AW = 3; one specimen with deformed and twisted abdomen, and not measured.
[12] N for TL = 2, N for AW = 3.
[13] N for AW = 3.
[14] N for TL and AW = 13.
[15] N for TL and AW = 4, N for PTW = 5.
[16] N for TL and AW = 3, N for PTW = 4.
[17] N for TL = 11.
[18] N for TL = 18, N for AW = 19.

TABLE 2. Checklist of the species of lice in the *Brueelia*-complex known from campephagid hosts, arranged by louse species.

Louse species	Host species
Guimaraesiella (*Guimaraesiella*) *nouankaoensis* **new species**	*Coracina caledonica seiuncta* Mayr & Ripley, 1941
	Coracina caledonica thilenii (Neumann, 1915)
Guimaraesiella (*Guimaraesiella*) *sphagmotica* **new species**	*Coracina caeruleogrisea adamsoni* Mayr & Rand, 1936
	Coracina caeruleogrisea strenua (Schlegel, 1871)
Guimaraesiella (*Malardifax*) *pandolura* Gustafsson & Bush, 2017	*Pericrocotus ethologus laetus* Mayr, 1940
	Pericrocotus roseus stanfordi Vaughan & Jones, 1913
	Pericrocotus speciosus semiruber Whistler and Kinnear, 1933
Indoceoplanetes (*Capnodella*) *kamphaengphetensis* **new species**	*Lalage melaschistos avensis* (Blyth, 1852)
Indoceoplanetes (*Capnodella*) *laurocorythes* Gustafsson & Bush, 2017	*Edolisoma holopolium holopolium* (Sharpe, 1888)
Indoceoplanetes (*Capnodella*) *loboccupatrix* Gustafsson & Bush, 2017	*Lobotos oriolinus* Bates, 1909
Indoceoplanetes (*Capnodella*) *saucia* **new species**	*Coracina papuensis papuensis* (Gmelin, 1788)
	Edolisoma montanum montanum (Meyer, 1874)
Indoceoplanetes (*Capnodella*) *subarcens* **new species**	*Edolisoma melas melas* (Lesson, 1828)
Indoceoplanetes (*Indoceoplanetes*) *cinitemnina* **new species**	*Edolisoma melas melas* (Lesson, 1828)
Indoceoplanetes (*Indoceoplanetes*) *ephippiformis* **new species**	*Edolisoma montanum bicinia* Diamond, 1969
	Edolisoma montanum montanum (Meyer, 1874
Indoceoplanetes (*Indoceoplanetes*) *fodincana* **new species**	*Coracina papuensis angustifrons* (Salvadori, 1876)
	Coracina papuensis elegans (Ramsay, 1881)
	Coracina papuensis oriomo Mayr & Rand, 1936
Indoceoplanetes (*Indoceoplanetes*) *incisoma* **new species**	*Coracina macei rexpineti* (Swinhoe, 1863)
	Coracina macei siamensis (Baker, 1918)
Indoceoplanetes (*Indoceoplanetes*) *indonesiana* (Eichler, 1947)	*Coracina striata difficilis* (Harter, 1895)
	Coracina striata panayensis (Steere, 1890)
	Coracina striata sumatrensis (Müller, 1843)
Indoceoplanetes (*Indoceoplanetes*) *microgenitalis* **new species**	*Coracina caeruleogrisea strenua* (Schlegel, 1871)
Indoceoplanetes (*Indoceoplanetes*) *pterophora* **new species**	*Coracina macei nipalensis* (Hodgson, 1836)
Indoceoplanetes (*Indoceoplanetes*) *saburrata* **new species**	*Coracina lineata ombriosa* (Rothschild & Hartert, 1905)
Indoceoplanetes (*Indoceoplanetes*) *wandoensis* **new species**	*Coracina novaehollandiae melanops* (Latham, 1802)
Indoceoplanetes (*Indoceoplanetes*) *zambica* **new species**	*Coracina pectoralis* (Jardine & Selby, 1828)

TABLE 3. Checklist of the species of lice in the *Brueelia*-complex known from campephagid hosts arranged by host species.

Host species	Louse species
Coracina caeruleogrisea adamsoni Mayr & Rand, 1936	*Guimaraesiella* (*Guimaraesiella*) *sphagmotica* **new species**
Coracina caeruleogrisea strenua (Schlegel, 1871)	*Guimaraesiella* (*Guimaraesiella*) *sphagmotica* **new species**
	Indoceoplanetes (*Indoceoplanetes*) *microgenitalis* **new species**
Coracina caledonica seiuncta Mayr & Ripley, 1941	*Guimaraesiella* (*Guimaraesiella*) *nouankaoensis* **new species**
Coracina caledonica thilenii (Neumann, 1915)	*Guimaraesiella* (*Guimaraesiella*) *nouankaoensis* **new species**
Coracina lineata ombriosa (Rothschild & Hartert, 1905)	*Indoceoplanetes* (*Indoceoplanetes*) *saburrata* **new species**
Coracina macei nipalensis (Hodgson, 1836)	*Indoceoplanetes* (*Indoceoplanetes*) *pterophora* **new species**
Coracina macei rexpineti (Swinhoe, 1863)	*Indoceoplanetes* (*Indoceoplanetes*) *incisoma* **new species**
Coracina macei siamensis (Baker, 1918)	*Indoceoplanetes* (*Indoceoplanetes*) *incisoma* **new species**
Coracina novaehollandiae melanops (Latham, 1802)	*Indoceoplanetes* (*Indoceoplanetes*) *wandoensis* **new species**
Coracina papuensis angustifrons (Salvadori, 1876)	*Indoceoplanetes* (*Indoceoplanetes*) *fodincana* **new species**
Coracina papuensis elegans (Ramsay, 1881)	*Indoceoplanetes* (*Indoceoplanetes*) *fodincana* **new species**
Coracina papuensis oriomo Mayr & Rand, 1936	*Indoceoplanetes* (*Indoceoplanetes*) *fodincana* **new species**
Coracina papuensis papuensis (Gmelin, 1788)	*Indoceoplanetes* (*Capnodella*) *saucia* **new species**
Coracina pectoralis (Jardine & Selby, 1828)	*Indoceoplanetes* (*Indoceoplanetes*) *zambica* **new species**
Coracina striata difficilis (Harter, 1895)	*Indoceoplanetes* (*Indoceoplanetes*) *indonesiana* (Eichler, 1947)
Coracina striata panayensis (Steere, 1890)	*Indoceoplanetes* (*Indoceoplanetes*) *indonesiana* (Eichler, 1947)
Coracina striata sumatrensis (Müller, 1843)	*Indoceoplanetes* (*Indoceoplanetes*) *indonesiana* (Eichler, 1947)
Edolisoma holopolium holopolium (Sharpe, 1888)	*Indoceoplanetes* (*Capnodella*) *laurocorythes* Gustafsson & Bush, 2017
Edolisoma melas melas (Lesson, 1828)	*Indoceoplanetes* (*Capnodella*) *subarcens* **new species**
	Indoceoplanetes (*Indoceoplanetes*) *cinitemnina* **new species**
Edolisoma montanum bicinia Diamond, 1969	*Indoceoplanetes* (*Indoceoplanetes*) *ephippiformis* **new species**
Edolisoma montanum montanum (Meyer, 1874)	*Indoceoplanetes* (*Capnodella*) *saucia* **new species**
	Indoceoplanetes (*Indoceoplanetes*) *ephippiformis* **new species**
Lalage melaschistos avensis (Blyth, 1852)	*Indoceoplanetes* (*Capnodella*) *kamphaengphetensis* **new species**
Lobotos oriolinus Bates, 1909	*Indoceoplanetes* (*Capnodella*) *loboccupatrix* Gustafsson & Bush, 2017
Pericrocotus ethologus laetus Mayr, 1940	*Guimaraesiella* (*Malardifax*) *pandolura* Gustafsson & Bush, 2017
Pericrocotus roseus stanfordi Vaughan & Jones, 1913	*Guimaraesiella* (*Malardifax*) *pandolura* Gustafsson & Bush, 2017
Pericrocotus speciosus semiruber Whistler and Kinnear, 1933	*Guimaraesiella* (*Malardifax*) *pandolura* Gustafsson & Bush, 2017

Discussion

With the addition of the new species described here, a total of 18 species of lice in the *Brueelia*-complex are known from the Campephagidae: three species in *Guimaraesiella* and 15 species in *Indoceoplanetes*, with two subgenera represented in both genera (Table 2). Species of both subgenera of *Indoceoplanetes* appear to be restricted to campephagid hosts. In contrast, the known species of *Guimaraesiella* on campephagid hosts belong either to the nominate subgenus, which is widely distributed across dozens of host families (Gustafsson & Bush 2017; Gustafsson *et al*. 2019b), or to the subgenus *Malardifax*, which is known from campephagid and vangid hosts (Gustafsson & Bush, *in prep.*).

The Campephagidae forms a clade with no close relatives, but the proposed sister group of this clade includes the Vangidae, Artamidae and several smaller families (Fuchs *et al.* 2009; Jønsson *et al*. 2010, 2016). We have examined undescribed specimens suggesting that species of *Gu.* (*Malardifax*) and species of *Gu*. (*Guimaraesiella*) similar to those described above may occur on these distantly related host families. In particular, we have found an undescribed species of *Gu.* (*Malardifax*) from the vangid, *Hemipus picatus capitalis* (Horsfield, 1840), as well as an undescribed species of *Gu.* (*Guimaraesiella*) with a similar head shape to that of *Gu.* (*Gu.*) *nouankaoensis* (Fig. 88) from the artamid, *Cracticus cassicus cassicus* (Boddaert, 1783). Future collections from birds of these families may reveal that the *Guimaraesiella* groups known from campephagid hosts may not be limited to this host family.

Within the Campephagidae, known host associations of *Brueelia*-complex lice largely follow a division of the hosts into two clades, one comprising the minivets (*Pericrocotus*) and another including cuckooshrikes, trillers, and cicadabirds (*Coracina, Edolisoma, Lalage, Lobotos*) (Fuchs *et al*. 2009; Jønsson *et al*. 2008, 2010; Table 3). However, no *Brueelia*-complex lice have been examined from species of several campephagid genera (*Analisoma*, *Campephaga, Campochaera, Celebesia, Malindangia*); Bush *et al*. (2016) included a single specimen of *In.* (*Capnodella*) from the campephagid, *Cyanograucalus azureus* (Cassin, 1852), indicating that this louse subgenus also occurs on hosts of this genus.

The genus *Indoceoplanetes* includes one species that occurs on two host species, and several species that are restricted to a single host species or even to a single host subspecies (Table 2). In contrast, one host individual may be infested by species of more than one group of *Brueelia*-complex lice. In some cases, the same host species is infested by species of both *Guimaraesiella* and *Indoceoplanetes* (*e.g., Coracina caeruleogrisea*; Table 3). Louse samples from cuckooshrikes need to be examined in detail to achieve a correct identification, especially since all species are very pale, and several of the species of *Guimaraesiella* occurring on campephagid hosts have atypical, rounded heads (*e.g.,* Fig. 88). We have even seen several examples where one host individual was infested with lice belonging to species of both subgenera of *Indoceoplanetes*.

Biogeographically, species of both *In.* (*Indoceoplanetes*) and *In.* (*Capnodella*) occur throughout the geographic range of the Campephagidae, from the Australo-Papuan region through Indonesia and South Asia to tropical Africa. Species of *Gu.* (*Guimaraesiella*) from campephagid hosts appear to be more restricted in their geographic distribution, but we have seen undescribed specimens (mainly females) from Philippine hosts, suggesting that the lack of records from Asian and African hosts may be due to sampling bias (see Gustafsson *et al.* 2019d).

Key to the species of lice of the *Brueelia*-complex known from campephagid hosts

Note: Females of *Indoceoplanetes* (*Capnodella*) *kamphaengphetensis* are unknown. For simplicity, subgeneric names are not given in this key.

1. Dorsal preantennal suture absent . . . . . 2.
- Dorsal preantennal suture present . . . . . 15.
2. Male . . . . . 3.
- Female . . . . . 12.
3. Multiple *sutural setae* present on each side of abdominal segment IV . . . . . 4.
- Only one *sutural setae* present on each side of abdominal segment IV. . . . . 7.
4. Sternite III with more than one 1 *sternal setae* on each side; proximal mesosome without antero-lateral extensions . . . . . *Indoceoplanetes indonesiana*
- Sternite III with only 1 *sternal seta* on each side (Fig. 15); proximal mesosome with antero-lateral extensions (Fig. 19) . . . . 5.
5. Sternite IV with only 1 *sternal seta* on each side . . . . . *Indoceoplanetes cinitemnina*
- Sternite IV with more than 1 *sternal setae* on each side (Fig. 15) . . . . . 6.
6. Abdominal segment V with 1 *pleural seta* on each side (Fig. 29) . . . . . *Indoceoplanetes wandoensis*

- Abdominal segment V with 2 *pleural setae* on each side (Fig. 15) . . . . . *Indoceoplanetes pterophora*
7. Multiple *sutural setae* present on each side of abdominal segment V (Fig. 1) . . . . . 8.
- Only one *sutural seta* present on each side of abdominal segment V (Fig. 8). . . . . 9.
8. Proximal mesosome with short, rounded antero-lateral extensions and convex anterior margin (Fig. 5) . . . . . *Indoceoplanetes microgenitalis*
- Proximal mesosome with longer, angular antero-lateral extensions and concave anterior margin (Fig. 40) . . . . . *Indoceoplanetes fodincana*
9. Only one *sutural seta* present on each side on abdominal segment VI (Fig. 57) . . . . . *Indoceoplanetes ephippiformis*
- Multiple *sutural setae* present on each side of abdominal segment VI (Fig. 8). . . . . .10.
10. Proximal mesosome with median anterior bulge, but no antero-lateral extensions (Fig. 12) . . . . . .*Indoceoplanetes saburrata*
- Proximal mesosome with antero-lateral extensions (Fig. 26) . . . . . .11.
11. Sternite IV with only one *sternal seta* on each side (Fig. 43) . . . . . .*Indoceoplanetes zambica*
- Sternite IV with 2 *sternal setae* on each side (Fig. 22) . . . . . .*Indoceoplanetes incisoma*.
12. Abdominal segment VI with 1 *pleural seta* on each side (Fig. 51) . . . . . *Indoceoplanetes cinitemnina*
- Abdominal segment VI with at least 2 *pleural setae* on each side (Fig. 2) . . . . . 13.
13. Abdominal segment VI with 3 *pleural setae* on each side (Fig. 2) . . . . . *Indoceoplanetes microgenitalis*
- Abdominal segment VI with at least 2 *pleural setae* on each side. 14
14. Sternite III with only 1 *sternal seta* on each side (Fig. 9) . . . . . *Indoceoplanetes indonesiana*, *Indoceoplanetes fodincana*, *Indoceoplanetes pterophora*, *Indoceoplanetes saburrata*[1]
- Sternite III with 2 *sternal setae* on each side (Fig. 23) . . . . . .*Indoceoplanetes ephippiformis*, *Indoceoplanetes incisoma*, *Indoceoplanetes wandoensis*, *Indoceoplanetes zambica*[1]
15. Sternite VI in both sexes with 2 *sternal setae* on each side (Figs 64–65) . . . . . .16.
- Sternite VI in both sexes with 1 *sternal seta* on each side (Figs 83–84) . . . . . 24.
16. Male . . . . . 17.
- Female . . . . . .21.
17. Abdominal segment IV with 1 *pleural seta* on each side (Fig. 68) . . . . . .18.
- Abdominal segment IV with 2 *pleural setae* on each side. . . . . .20.
18. Abdominal segment V with 1 *pleural seta* on each side (Fig. 68). . . . . .19.
- Abdominal segment V with 2 *pleural setae* on each side . . . . . *Indoceoplanetes laurocorythes*
19. Abdominal segment VI with 1 *pleural seta* on each side (Fig. 68); proximal mesosome broad and rounded, much wider than gonopore (Fig. 75) . . . . . *Indoceoplanetes kamphaengphetensis*
- Abdominal segment VI with 2 *pleural setae* on each side; proximal mesosome much reduced, not much larger than gonopore . . . . . *Indoceoplanetes loboccupatrix*
20. Proximal mesosome flattened (Fig. 77) . . . . . *Indoceoplanetes subarcens*
- Proximal mesosome rounded triangular (Fig. 81) . . . . . *Indoceoplanetes saucia*
21. Abdominal segment IV with 1 *pleural seta* on each side. . . . . .22.
- Abdominal segment IV with 2 *pleural setae* on each side (Fig. 65) . . . . . .23.
22. Abdominal segment V with 1 *pleural seta* on each side . . . . . *Indoceoplanetes laurocorythes*
- Abdominal segment V with 2 *pleural setae* on each side . . . . . *Indoceoplanetes loboccupatrix*
23. Abdominal segments V–VI with 2 *pleural setae* on each side (Fig. 67); subgenital plate more narrowed distally, (Fig. 69) . . . . . *Indoceoplanetes subarcens*
- Abdominal segments V–VI with 3 *pleural setae* on each side (Fig. 65); subgenital plate broader distally (Fig. 70) . . . . . *ndoceoplanetes saucia*
24. Dorsal preantennal suture transversally continuous median to the *anterior dorsal setae* (Fig. 95); female tergopleurites VI–VII with *accessory post-spiracular setae* (Fig. 92) . . . . . *Guimaraesiella pandolura*
- Dorsal preantennal suture not transversally continuous and does not reach the *anterior dorsal setae* (Fig. 87); female tergopleurites VI–VII without *accessory post-spiracular setae* (Fig. 84). . . . . 25.
25. Abdominal segment III in both sexes with at least 1 *pleural seta* on each side (Figs 83–84); proximal mesosome with gently rounded antero-lateral corners without extensions (Fig. 100) . . . . . *Guimaraesiella sphagmotica*
- Abdominal segment III without *pleural setae* in both sexes (Fig 85–86); proximal mesosome with antero-lateral extensions (Fig. 103) . . . . . *Guimaraesiella nouankaoensis*

[1] As the abdominal chaetotaxy within each of these groups is identical, and the vulval chaetotaxy overlaps between species in both groups, females of these species are best identified by head shape, pigmentation patterns, and the shape of the vulval margin and subgenital plate.

Acknowledgements

Work supported by grant 36/07 1.4 from the Swedish Taxonomic Initiative, grant GIABR-GJRC201701 from the Introduction of Full-Time High-Level Talent Fund of the Institute of Zoology, Guangdong Academy of Sciences, grant 2019QN01N968 from the Pearl River Talent Recruitment Program of Guangdong Province, grant QN20200130012

from the Foreign Young Talent Plan, grant 31961123003 from the National Natural Science Foundation of China, and grants NSF-DEB-1050706, and NSF 1926738 from the Natural Science Foundation, USA. We thank Paul Brown (NHML) who prepared the loan of slides from the Natural History Museum, and the late Robert E. Elbel who collected the material housed at BPBM. We thank Ricardo L. Palma (Museum of New Zealand Te Papa Tongarewa, New Zealand) and Terry Galloway (University of Manitoba, Canada) for helpful comments to earlier versions of this manuscript.

References

Balát, F. (1958) Beitrag zur Kenntinis der Mallophagenfauna der bulgarische Vögel. *Práce Brnescké Zakladny Ceskoslovenské Akademie Ved*, 30, 397–422.

Burmeister, H. (1838) Mallophaga Nitzsch. *In*: *Handbuch der Entomologie. Zweiter Band. Besondere Entomologie. Zweite Abteilung. Lauskerfe. Gymnognatha.* (*Zweiter Hälfte; vulgo Neuroptera*). *2 (1)*. Theod. Chr. Fried. Enslin, Berlin, pp. 418–443.

Bush, S.E., Weckstein, J.D., Gustafsson, D.R., Allen, J., DiBlasi, E., Shreve, S.M., Boldt, R., Skeen, H.R. & Johnson, K.P. (2016) Unlocking the black box of feather louse diversity: a molecular phylogeny of the hyper-diverse genus *Brueelia*. *Molecular Phylogenetics and Evolution*, 94, 737–751.
https://doi.org/10.1016/j.ympev.2015.09.015

Cicchino, A.C. (1983) Especies nuevas e poco conocidas del género *Brueelia* Keler, 1936 (Mallophaga: Philopteridae) parásitas de Passeriformes, Piciformes y Trogoniformes (Aves) Americanos. *Revista de la Sociedad Entomológica Argentina*, 42, 283–303.

Clay, T. (1936) New species of Mallophaga recorded from Asiatic birds. *Proceedings of the Zoological Society of London*, 1935, 905–914.
https://doi.org/10.1111/j.1469-7998.1935.tb06270.x

Clements, J.F., Schulenberg, T.S., Iliff, M.J., Roberson, D., Fredericks, T.A., Sullivan, B.L. & Wood, C.L. (2021) The eBird/Clements checklist of birds of the world. Version 2021. Available from: http://www.birds.cornell.edu/clementschecklist/download/ (accessed 3 March 2022)

Coinde, J.O. (1859) Notes pour servir a l'histoire des epizoiques. Descriptions de quelques espèces nouvelles appartenant aux genres: *Docophorus, Nirmus, Lipeurus*, etc. *Bulletin de la Société Impériale des Naturalistes de Moscou*, 32, 418–427.

De Geer, C. (1778) *Mémoires pour servir à l`historie naturelle des insectes aptères.* Hesselberg, Stockholm, xii + 950 pp., 49 pls.

Eichler, W. (1947) Dr. E. Mjöberg's Zoological Collections from Sumatra. 15. Mallophaga. *Arkiv för Zoologi*, 39A, 1–21.

Eichler, W. (1949) Phthirapterorum nova genera. *Bollettino della Societá Entomologica Italiana*, 79, 11–13.

Eichler, W. (1951) Die Federlinge der Drosseln. *In*: *Bedeutung der Vogelwelt in Forschung und Praxis—Zusammenstellung der Vortrage gehalten auf der Ersten Ornithologen-Tagung in der Deutschen Demokratischen Republik am 21 und 22 Oktober 1950 in Leipzig*. Selbstverl. des Hrsg., Wien, pp. 29–47.

Eichler, W. (1952) Notulae Mallophagologicae. XXVI. *Rhombiceps* n. g. und andere neue Federlingsgattungen. *Zoologischer Anzeiger*, 149, 74–78.

Fuchs, J., Cruaud, C., Couloux, A. & Pasquet, E. (2009) Complex biogeographic history of the cuckoo-shrikes and allies (Passeriformes: Campephagidae) revealed by mitochondrial and nuclear sequence data. *Molecular Phylogenetics and Evolution*, 44, 138–153.
https://doi.org/10.1016/j.ympev.2006.10.014

Giebel, C. (1879) Einige von Herrn Dr. Meyer, Director des Zoologischen Museums in Dresden, auf den Südseeinseln gesammelte Philopteren oder Federlinge. *Zeitschrift für die Gesammten Naturwissenschaften*, 52, 474–475.

Gustafsson, D.R. & Bush, S.E. (2017) Morphological revision of the hyperdiverse *Brueelia*-complex (Insecta: Phthiraptera: Ischnocera: Philopteridae) with checklists and generic keys. *Zootaxa*, 4313 (1), 1–443.
https://doi.org/10.11646/zootaxa.4313.1.1

Gustafsson, D.R. & Bush, S.E. (2020) A new subgenus and eight new species of *Guimaraesiella* Eichler, 1949 (Phthiraptera: Ischnocera: Philopteridae: *Brueelia*-complex). *Zootaxa*, 4885 (2), 151–188.
https://doi.org/10.11646/zootaxa.4885.2.1

Gustafsson, D.R., Clayton, D.H. & Bush, S.E. (2019a) Twelve new species of *Guimaraesiella* (Phthiraptera: Ischnocera: Philopteridae) from "babblers" (Passeriformes: Leiothrichidae, Pellorneidae, Timaliidae) with a description of a new subgenus and a key to its species. *Zootaxa*, 4543 (4), 451–497.
https://doi.org/10.11646/zootaxa.4543.4.1

Gustafsson, D.R., Malysheva, O.D., Tolstenkov, O.O. & Bush, S.E. (2019b) Five new species of *Guimaraesiella* (Phthiraptera: Ischnocera) from broadbills (Aves: Passeriformes: Calyptomenidae, Eurylaimidae). *Journal of Parasitology*, 105, 846–857.
https://doi.org/10.1645/19-88

Gustafsson, D.R., Oslejskova, L., Najer, T., Sychra, O. & Zou, F. (2019c) Redescriptions of thirteen species of chewing lice

in the *Brueelia*-complex (Phthiraptera, Ischnocera, Philopteridae), with one new synonymy and a neotype designation for *Nirmus lais* Giebel, 1874. *Deutsche Entomologische Zeitschrift*, 66, 17–39.
https://doi.org/10.3897/dez.66.32423

Gustafsson, D.R., Zou, F., Oslejskova, L., Najer, T. & Sychra, O. (2019d) Four new species of *Brueelia* Kéler, 1936 (Phthiraptera: Ischnocera) from African hosts, with a redescription of *Nirmus bicurvatus* Piaget, 1880. *European Journal of Taxonomy*, 507, 1–48.
https://doi.org/10.5852/ejt.2019.507

Haeckel, E. (1896) *Systematische Phylogenie. 2. Teil. Systematische Phylogenie der wirbellose Thiere (Invertebrata)*. Verlag von Georg Reimer, Berlin, 720 pp.
https://doi.org/10.1515/9783111443935

Jønsson, K.A., Irestedt, M., Fuchs, J., Ericson, P.G.P., Christidis, L., Bowie, R.C.K., Norman, J.A., Pasquet, E. & Fjeldså, J. (2008) Explosive avian radiations and multi-directional dispersal across Wallacea: evidence from the Campephagidae and other crown Corvida. *Molecular Phylogenetics and Evolution*, 47, 221–236.
https://doi.org/10.1016/j.ympev.2008.01.017

Jønsson, K.A., Bowie, R.C.K., Nylander, J.A.A., Christidis, L., Norman, J.A. & Fjeldså, J. (2010) Biogeographical history of cuckooshrikes (Aves: Passeriformes): transoceanic colonization of Africa from Australo-Papua. *Journal of Biogeography*, 37, 1767–1781.
https://doi.org/10.1111/j.1365-2699.2010.02328.x

Jønsson, K.A., Fabre, P.-H., Kennedy, J.D., Holt, B.G., Borregaard, M.K., Rahbek, C. & Fjeldså, J. (2016) A supermatrix phylogeny of corvoid passerine birds. *Molecular Phylogenetics and Evolution*, 94, 87–94.
https://doi.org/10.1016/j.ympev.2015.08.020

Kéler, S. von (1936) Über einige Mallophagen aus Rossitten. *Arbeiten über morphologische und taxonomische Entomologie von Berlin-Dahlem*, 3, 256–264.

Kellogg, V.L. (1896) New Mallophaga, I.—with special reference to a collection made from maritime birds of the Bay of Monterey, California. *Proceedings of the California Academy of Sciences*, Series 2, 6, 31–168, 14 pls.

Mey, E. (2004) Zur Taxonomie, Verbreitung und parasitophyletischer Evidenz des *Philopterus*-Komplexes (Insecta, Phthiraptera, Ischnocera). *Ornithologischer Anzeiger*, 43, 149–203.

Mey, E. (2017) Neue Gattungen und Arten aud dem *Brueelia*-Komplex (Insecta, Phthiraptera, Ischnocera, Philopteridae s. l.). *Rudolstädter Naturhistorische Schriften*, 22, 85–215.

Mey, E. & Barker, S.C. (2014) Eine neue auf den Feenvögeln (Irenidae) lebende *Brueelia*-Art (Insecta, Phthiraptera, Ischnocera, Philopteridae), nebst Anmerkungen zur Gattung *Brueelia* Kéler, 1936 sensu lato. *Rudolstädter naturhistorische Schriften*, 19, 73–114.

Najer, T., Sychra, O., Hung, N.M., Capek, M., Podzemny, P. & Literak, I. (2012) New species and new records of chewing lice (Phthiraptera: Amblycera and Ischnocera) from bulbuls (Passeriformes: Pycnonotidae) in Vietnam. *Zootaxa*, 3357 (1), 37–48.
https://doi.org/10.11646/zootaxa.3357.1.3

Neumann, L.G. (1906) Notes sur les Mallophages. I. Nomenclature. *Bulletin de la Société Zoologique de France*, 31, 54–60.
https://doi.org/10.5962/bhl.part.18333

Nitzsch, C.L. (1818) Die Familien und Gattungen der Thierinsekten (Insecta Epizoica); als ein Prodromus einer Naturgeschichte derselben. *E.F. Germar's Magazin der Entomologie*, 3, 261–318.

Piaget, E. (1885) *Les Pédiculines*. *Essai monographique*. *Supplement*. E.J. Brill, Leide. xii + 200 pp., 17 pls.

Price, R.D., Hellenthal, R.A. & Palma, R.L. (2003) *World checklist of chewing lice with host associations and keys to families and genera*. *In*: Price, R.D., Hellenthal, R.A., Palma, R.L., Johnson, K.P. & Clayton, D.H. (Eds.), *The chewing lice: world checklist and biological overview*. *Illinois Natural History Survey Special Publication* 24. Illinois Natural History Survey, Champaign, Illinois, pp. 1–448.

Uchida, S. (1948) Studies on the biting-lice (Mallophaga) of Japan and adjacent territories (Suborder Ischnocera Pt. 1). *Japanese Medical Journal*, 1, 303–326.
https://doi.org/10.7883/yoken1948.1.303

Waterston, J. (1915) On two new species of Mallophaga (Menoponidae): *Menacanthus balfouri* n. sp. and *Myrsidea victrix* n. sp. from Colombia. *Entomologist's Monthly Magazine*, 51, 12–16.
https://doi.org/10.5962/bhl.part.7786