

## 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

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### Abstract

The chewing louse subgenus *Cicchinella* **new subgenus** is erected and described for species of *Guimaraesiella* Eichler, 1949, parasitizing Old World babblers (Leiothrichidae, Pellorneidae, Timaliidae). The subgenus is divided into three species groups based on chaetotaxy, head and genitalia of both sexes. Two species are redescribed: *Guimaraesiella* (*Cicchinella*) *sehri* (Ansari, 1955) from *Trochalopteron lineatum lineatum* (Vigors, 1831) and *T. lineatum setafer* (Hodgson, 1836), and *Guimaraesiella* (*Cicchinella*) *avinus* (Ansari, 1956) from *Trochalopteron subunicolor subunicolor* Blyth, 1843. In addition, 12 new species are described and illustrated: *Guimaraesiella* (*Cicchinella*) *falcifrons* **n. sp.** from *Actinodura cyanouroptera sordidior* (Sharpe, 1888); *Guimaraesiella* (*Cicchinella*) *iuga* **n. sp.** from *Alcippe peracensis peracensis* Sharpe, 1887; *Guimaraesiella* (*Cicchinella*) *gombakensis* **n. sp.** from *Turdinus abbotti abbotti* (Blyth, 1845); *Guimaraesiella* (*Cicchinella*) *mcgrewi* **n. sp.** from *Alcippe morrisonia* Swinhoe, 1863; *Guimaraesiella* (*Cicchinella*) *tenella* **n. sp.** from *Cyanoderma ruficeps davidi* (Oustalet, 1899); *Guimaraesiella* (*Cicchinella*) *retusa* **n. sp.** from *Trochalopteron milnei sinianum* Stresemann, 1930; *Guimaraesiella* (*Cicchinella*) *philiproundi* **n. sp.** from *Trochalopteron melanostigma schistaceum* (Deignan, 1938) and *Trochalopteron peninsulae* Sharpe, 1887; *Guimaraesiella* (*Cicchinella*) *hannesundinae* **n. sp.** from *Heterophasia picaoides wrayi* (Ogilvie-Grant, 1910); *Guimaraesiella* (*Cicchinella*) *pallidobrunneis* **n. sp.** from *Heterophasia melanoleuca melanoleuca* (Blyth, 1859); *Guimaraesiella* (*Cicchinella*) *hampuslybecki* **n. sp.** from *Heterophasia auricularis* (Swinhoe, 1864); *Guimaraesiella* (*Cicchinella*) *scottvillai* **n. sp.** from *Liocichla steerii* Swinhoe, 1877 and *Guimaraesiella* (*Cicchinella*) *ambusta* **n. sp.** from *Leiothrix argentauris rubrogularis* Kinnear, 1925. A key to identify the species of *Cicchinella*, and both a checklist and a host-lice list of the species of *Cicchinella* known from the Old World babblers are provided.

**Key words:** Phthiraptera, Ischnocera, Philopteridae, *Brueelia*-complex, *Guimaraesiella*, *Cicchinella*, Pellorneidae, Leiothrichidae, Timaliidae, new species, new subgenus

### Introduction

Old World “babblers” are songbirds that occur across South Asia and Africa. Although the systematics of this group is in flux, most workers consider babblers to be a paraphyletic assemblage of several different families (e.g. Cibois 2003; Reddy & Cracraft 2007; Gelang *et al.* 2008; Moyle *et al.* 2012; Oliveros *et al.* 2012; Clements *et al.* 2015). Interestingly, however, babblers are parasitized by lice that are closely related (Gustafsson & Bush 2017; Gustafsson *et al.* 2018). Babblers in the families Leiothrichidae, Paradoxornithiidae, Pellorneidae and Timaliidae are collectively parasitized by feather lice (Phthiraptera: Ischnocera: Philopteridae) from seven genera within the *Brueelia*-complex: *Brueelia* s. str. Kéler, 1936, *Guimaraesiella* Eichler, 1949, *Resartor* Gustafsson & Bush, 2017, *Turdinirmoides* Gustafsson & Bush, 2017, *Ceratocista*, Gustafsson & Bush, 2017, *Priceiella* Gustafsson & Bush, 2017, and *Timalinirmus* Mey, 2017. Ultimately, the evolutionary relationships among lice on babblers may shed light on the ecological and evolutionary history of these enigmatic birds. However, that depends on a more comprehensive taxonomic treatment of this understudied group of lice.

A phylogenetic study of the *Brueelia*-complex based on nuclear and mitochondrial genes indicated several monophyletic groups within *Guimaraesiella* (Bush *et al.* 2015, 2016), which are also supported by morphological characters (Gustafsson & Bush 2017; unpublished data). Among the many bird families with species which are hosts to species of *Guimaraesiella*, we now focus on those that infest babblers. Only two species of *Guimaraesiella* have previously been described from these hosts: *Guimaraesiella avinus* (Ansari, 1956) and *G. sehri* (Ansari, 1955). Here, we discuss the known diversity, provide redescriptions of the two known species, descriptions of 12 new species, and propose a subgeneric division that reflects distinct morphological groups within the genus. Collectively, these 14 species form a morphologically distinct group within *Guimaraesiella*, separated from all other members of the genus by the shape and structures of the male genitalia and the presence of a cross-piece along the vulval margin (Bush *et al.* 2016). We propose a new subgenus for these 14 species—*Guimaraesiella* (*Cicchinella*) **n. subgen.**—and provide morphological data separating this subgenus from the nominate subgenus. We further divide the 14 species of the new subgenus into three morphologically distinct species groups: the *G. (Cicchinella) gombakensis* species group, which has three species; the *G. (Cicchinella) sehri* species group, with ten species; and the *G. (Cicchinella) tenella* species group, presently monotypic.

## Material and methods

The material examined is deposited in the Natural History Museum, London, United Kingdom (NHML), the University of Minnesota, St. Paul, United States (UMSP), Oklahoma State University (OSUS), and the Price Institute for Parasite Research, University of Utah, Salt Lake City, United States (PIPeR), as indicated below under each species. The specimens examined are all slide-mounted in Canada balsam.

Terminology and abbreviations for setal, structural, and genitalic characters follow Gustafsson & Bush (2017), and include: *ads*—*anterior dorsal seta*; *ames*—*anterior mesosomal seta*; *aps*—*accessory post-spiracular seta*; *as3*—*anterior seta 3*; *dsms*—*dorsal submarginal seta*; *fI-v3*—*ventral seta 3 of femur I*; *fII-v2*—*ventral seta 2 of femur II*; *fIII-v2*—*ventral seta 2 of femur III*; *pms*—*posterior mesosomal seta*; *pns*—*postnodal seta*; *pmps*—*principal post-spiracular seta*; *pst1–2*—*parameral setae 1–2*; *ss*—*sutural seta*; *vms*—*vulval marginal seta*; *vos*—*vulval oblique seta*; *vss*—*vulval submarginal seta*.

Measurements are given in millimeters for the following dimensions: TL = total length (along midline); HL = head length (along midline); HW = head width (at temples); PRW = prothoracic width; PTW = pterothoracic width; AW = abdominal width (at fifth segment). Host taxonomy follows Clements *et al.* (2017).

## Systematics

### PHTHIRAPTERA Haeckel, 1896

### Ischnocera Kellogg, 1896

### Philopteridae Burmeister, 1838

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

### *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* Zlotorycka, 1964: 263.

*Nitzschnirmus* Mey & Barker, 2014: 101.

**Type species.** *Docophorus subalbicans* Piaget, 1885: 6 [= *Guimaraesiella papuana* (Giebel, 1879: 475)], by original designation.

### ***Cicchinella* Gustafsson, Clayton & Bush, new subgenus**

**Type species:** *Guimaraesiella sehri* (Ansari, 1955) ex *Trochalopteron lineatum lineatum* (Vigors, 1831).

**Diagnosis.** The subgenera *Guimaraesiella* (*Guimaraesiella*) and *G. (Cicchinella)* share the following morphological characters in common: (1) *as3* absent; (2) *pns* present; (3) parameral heads folded medianly; (4) *aps* present on male tergopleurites V–VII; and (5) dorsal preantennal suture present, may reach *ads*, *dsms*, and lateral margin of head, and may completely separate dorsal anterior plate from main head plate.

However, *Guimaraesiella (Cicchinella)* can be separated from *G. (Guimaraesiella)* by the following characters: (1) female subgenital plate with cross-piece in *G. (Cicchinella)* (Fig. 7) but without cross-piece in *G. (Guimaraesiella)* (fig. 360 in Gustafsson & Bush 2017); (2) gonopore clearly ventral in *G. (Cicchinella)* (Fig. 5) but terminal in *G. (Guimaraesiella)* (fig. 358 in Gustafsson & Bush 2017); (3) mesosomal lobes absent or very small, not fused distally in *G. (Guimaraesiella)* (fig. 358 in Gustafsson & Bush 2017) but large and fused, often with conspicuous nodi in terminal end in *G. (Cicchinella)* (Fig. 5); and (4) *aps* present on male tergopleurite IV in *G. (Cicchinella)* (Fig. 1; except *G. (C.) tenella* n. sp., Fig. 97) but absent in *G. (Guimaraesiella)* (fig. 354 in Gustafsson & Bush 2017).

**Description. Both sexes.** Head typically pentagonal (Fig. 3); but general head shape differing between species. Marginal carina interrupted at least medianly. Dorsal preantennal suture reaches *dsms* and *ads*. Ventral carinae typically diffuse anteriorly. Ventral anterior plate present. Head setae as in *G. (Guimaraesiella)*; *as3* absent; *pns* present. Coni variable. Antennae sexually dimorphic some species (e.g. Figs 17–18). Temporal carinae not visible. Gular plate generally triangular. Thoracic and abdominal segments largely as in *G. (Guimaraesiella)*, except leg setae *fI-v3*, *fII-v2*, *fIII-v2* present (Figs 1–2).

**Male.** Abdominal chaetotaxy as in *G. (Guimaraesiella)*, except for *aps* present on tergopleurite IV in all species (e.g. Fig. 1), except *G. (C.) tenella* (Fig. 97). Male genitalia distinct (Figs 4–6), differing slightly between species groups. Basal apodeme rectangular (Fig. 11) to rounded (Fig. 43). Proximal mesosome broad, typically much overlapping with distal basal apodeme. Mesosomal lobes large, elongated distally and fused distal to gonopore (Fig. 5). Lateral margins of mesosome irregular. Gonopore ventral, often with elaborate structures. Ventral sclerite (VS in Fig. 5) present, but varying in shape between species groups. Up to 2 *ames* sensilla or microsetae visible on each side near antero-lateral corner of mesosomal lobes. Up to 1 *pmes* sensilla visible on each side of gonopore (*gonoporal posterior mesosomal setae*, *gpms* in Fig. 5). Up to 2 *pmes* microsetae visible on lateral margins of mesosome (*lateral posterior mesosomal setae*, *lpms* in Fig. 5). Both *ames* and *pmes* are hard to see in non-everted genitalia, and may be easily overlooked. Parameral heads (Fig. 6) folded medianly, typically irregular in shape. In most species there is a papillate area (PA in Fig. 6) on the paramere distal to parameral head. Parameral blades stout, typically tapering gradually; *pst1* sensillus and *pst2* microseta or sensillus, both central, typically close together.

**Female.** Abdominal chaetotaxy as in *G. (Guimaraesiella)* except *psps* absent on tergopleurite VIII (Fig. 2). Female genitalia as in *G. (Guimaraesiella)*, except complete cross-piece present (Fig. 7).

**Host distribution.** Species of the subgenus *Guimaraesiella (Cicchinella)* are known only from hosts within three families of Old World babblers: Leiothrichidae, Pellorneidae and Timaliidae.

**Geographical range.** Southeast Asia.

**Etymology.** The new subgenus, *Cicchinella*, is named honouring Armando C. Cicchino (Universidad Nacional de Mar del Plata, Argentina) in recognition of his long and productive career in phthirapterology. Gender masculine.

**Remarks.** All other members of *Guimaraesiella* (see Gustafsson & Bush 2017) are provisionally placed in the subgenus *Guimaraesiella (Guimaraesiella)*; however, further division of *Guimaraesiella* into more subgenera may be necessary as more data on the morphological variation within this genus become available.

### ***Guimaraesiella (Cicchinella) species groups***

Based on the shape of the preantennal area, the detailed structure of the male genitalia, the thoracic and abdominal chaetotaxy and the female subgenital plate, we divide the subgenus *Guimaraesiella (Cicchinella)* into three different species groups. The three types of nodi of the distal mesosome of the male genitalia are as follows: (1) triangular nodi are marginal throughout most or all of their length, and typically protrude laterally to form angular extensions in the proximal end; (2) elongated nodi only reach the margin of the mesosome in their distal end, and do not form angular extensions; (3) arched nodi are submarginal throughout most of their length, but reach the mesosomal margin proximally, near the rugose nodi.

These species groups are erected based on shared morphological characters that make the identification of species easier but, ultimately, these groups may not be monophyletic.

### ***Guimaraesiella (Cicchinella) sehri species group***

**Diagnosis:** (1) dorsal preantennal suture does not completely separate dorsal anterior plate from main head plate (Fig. 3); (2) *aps* present on male tergopleurite IV (Fig. 1); (3) mesosome with prominent, fairly triangular or trapezoidal nodi distally on each side (TN in Fig. 5); (4) mesosomal ventral sclerite (VS in Fig. 5) present in some species with an anterior rugose area (ARA in Fig. 5) but not protruding beyond anterior margin of mesosome; (5) posterior rugose nodi absent (Fig. 5); (6) female subgenital plate roughly pentagonal (Fig. 7).

#### Included species

*Guimaraesiella (Cicchinella) ambusta* n. sp.  
*Guimaraesiella (Cicchinella) avinus* (Ansari, 1956)  
*Guimaraesiella (Cicchinella) falcifrons* n. sp.  
*Guimaraesiella (Cicchinella) hampuslybecki* n. sp.  
*Guimaraesiella (Cicchinella) hannesundinae* n. sp.  
*Guimaraesiella (Cicchinella) pallidobrunneis* n. sp.  
*Guimaraesiella (Cicchinella) philiproundi* n. sp.  
*Guimaraesiella (Cicchinella) retusa* n. sp.  
*Guimaraesiella (Cicchinella) scottvillai* n. sp.  
*Guimaraesiella (Cicchinella) sehri* (Ansari, 1955)

### ***Guimaraesiella (Cicchinella) gombakensis species group***

**Diagnosis:** (1) dorsal preantennal suture does not completely separate dorsal anterior plate from main head plate (Fig. 77); (2) *aps* present on male tergopleurite IV (Fig. 75); (3) mesosome with elongated nodi (EN in Fig. 79) distally on each side; (4) mesosomal ventral sclerite absent (Fig. 79); (5) posterior rugose nodi prominent near EN (Fig. 79); (6) female subgenital plate roughly pentagonal (Fig. 81).

#### Included species

*Guimaraesiella (Cicchinella) gombakensis* n. sp.  
*Guimaraesiella (Cicchinella) iuga* n. sp.  
*Guimaraesiella (Cicchinella) mcgrewi* n. sp.

### ***Guimaraesiella (Cicchinella) tenella species group***

**Diagnosis:** (1) dorsal preantennal suture completely separates dorsal anterior plate from main head plate (Fig. 99); (2) *aps* absent on male tergopleurite IV (Fig. 97); (3) mesosome with arched distal nodi (AN in Fig. 101) distally on each side; (4) mesosomal ventral sclerite present and protruding beyond anterior margin of mesosome (Fig. 101); (5) posterior rugose nodi present lateral to AN (Fig. 101); (6) female subgenital plate as in Fig. 103.

Included species

*Guimaraesiella (Cicchinella) tenella* n. sp.

## Descriptions of species

### *Guimaraesiella (Cicchinella) sehri* (Ansari, 1955)

(Figs 1–7)

*Brueelia sehri* Ansari, 1955: 53.

*Brueelia sehri* Ansari, 1956: 143, figs 13–16 (redescription).

*Guimaraesiella sehri* (Ansari, 1955); Gustafsson & Bush, 2017: 222.

**Type host.** *Trochalopteron lineatum lineatum* (Vigors, 1831)—streaked laughing-thrush (Leiothrichidae).

**Type locality.** Kulu, Pakistan.

**Other host.** *Trochalopteron lineatum setafer* (Hodgson, 1836).

**Description.** **Both sexes.** Head pentagonal (Fig. 3). Lateral margins of preantennal area fairly straight. Dorsal preantennal suture does not reach lateral margins of head, nor completely separate dorsal anterior plate from main head plate. Attachments of mandibular adductor muscles prominent. Head chaetotaxy as in Fig. 3; *pns* microsetae. Coni broad, not reaching distal margin of scape. Antennae not sexually dimorphic. Gular plate broad, triangular. Thoracic and abdominal segments as in Figs 1–2. Both sexes with 5 *mms* on each side. Reentrant heads of pleurites broad and long.

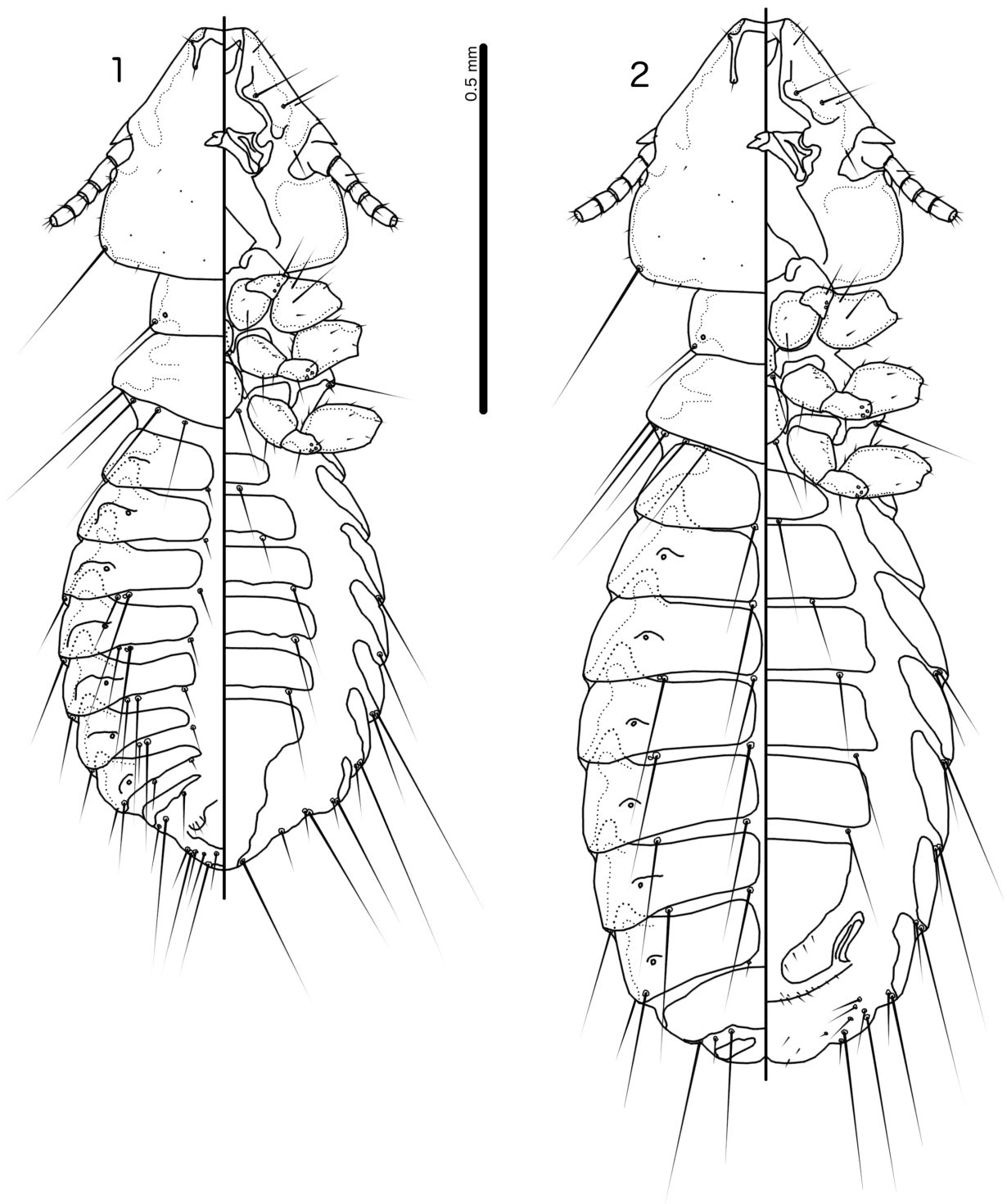
**Male.** Thoracic and abdominal chaetotaxy as in Fig. 1. Male genitalia as in Figs 4–6. Basal apodeme broad, rounded (Fig. 4). Proximal mesosome rectangular (Fig. 5). Ventral sclerite with prominent rugose nodi in anterior end. Mesosomal lobes with sinuous lateral margins. Marginal thickenings of lobes displaced near anterior end of lobes. Large triangular nodi with oblique anterior margins on distal mesosome. Gonopore open distally, with narrow, sinuous marginal thickening; 2 *ames* sensilla on each side near antero-lateral corners of mesosomal lobes; 1 *gpms* sensillus on each side of gonopore; 2 *lpms* microsetae on each side in concave section of lateral margins of mesosome. Parameral heads irregular (Fig. 6). Parameral blades tapering gradually; *pst1–2* close together. Measurements ex *Trochalopteron lineatum lineatum* (n = 1): TL = 1.13; HL = 0.33; HW = 0.33; PRW = 0.19; PTW = 0.29; AW = 0.44. Measurements ex *T. l. setafer* (n = 1): TL = 1.04; HL = 0.34; HW = 0.32; PRW = 0.19; PTW = 0.29; AW = 0.38. **Female.** Thoracic and abdominal chaetotaxy as in Fig. 2; *ss* of tergopleurite VIII much shorter than *ss* of tergopleurites II–VII. Subgenital plate as in Fig. 7; cross-piece with broad connection to subgenital plate. Vulval margin gently rounded (Fig. 7), with 3–4 slender *vms* on each side, and 6–7 thorn-like *vss* on each side; 4–5 slender *vos* on each side; distal *vos* median to *vss*. Measurements ex *Trochalopteron lineatum lineatum* (n = 1; AW not measured): TL = 1.37; HL = 0.36; HW = 0.37; PRW = 0.21; PTW = 0.32. Measurements ex *T. l. setafer* (n = 1): TL = 1.39; HL = 0.34; HW = 0.32; PRW = 0.19; PTW = 0.29; AW = 0.38.

**Type material.** Ex *Trochalopteron lineatum lineatum*: **Holotype** ♂, Kulu, [Kullu District, Pakistan], 14 Oct. 1934, [R.A.M.] Ansari (NHML). **Allotype** ♀, same data as holotype (NHML).

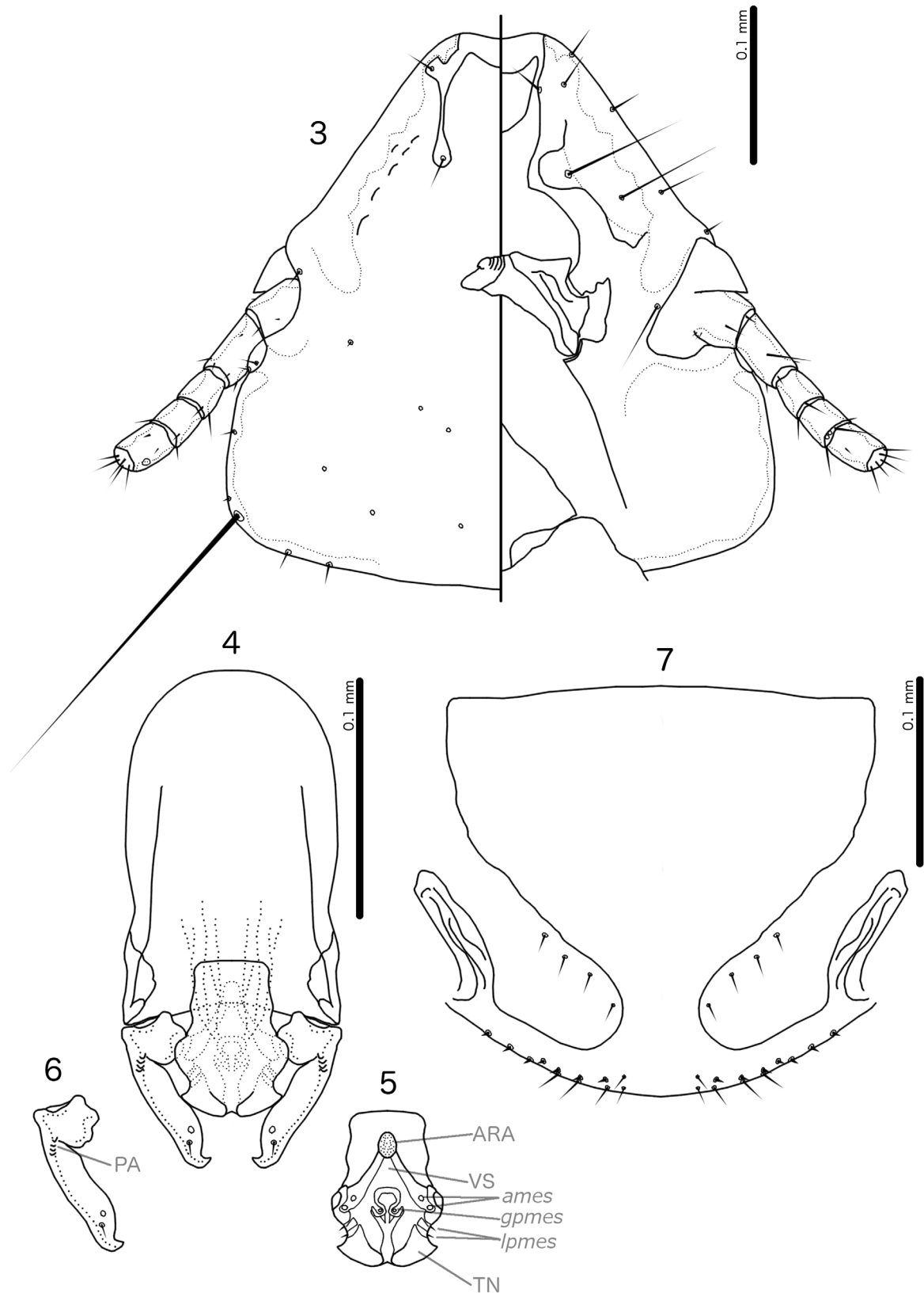
**Additional material examined (non-types).** Ex *Trochalopteron lineatum setafer*: 1♂, 1♀, Melichme, Sindhu District, Nepal, 5 Aug. 1968, NP-6863, 12478 on reverse (NHML).

**Remarks.** The material we studied from *T. lineatum lineatum* is from Ansari's Collection at the NHML. Ansari's (1955) original description and his redescription (Ansari 1956) mention a holotype and an allotype, but no additional material. The collection date and locality of the material we examined are the same as those given by Ansari's (1956) for the types, but the slide is not labelled as such. However, on the reverse is written “?Paratypes”. The male genitalia and the position of the legs and antennae illustrated by Ansari (1956) are the same as in the material we have examined. Considering that no other slides of *Brueelia sehri* are in the NHML collection, it seems likely that the specimens we examined represent the holotype and allotype of *B. sehri*, despite not being marked as such.

As the specimens from *T. lineatum setafer* are better preserved than those from the type host, our illustrations are based on these specimens.



**FIGURES 1–2.** *Guimaraesiella (Cicchinella) sehri* (Ansari, 1955). 1, male, whole body, dorsal and ventral views. 2, female, whole body, dorsal and ventral views.



**FIGURES 3–7.** *Guimaraesiella (Cicchinella) sehri* (Ansari, 1955). 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: ARA = anterior rugose area; ames = anterior mesosomal setae; gpmes = gonoporal posterior mesosomal setae; lpmes = lateral posterior mesosomal setae; TN = triangular nodus; VS = mesosomal ventral sclerite.

## *Guimaraesiella (Cicchinella) retusa* Gustafsson, Clayton & Bush, new species

(Figs 8–14)

**Type host.** *Trochalopteron milnei sinianum* Stresemann, 1930—red-tailed laughing-thrush (Leiothrichidae).

**Type locality:** Jingxin County, Guangxi Province, China.

**Diagnosis.** *Guimaraesiella (C.) retusa* is most similar to *Guimaraesiella (C.) philiproundi* n. sp., with which it shares the following characters: (1) female subgenital plate reticulated (Figs 14, 22); (2) anterior margin of TN broadly flattened (Figs 12, 20); and (3) mesosomal ventral sclerite without an anterior rugose area (Figs 12, 20). However, these two species can be separated by the following characters: (1) lateral margins of preantennal head straight to slightly concave in *G. (C.) retusa* (Fig. 10) but convex in *G. (C.) philiproundi* (Fig. 17); (2) antennae sexually dimorphic in *G. (C.) philiproundi* (Figs 17–18) but not in *G. (C.) retusa* (Fig. 10); (3) mesosomal ventral sclerite broad in *G. (C.) retusa* (Fig. 12) but narrow in *G. (C.) philiproundi* (Fig. 20); (4) lateral margins of mesosome more sinuous in *G. (C.) retusa* (Fig. 12) than in *G. (C.) philiproundi* (Fig. 20); (5) *ames* microsetae in *G. (C.) retusa* (Fig. 12) but sensilla in *G. (C.) philiproundi* (Fig. 20); and (6) reticulation of female subgenital plate more pronounced in *G. (C.) philiproundi* (Fig. 22) than in *G. (C.) retusa* (Fig. 14).

**Description. Both sexes.** Head pentagonal (Fig. 10). Lateral margins of preantennal area straight to slightly concave. Dorsal preantennal suture reaches lateral margins of head, but does not completely separate dorsal anterior plate from mean head plate. Head chaetotaxy as in Fig. 10; *pns* sensilla. Coni short, not reaching distal margin of scapes. Antennae not sexually dimorphic. Gular plate triangular. Thoracic and abdominal segments as in Figs 8–9. Reentrant heads of pleurites broad and long.

**Male.** Thoracic and abdominal chaetotaxy as in Fig. 8. Male genitalia as in Figs 11–13. Basal apodeme broad (Fig. 11), roughly rectangular. Proximal mesosome rectangular (Fig. 12), with sinuous lateral margins. Mesosomal lobes also with sinuous lateral margins. Marginal thickening of lobes not displaced medianly in anterior end. Large trapezoidal nodi with flat anterior margins on distal mesosome. Gonopore open distally, shapes as in Fig. 12; 2 *ames* microsetae on each side near antero-lateral corners of mesosomal lobes; *gpmes* not visible in examined material; 2 *lpmes* microsetae on each side in concave section of lateral margins of mesosome. Parameral heads irregular (Fig. 13). Parameral blades slightly elongated, tapering only distally; *pst1–2* close together. Measurements (n = 1): TL = 1.15; HL = 0.32; HW = 0.33; PRW = 0.19; PTW = 0.30; AW = 0.42.

**Female.** Thoracic and abdominal chaetotaxy as in Fig. 9; *ss* of tergopleurite VIII much shorter than *ss* of tergopleurites II–VII, not visible in all examined females. Subgenital plate (Fig. 14) with central reticulation; cross-piece broad, with very broad connection to subgenital plate. Vulval margin rounded (Fig. 14), with 3 slender *vms* and 7–8 short, thorn-like *vss* on each side (one specimen with 12 on one side); 3–4 long, slender *vos* on each side; distal *vos* median to *vss*. Measurements (n = 3): TL = 1.51–1.54; HL = 0.36–0.38; HW = 0.37–0.38; PRW = 0.22–0.23; PTW = 0.33–0.35; AW = 0.50–0.52.

**Etymology.** The species epithet is derived from “*retusa*”, Latin for “blunt”, referring to the broad, blunt preantennal area.

**Type material.** Ex *Trochalopteron milnei sinianum*: **Holotype** ♂, 23.122°N, 105.963°E, Jingxin County, Guangxi Province, China, 28 Sep. 2004, S.E. Bush, Bird ATP-2004-108, Louse P-314, PIPeR # 83 (NHML). **Paratypes:** 3♀, same data as holotype (PIPeR).

## *Guimaraesiella (Cicchinella) philiproundi* Gustafsson, Clayton & Bush, new species

(Figs 15–22)

**Type host.** *Trochalopteron melanostigma schistaceum* (Deignan, 1938)—silver-eared laughing-thrush (Leiothrichidae).

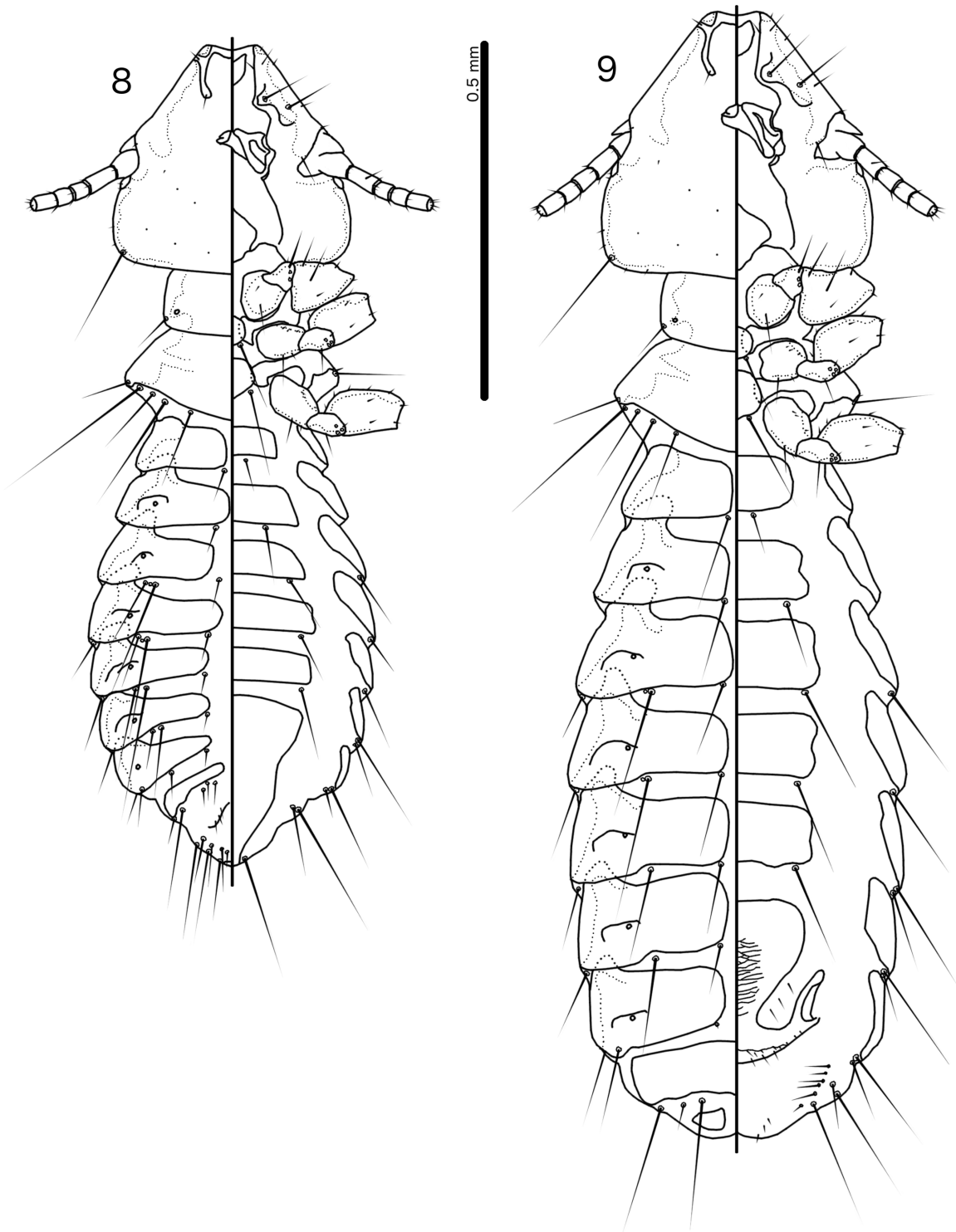
**Type locality.** Doi Pha Hom Pok, Chiang Mai Province, Thailand.

**Other host.** *Trochalopteron peninsulae* Sharpe, 1887—Malayan laughing-thrush (Leiothrichidae).

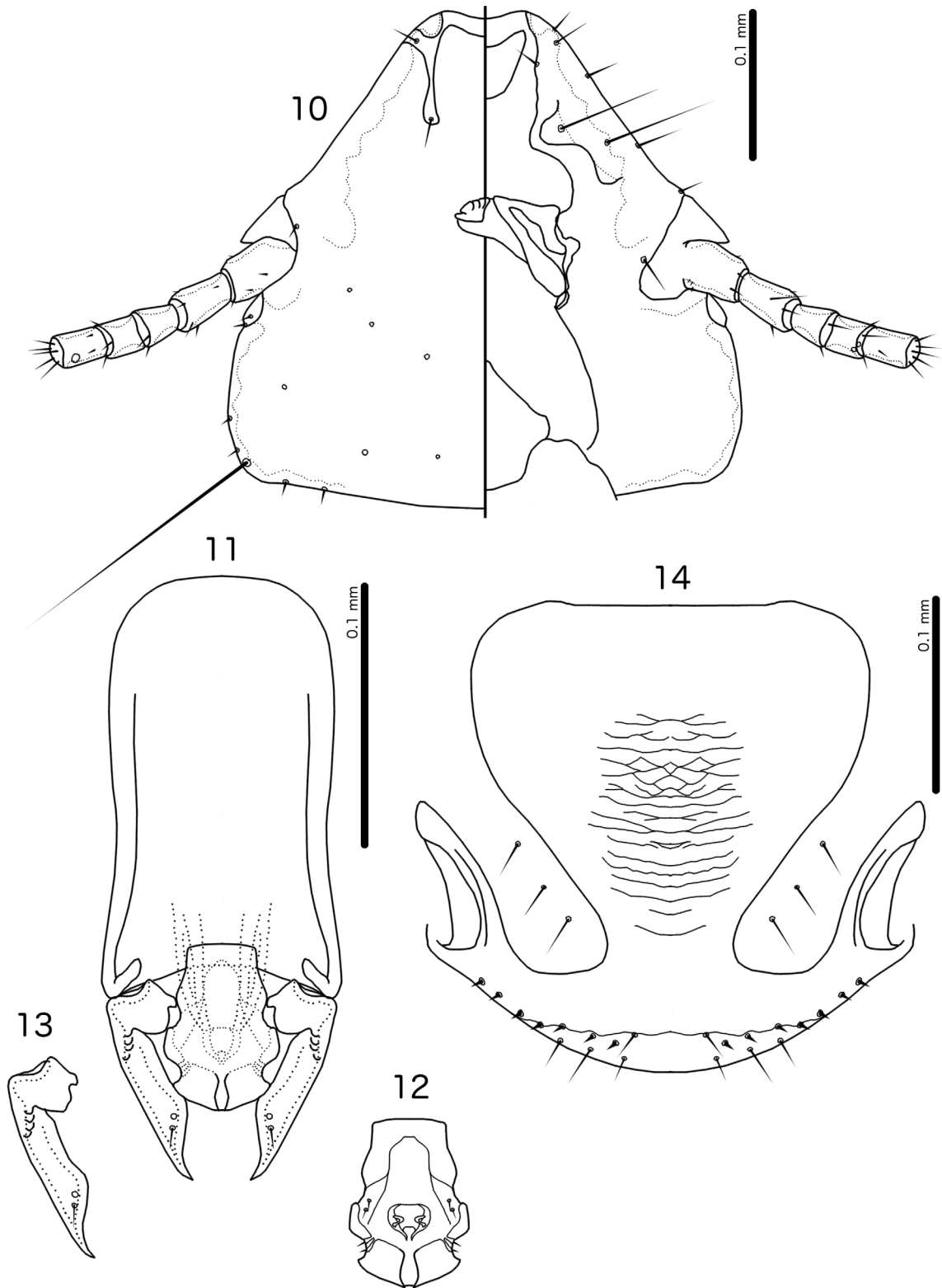
**Diagnosis.** *Guimaraesiella (C.) philiproundi* is most similar to *Guimaraesiella (C.) retusa*. However, these two species can be separated by the following characters: (1) lateral margins of preantennal head convex in *G. (C.) philiproundi* (Fig. 17) but straight to slightly concave in *G. (C.) retusa* (Fig. 10); (2) dorsal preantennal suture reaches lateral margins of head in *G. (C.) retusa* (Fig. 10) but not in *G. (C.) philiproundi* (Fig. 17); (3) antennae sexually dimorphic in *G. (C.) philiproundi* (Figs 17–18) but not in *G. (C.) retusa* (Fig. 10); (4) reticulation of female



subgenital plate more extensive and prominent in *G. (C.) philiproundi* (Fig. 22) than in *G. (C.) retusa* (Fig. 14); (5) proximal mesosome with fairly straight lateral margins in *G. (C.) philiproundi* (Fig. 20) but with sinuous lateral margins in *G. (C.) retusa* (Fig. 12); and (6) mesosomal ventral sclerite narrow in *G. (C.) philiproundi* (Fig. 20) but broad in *G. (C.) retusa* (Fig. 12).

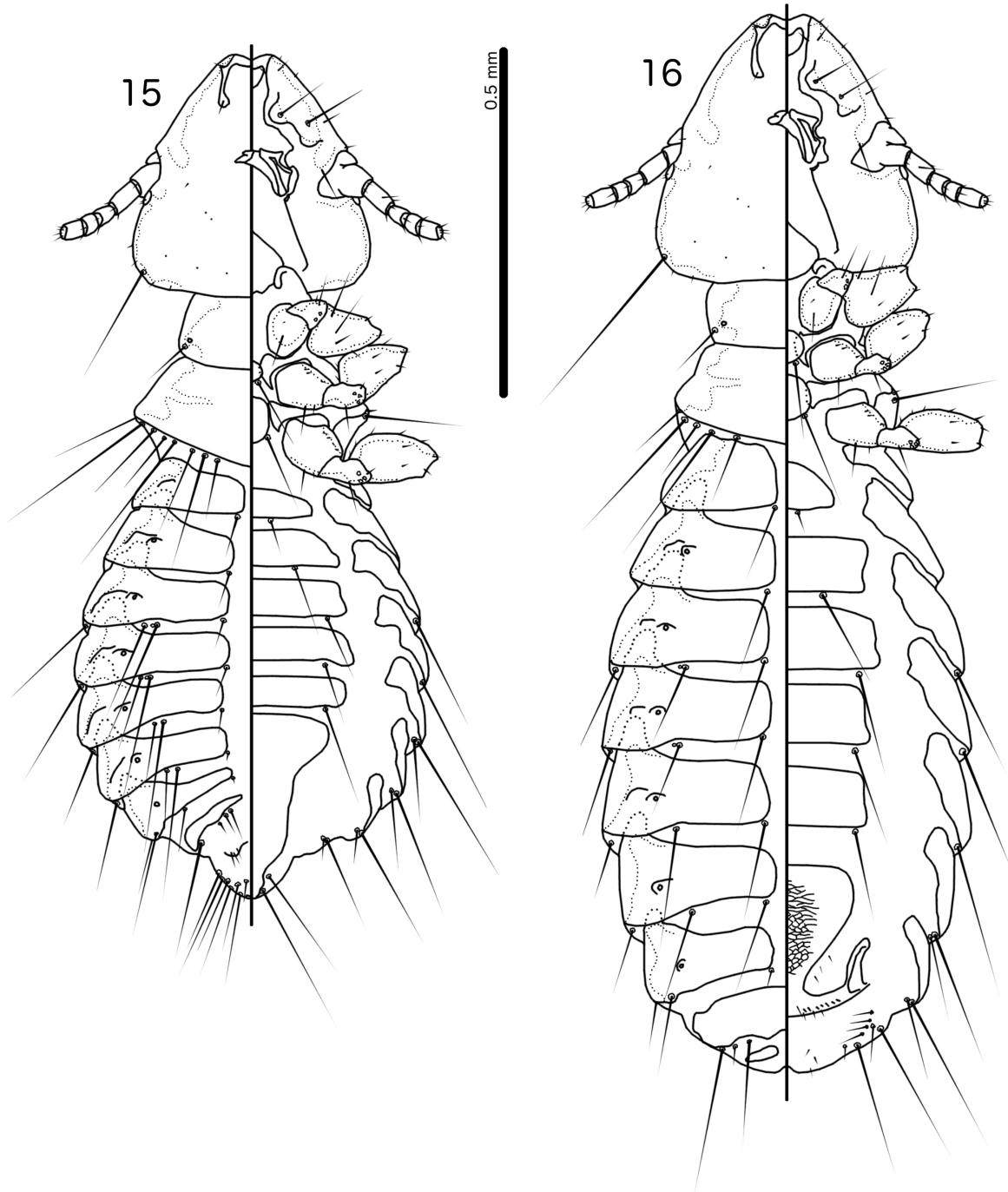


**FIGURES 8–9.** *Guimaraesiella (Cicchinella) retusa* n. sp. **8**, male, whole body, dorsal and ventral views. **9**, female, whole body, dorsal and ventral views.

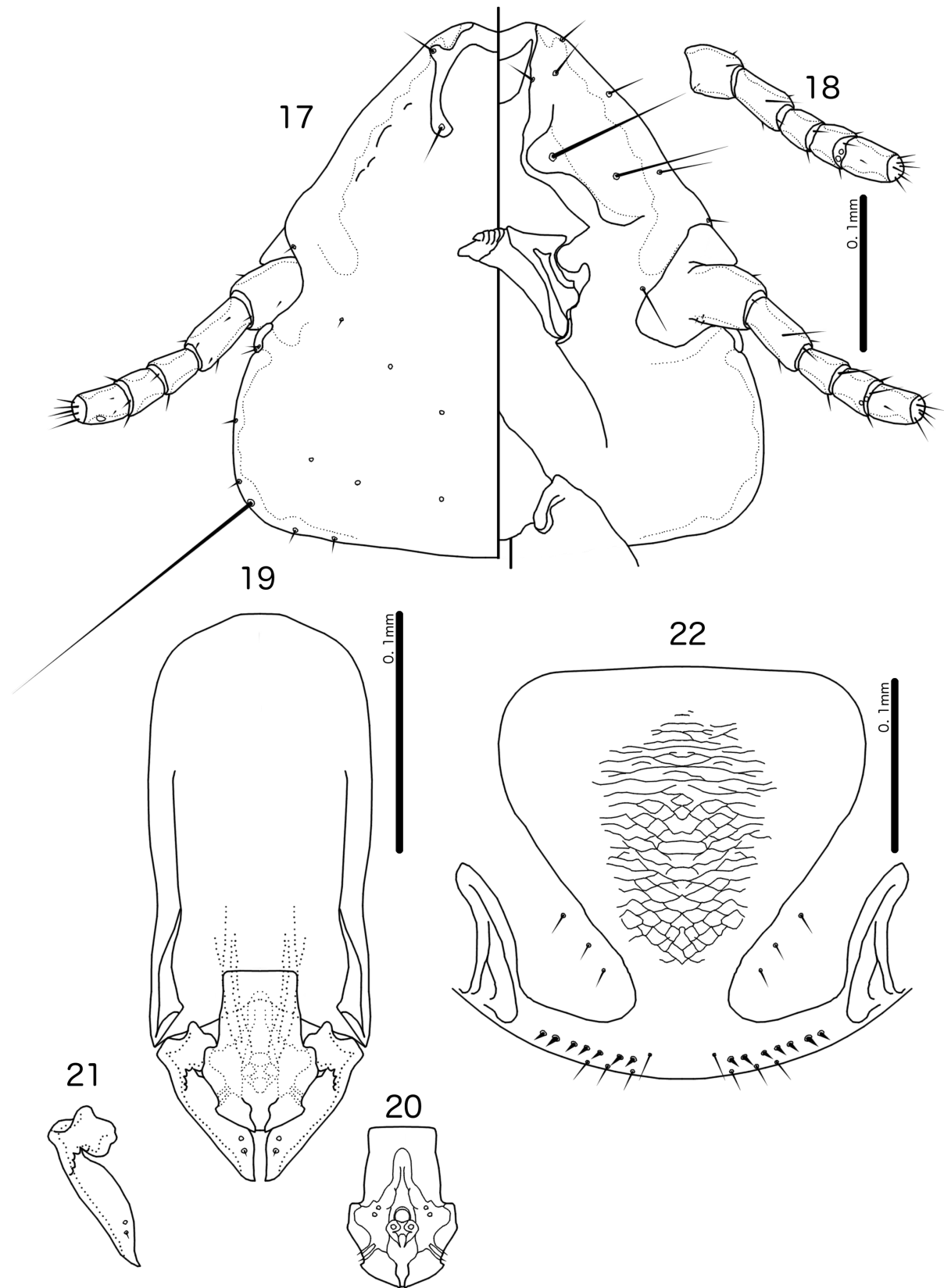


**FIGURES 10–14.** *Guimaraesiella (Cicchinella) retusa* n. sp. **10**, male head, dorsal and ventral views. **11**, male genitalia, dorsal view. **12**, male mesosome, ventral view. **13**, male paramere, dorsal view. **14**, female subgenital plate and vulval margin, ventral view.

**Description.** *Both sexes.* Head flat-dome shaped (Fig. 17). Dorsal preantennal suture does not reach lateral margins of head, nor completely separate dorsal anterior plate from main head plate. Attachment of mandibular adductor muscles prominent. Head chaetotaxy as in Fig. 17; *pns* microsetae. Coni short and broad, not reaching distal margin of scape. Gular plate narrowly triangular. Thoracic and abdominal segments as in Figs 15–16. Reentrant heads broad and long.



**FIGURES 15–16.** *Guimaraesiella (Cicchinella) philiproundi* n. sp. 15, male, whole body, dorsal and ventral views. 16, female, whole body, dorsal and ventral views.



**FIGURES 17–22.** *Guimaraesiella (Cicchinella) philiproundi* n. sp. 17, male head, dorsal and ventral views. 18, female antenna, ventral view. 19, male genitalia, dorsal view. 20, male mesosome, ventral view. 21, male paramere, dorsal view. 22, female subgenital plate and vulval margin, ventral view.

**Male.** Scape as in Fig. 17. Thoracic and abdominal chaetotaxy as in Fig. 15. Male genitalia as in Figs 19–21. Basal apodeme broad (Fig. 19), roughly rectangular. Proximal mesosome broad (Fig. 20), rectangular, with fairly straight lateral margins. Ventral sclerite slender. Mesosomal lobes with slightly sinuous lateral margins. Marginal thickenings of mesosomal lobes not displaced medianly in anterior end. Large trapezoidal nodi with fairly straight anterior margins on distal mesosome. Gonopore as in Fig. 20; 2 *ames* sensilla on each side near antero-lateral corners of mesosomal lobes; 1 *gpmes* sensillus on each side of gonopore, situated on marginal thickening of gonopore; 2 *lpmes* microsetae laterally on each side immediately anterior to trapezoidal nodi. Parameral heads irregular (Fig. 21), narrowing proximally. Parameral blades bulging along median margin, tapering only distally; *pst1*–2 situated close together. Measurements ex *Trochalopteron melanostigma schistaceum* (n = 2): TL = 1.18–1.20; HL = 0.33–0.35; HW = 0.33–0.34; PRW = 0.21–0.22; PTW = 0.33; AW = 0.45–0.50. Measurements ex *Trochalopteron peninsulae* (n = 2): TL = 1.17–1.24; HL = 0.33–0.35; HW = 0.34–0.36; PRW = 0.22; PTW = 0.32–0.33; AW = 0.45–0.49.

**Female.** Scape as in Fig. 18. Thoracic and abdominal chaetotaxy as in Fig. 16; *ss* of tergopleurite VIII much shorter than *ss* of tergopleurites II–VII. Setae of tergopleurite IX+X absent in single examined female and here included tentatively based on setae in other species of the group. Subgenital plate as in Fig. 22; cross-piece with broad connection to main plate. Much of anterior subgenital plate reticulated. Vulval margin gently rounded (Fig. 22), with 3 slender *vms* on each side, and 4–8 thorn-like *vss* on each side; 3–4 slender *vos* on each side; distal *vos* situated median to *vss*. Measurements ex *Trochalopteron melanostigma schistaceum* (n = 1): TL = 1.47; HL = 0.37; HW = 0.36; PRW = 0.22; PTW = 0.33; AW = 0.51. Measurements ex *Trochalopteron peninsulae* (n = 1): TL = 1.51; HL = 0.37; HW = 0.37; PRW = 0.22; PTW = 0.34; AW = 0.50.

**Etymology.** The species epithet is in honor of Dr Philip D. Round (Mahidol University, Bangkok, Thailand), in recognition of his work with birds in Thailand, and for introducing DRG to the birdlife of Thailand when he was stranded in Bangkok during a collection trip.

**Type material.** Ex *Trochalopteron melanostigma schistaceum* [as *Garrulax erythrocephalus*]: **Holotype** ♂, Doi Pha Hom Pok, Chiang Mai Province, Thailand, 15 Nov. 1965, MAPS-2556, 24751 on reverse (OSUS). **Paratypes:** 1♂, same locality as for the holotype, 29 Nov. 1965, MAPS-2846, 24750 on reverse (OSUS); 1♀, same locality as for the holotype, 12 Nov. 1965, MAPS-2484, 24749 on reverse (OSUS).

**Additional material examined (non-types).** Ex *Trochalopteron peninsulae*: 1♂, Gunung Benom, elev. 5,000 ft, Malaysia, 20 Mar. 1967, BN-372, Brit. Mus. 1967-400 (NHML); 1♂, 1♀, same locality, 28 Mar. 1967, BA33, Brit. Mus. 1967-400 (NHML).

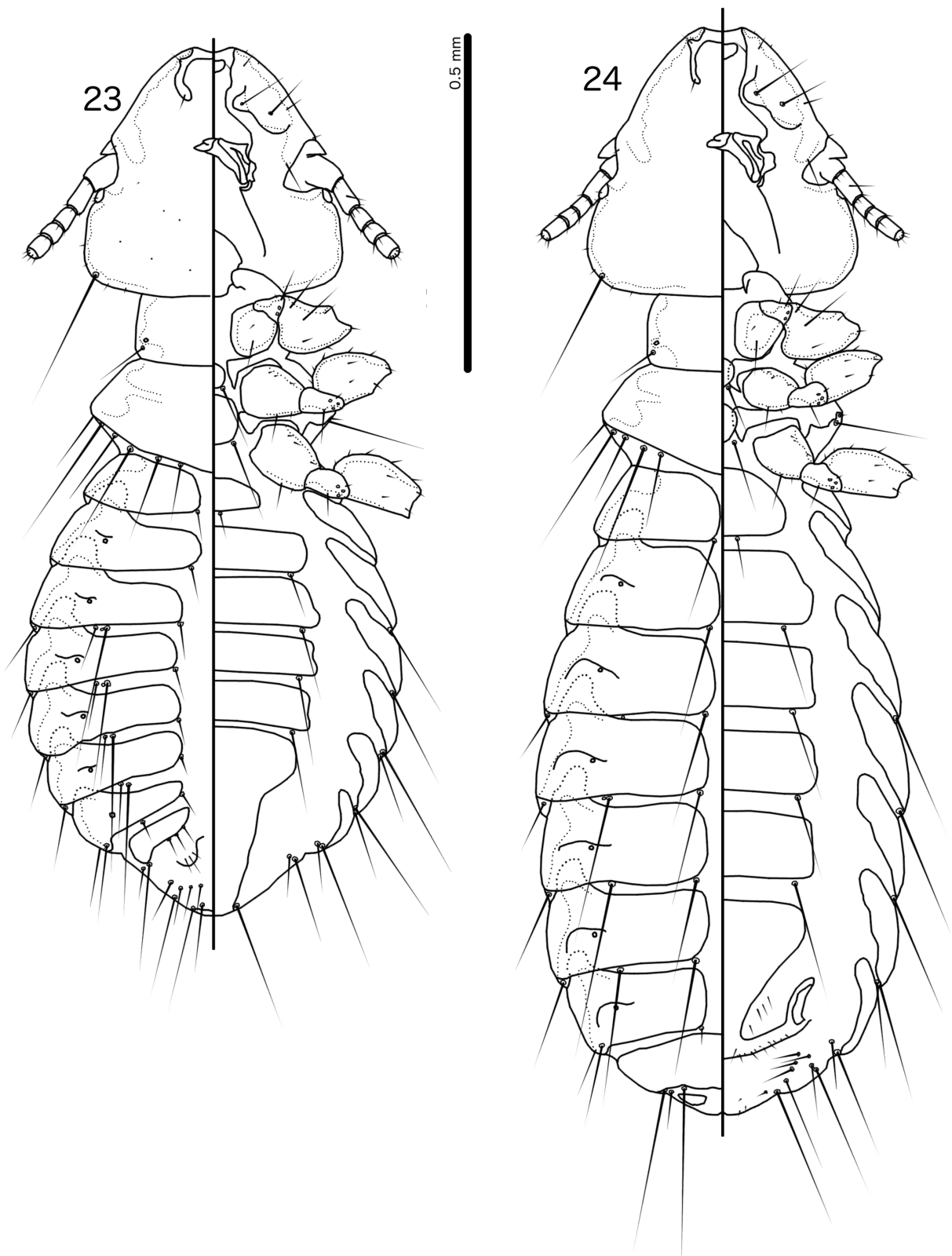
**Remarks.** *Guimaraesiella* (*C.*) *philiproundi* is the only species in the subgenus *Cicchinella* that occurs on more than one host species. However, both host species were until recently considered subspecies of the polytypic *Trochalopteron erythrocephalum* (Vigors, 1832) (Collar 2006; Clements *et al.* 2015). We have found no morphological characters that can reliably separate the material from *T. melanostigma* from that of *T. peninsulae*; therefore, we regard all samples from both hosts as conspecific.

### ***Guimaraesiella* (*Cicchinella*) *scottvillai* Gustafsson, Clayton & Bush, new species** (Figs 23–30)

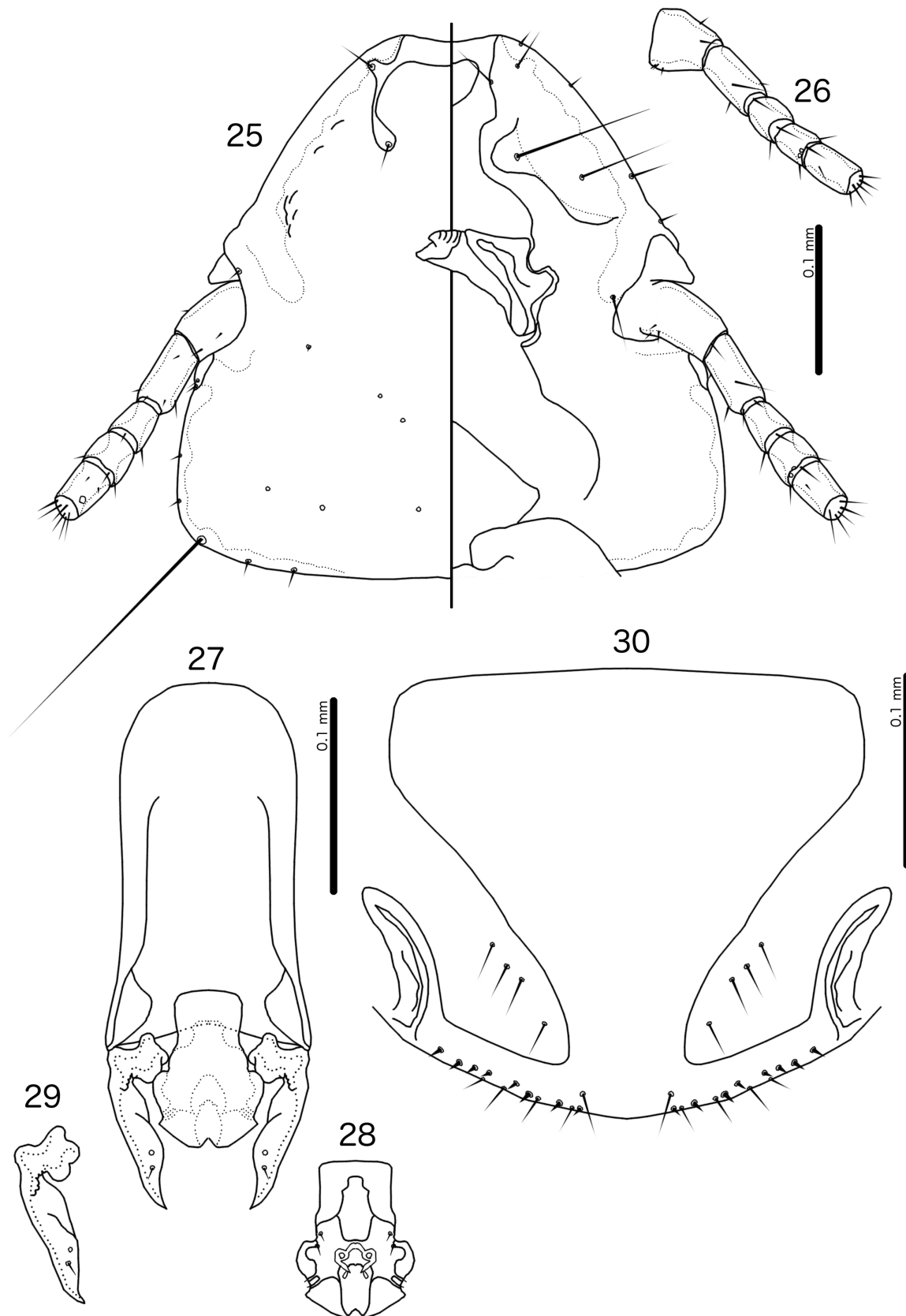
**Type host.** *Liocichla steerii* Swinhoe, 1877—Steere's liocichla (Leiothrichidae).

**Type locality.** Wu-sheh, Taiwan.

**Diagnosis.** *Guimaraesiella* (*C.*) *scottvillai* is most similar to *Guimaraesiella* (*C.*) *philiproundi* with which it shares the following characters: (1) lateral margins of preantennal head convex (Figs 17, 25); (2) dorsal preantennal suture does not reach lateral margins of head (Figs 17, 25); (3) antennae sexually dimorphic (Figs 17–18, 25–26); (4) *pns* microsetae (Figs 17, 25); (5) proximal mesosome rectangular with fairly straight lateral margins (Figs 20, 28); and (6) *gpmes* situated on marginal thickenings of gonopore (Figs 20, 28). However, these two species can be separated by the following characters: (1) male scape longer than wide in *G. (C.) scottvillai* (Fig. 25) but about as long as wide in *G. (C.) philiproundi* (Fig. 17); (2) female subgenital plate reticulated in *G. (C.) philiproundi* (Fig. 22) but not in *G. (C.) scottvillai* (Fig. 30); (3) *ames* microsetae in *G. (C.) scottvillai* (Fig. 28) but sensilla in *G. (C.) philiproundi* (Fig. 20); (4) distal nodi of mesosome triangular in *G. (C.) scottvillai* (Fig. 28) but trapezoidal in *G. (C.) philiproundi* (Fig. 20); and (5) basal apodeme more slender in *G. (C.) scottvillai* (Fig. 27) than in *G. (C.) philiproundi* (Fig. 19).



**FIGURES 23–24.** *Guimaraesiella (Cicchinella) scottvillai* n. sp. **23**, male, whole body, dorsal and ventral views. **24**, female, whole body, dorsal and ventral views.



**FIGURES 25–30.** *Guimaraesiella (Cicchinella) scottvillai* n. sp. **25**, male head, dorsal and ventral views. **26**, female antenna, ventral view. **27**, male genitalia, dorsal view. **28**, male mesosome, ventral view. **29**, male paramere, dorsal view. **30**, female subgenital plate and vulval margin, ventral view.

**Description. Both sexes.** Head flat-dome shaped (Fig. 25). Lateral margins of preantennal head convex. Dorsal preantennal suture does not reach lateral margins of head, and does not completely separate dorsal anterior plate. Head chaetotaxy as in Fig. 25; *pns* microsetae. Coni short, not reaching distal margin of scape. Antennae sexually dimorphic (Figs 25–26). Gular plate broad, triangular. Thoracic and abdominal segments as in Figs 23–24. Reentrant heads of pleurites large.

**Male.** Scape as in Fig. 25. Thoracic and abdominal chaetotaxy as in Fig. 23. Male genitalia as in Figs 27–29. Basal apodeme slender (Fig. 27), rounded rectangular. Proximal mesosome rectangular (Fig. 28), lateral margins fairly straight. Mesosomal lobes with strongly sinuous lateral margins. Marginal thickenings not displaced medianly in anterior end. Large triangular nodi with oblique anterior margins on distal mesosome. Gonopore as in Fig. 28; 2 *ames* microsetae on each side near antero-lateral corner of mesosomal lobes; 1 *gpmes* sensillus on each side situated on marginal thickenings of gonopore; 2 *lpmes* microsetae on each side in concave section of lateral margin of mesosomal lobes. Parameral heads irregular (Fig. 29), narrowing proximally. Parameral blades with bulging median margin, tapering only distally, and with distinct fold on median margin; *pst1–2* close together. Measurements (n = 1): TL = 1.24; HL = 0.35; HW = 0.37; PRW = 0.23; PTW = 0.35; AW = 0.53.

**Female.** Scape as in Fig. 26. Abdominal chaetotaxy as in Fig. 24; *ss* of tergopleurite VIII much shorter than *ss* of tergopleurites II–VII. Subgenital plate as in Fig. 30; cross-piece with broad connection to subgenital plate. Vulval margin gently rounded (Fig. 30), with 3 slender *vms* on each side, and 8 thorn-like *vss* on each side; 3–5 slender *vos* on each side; distal *vos* anterior to *vss*. Measurements (n = 1): TL = 1.58; HL = 0.39; HW = 0.41; PRW = 0.23; PTW = 0.35; AW = 0.54.

**Etymology.** The species epithet is in honor of our friend and colleague Dr Scott M. Villa (University of Utah, Salt Lake City, Utah, U.S.A.) in recognition of his work on the evolution of pigeon lice.

**Type material.** Ex *Liocichla steerii*: **Holotype** ♂, Wu-sheh, Taiwan [as Formosa], 1959, PF-6083 (OSUS). **Paratype:** 1 ♀, same data as holotype (OSUS).

### ***Guimaraesiella (Cicchinella) avinus (Ansari, 1956)*** (Figs 31–38)

*Brueelia avinus* Ansari, 1956: 141, figs 8–12.

*Guimaraesiella avinus* (Ansari, 1956); Gustafsson & Bush, 2017: 221.

**Type host.** *Trochalopteron subunicolor subunicolor* Blyth, 1843—scaly laughing-thrush (Leiothrichidae).

**Type locality.** Chungtang, Sikkim, India.

**Description. Both sexes.** Head flat-dome shaped (Fig. 33). Lateral margins of preantennal area convex. Dorsal preantennal suture does not reach lateral margins of head, and does not completely separate dorsal anterior plate from main head plate. Head chaetotaxy as in Fig. 33; *pns* microsetae. Coni short, not approaching distal margin of scape. Antennae sexually dimorphic. Gular plate triangular. Thoracic and abdominal segments as in Figs 31–32. Reentrant heads of pleurites short and blunt.

**Male.** Scape as in Fig. 33. Thoracic and abdominal chaetotaxy as in Fig. 31. Male genitalia as in Figs 35–37. Basal apodeme broad (Fig. 35), rectangular. Proximal mesosome rounded (Fig. 36). Ventral sclerite broad, rounded. Mesosomal lobes with moderately sinuous lateral margins. Marginal thickenings of lobes broad, not displaced medianly in anterior end. Large roughly trapezoidal nodi on distal mesosome. Gonopore as in Fig. 36; 2 *ames* sensilla on each side near antero-lateral ends of mesosomal lobes; no *gpmes* visible in examined material; 2 *lpmes* microsetae on each side in concave section of lateral margin of mesosomal lobes. Parameral heads irregular (Fig. 37), much narrowed proximally. Parameral blades tapering only distally; *pst1–2* close together. Measurements (n = 2): TL = 1.26–1.32; HL = 0.35–0.36; HW = 0.35–0.36; PRW = 0.22–0.23; PTW = 0.36–0.38; AW = 0.53–0.57.

**Female.** Scape as in Fig. 34. Thoracic and abdominal chaetotaxy as in Fig. 32; *ss* of tergopleurite VIII much shorter than *ss* of tergopleurites II–VII. Subgenital plate as in Fig. 38; cross-piece with broad connection to subgenital plate. Vulval margin gently rounded, somewhat flattened medianly (Fig. 69), with 3 slender *vms* on each side, and 6–8 thorn-like *vss* on each side; 3–4 slender *vos* on each side; distal *vos* median to *vss*. Measurements (n = 2): TL = 1.66–1.67; HL = 0.39; HW = 0.40; PRW = 0.23; PTW = 0.37–0.38; AW = 0.54–0.58.

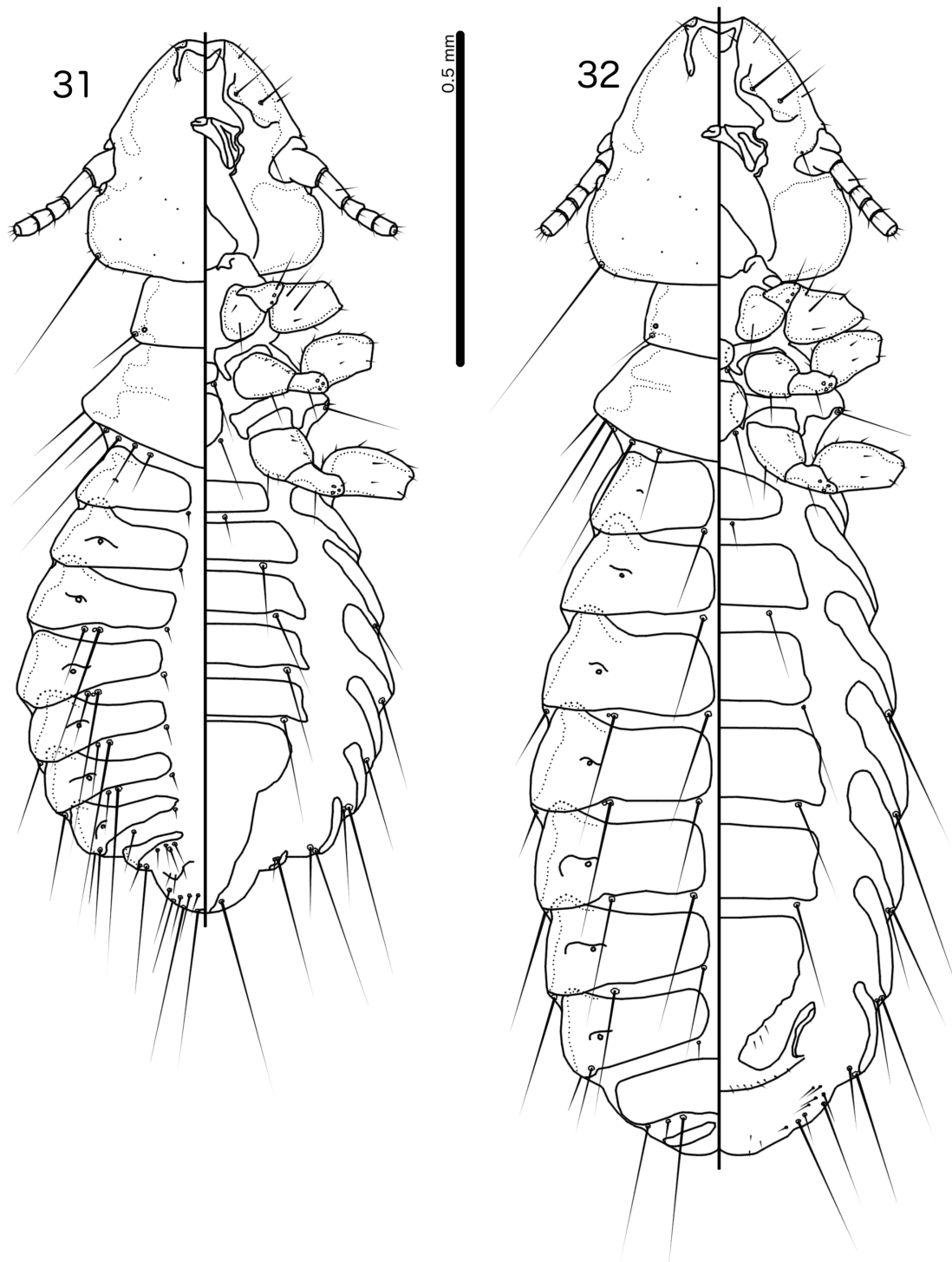
**Type material.** Ex *Trochalopteron subunicolor subunicolor*: **Holotype** ♂, Chungtang, Sikkim, India, 16 Feb.



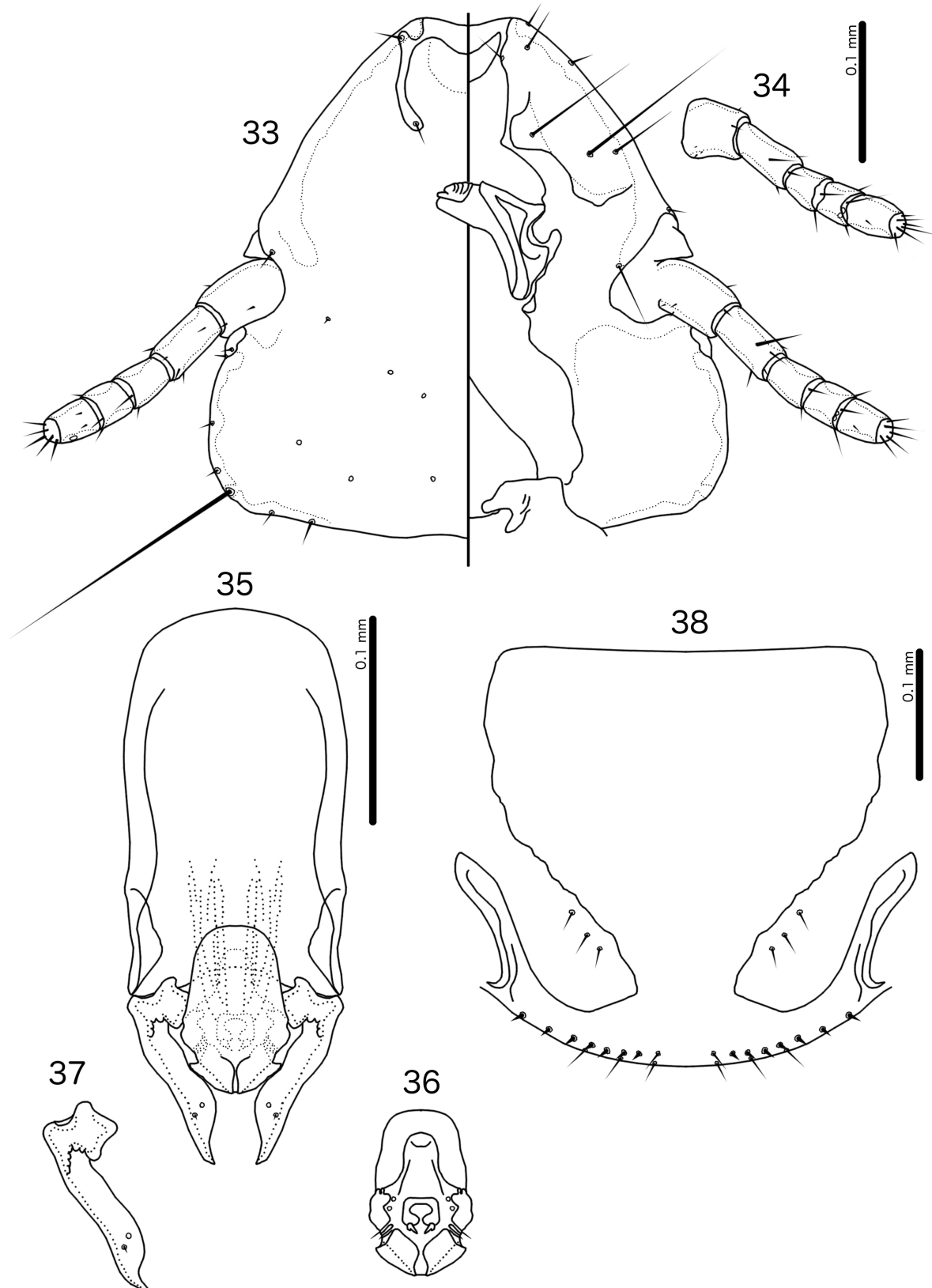
1952, R. Meinertzhagen, 19938, B.M. 1952-143 (NHML). **Allotype** ♀, same data as holotype (NHML).

**Paratypes:** 1♂, 1♀, same data as holotype (NHML).

**Additional material examined (non-types).** Ex *Trochalopteron subunicolor subunicolor*: 1♂, 1♀, same data as holotype (NHML).



**FIGURES 31–32.** *Guimaraesiella (Cicchinella) avinus* (Ansari, 1956). 31, male, whole body, dorsal and ventral views. 32, female, whole body, dorsal and ventral views.



**FIGURES 33–38.** *Guimaraesiella (Cicchinella) avinus* (Ansari, 1956). 33, male head, dorsal and ventral views. 34, female antenna, ventral view. 35, male genitalia, dorsal view. 36, male mesosome, ventral view. 37, male paramere, dorsal view. 38, female subgenital plate and vulval margin, ventral view.

## *Guimaraesiella (Cicchinella) pallidobrunneis* Gustafsson, Clayton & Bush, new species

(Figs 39–46)

**Type host.** *Heterophasia melanoleuca melanoleuca* (Blyth, 1859)—black-backed sibia (Leiothrichidae).

**Type locality.** Doi Pui, Chiang Mai Province, Thailand.

**Diagnosis.** *Guimaraesiella (C.) pallidobrunneis* is most similar to *G. (C.) avinus*, with which it shares the following characters: (1) lateral margins of preantennal head convex (Figs 33, 41); (2) antennae sexually dimorphic (Figs 33–34, 41–42); (3) *pns* microsetae (Figs 33, 41); (4) female subgenital plate without reticulation (Figs 38, 46); (5) proximal mesosome rounded (Figs 36, 44); and (6) distal trapezoidal nodi of mesosome of similar shape (Figs 36, 44). However, these two species can be separated by the following characters: (1) *ss* of female tergopleurite VIII short in *G. (C.) avinus* (Fig. 32) but long in *G. (C.) pallidobrunneis* (Fig. 40); (2) basal apodeme broad, rectangular in *G. (C.) avinus* (Fig. 35) but slender and more rounded in *G. (C.) pallidobrunneis* (Fig. 43); (3) proximal mesosome with straight lateral margins in *G. (C.) avinus* (Fig. 36) but with irregular lateral margins in *G. (C.) pallidobrunneis* (Fig. 44); (4) mesosomal ventral sclerite with distinct marginal thickenings seemingly continuous with the marginal thickenings of the lobes in *G. (C.) pallidobrunneis* (Fig. 44) but without such thickening in *G. (C.) avinus* (Fig. 36); and (5) *ames* microsetae in *G. (C.) pallidobrunneis* (Fig. 44) but sensilla in *G. (C.) avinus* (Fig. 36).

**Description. Both sexes.** Head flat-dome shaped (Fig. 41). Lateral margins of preantennal area convex. Dorsal preantennal suture reaches lateral margins of head, but does not completely separate dorsal anterior plate from main head plate. Attachments of mandibular adductor muscles prominent. Head chaetotaxy as in Fig. 41; *pns* microsetae. Coni short and broad, not approaching distal margin of scape. Antennae slightly sexually dimorphic. Thoracic and abdominal segments as in Figs 39–40. Reentrant heads of pleurites broad, rather short.

**Male.** Scape as in Fig. 41. Thoracic and abdominal chaetotaxy as in Fig. 39. Male genitalia as in Figs 43–45. Basal apodeme slender (Fig. 43), rounded proximally. Proximal mesosome widened proximally (Fig. 44), rounded, with irregular lateral margins. Ventral sclerite tapering, with marginal thickening seemingly continuous with marginal thickenings of mesosomal lobes. Mesosomal lobes with strongly sinuous lateral margins. Marginal thickenings of mesosomal lobes not displaced medianly in anterior end. Large trapezoidal nodi with almost straight anterior margins on distal mesosome. Gonopore as in Fig. 44; 2 *ames* microsetae on each side near antero-lateral corners of mesosomal lobes; *gpms* not visible in examined material; 2 *lpms* microsetae on each side on concave section of lateral margins of mesosomal lobes. Parameral heads irregular (Fig. 45). Parameral blades slender, tapering only distally; *pst1–2* close together. Measurements (n = 1): TL = 1.14; HL = 0.32; HW = 0.31; PRW = 0.19; PTW = 0.28; AW = 0.42.

**Female.** Scape as in Fig. 42. Thoracic and abdominal chaetotaxy as in Fig. 40; *ss* of tergopleurite VIII as long as *ss* of tergopleurites II–VII. Subgenital plate as in Fig. 46; cross-piece with moderate connection to subgenital plate. Slight folds medianly on cross-piece. Vulval margin gently rounded (Fig. 46), with 3–4 slender *vms* on each side, and 7–8 thorn-like *vss* on each side; 4 slender *vos* on each side; distal *vos* situated anterior to *vss*. Measurements (n = 1): TL = 1.49; HL = 0.36; HW = 0.36; PRW = 0.21; PTW = 0.31; AW = 0.47.

**Etymology.** The species epithet is derived from “*pallidus*”, Latin for “pale”, and “*brunneis*”, Latin for “brown”, referring to the pigmentation of this species.

**Type material.** Ex *Heterophasia melanoleuca melanoleuca*: **Holotype** ♂, Doi Pui, Chiang Mai Province, Thailand, 11 Feb. 1965, H.E. McClure, SE-1950 (OSUS). **Paratype**: 1♀, same data as holotype (OSUS).

## *Guimaraesiella (Cicchinella) ambusta* Gustafsson, Clayton & Bush, new species

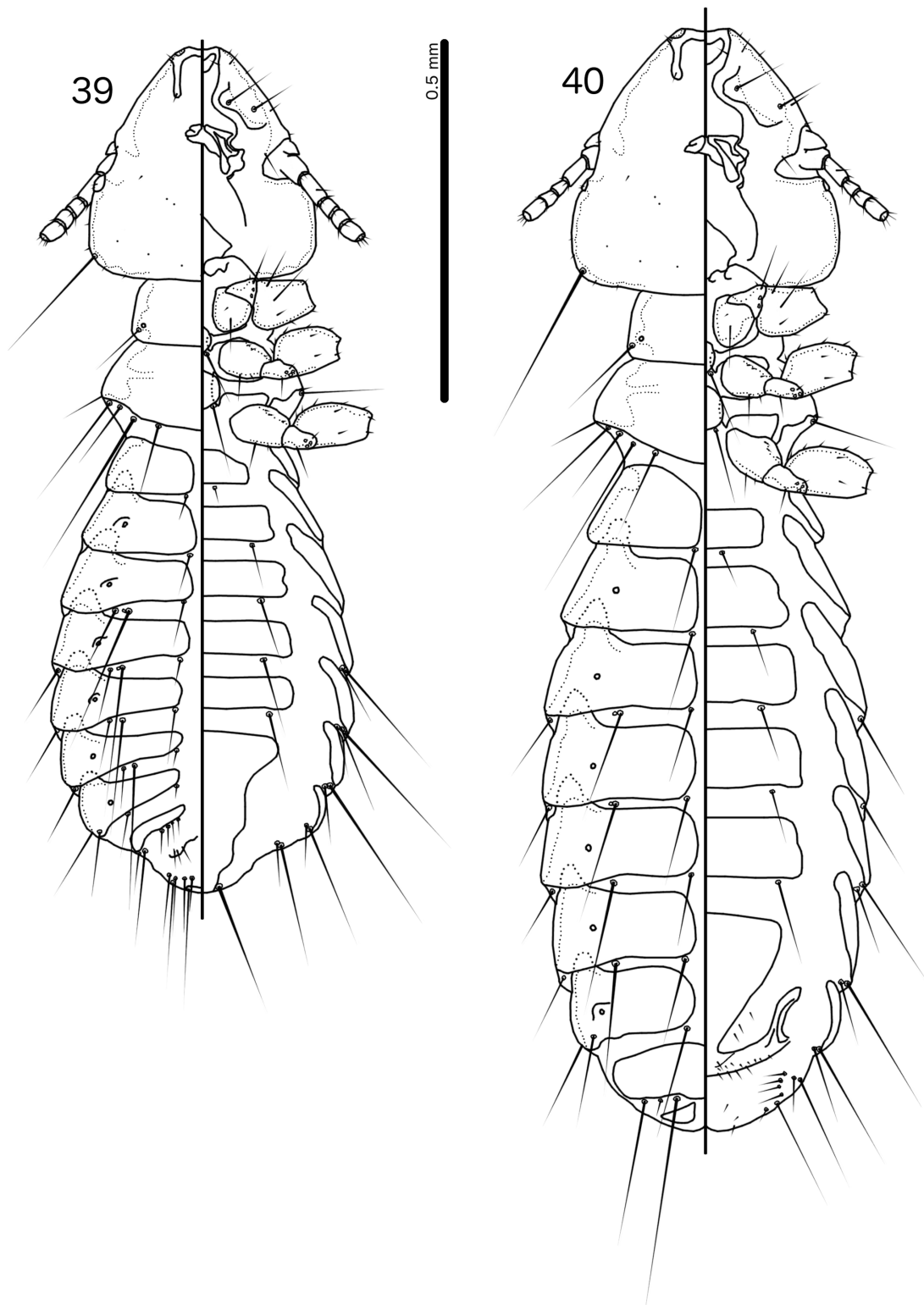
(Figs 47–53)

**Type host.** *Leiothrix argentauris rubrogularis* Kinnear, 1925—silver-eared mesia (Leiothrichidae).

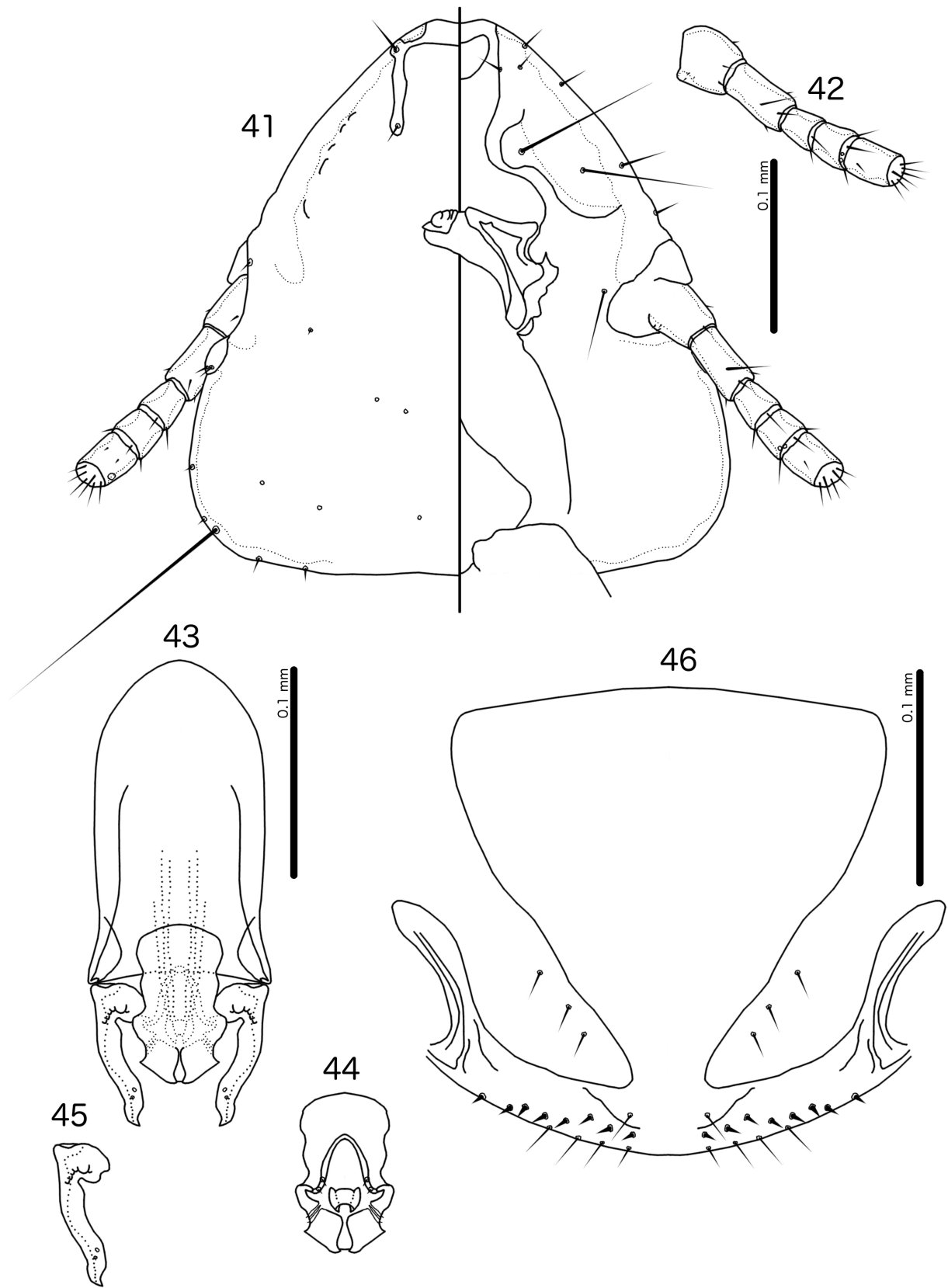
**Type locality.** Shiwan Dashan National Park, Guangxi Province, China.

**Diagnosis.** *Guimaraesiella (C.) ambusta* is not particularly close to any other species within the subgenus *Cicchinella*, but is superficially similar to *G. (C.) philiproundi*, with which it shares the following characters: (1) female subgenital plates with central rugose pattern (Figs 22, 53); (2) proximal mesosome roughly rectangular (Figs 20, 51); (3) lateral margins of preantennal head convex (Figs 17, 49); and (4) *pns* microsetae (Figs 17, 49). However, these two species can be separated by the following characters: (1) antennae sexually dimorphic in *G.*

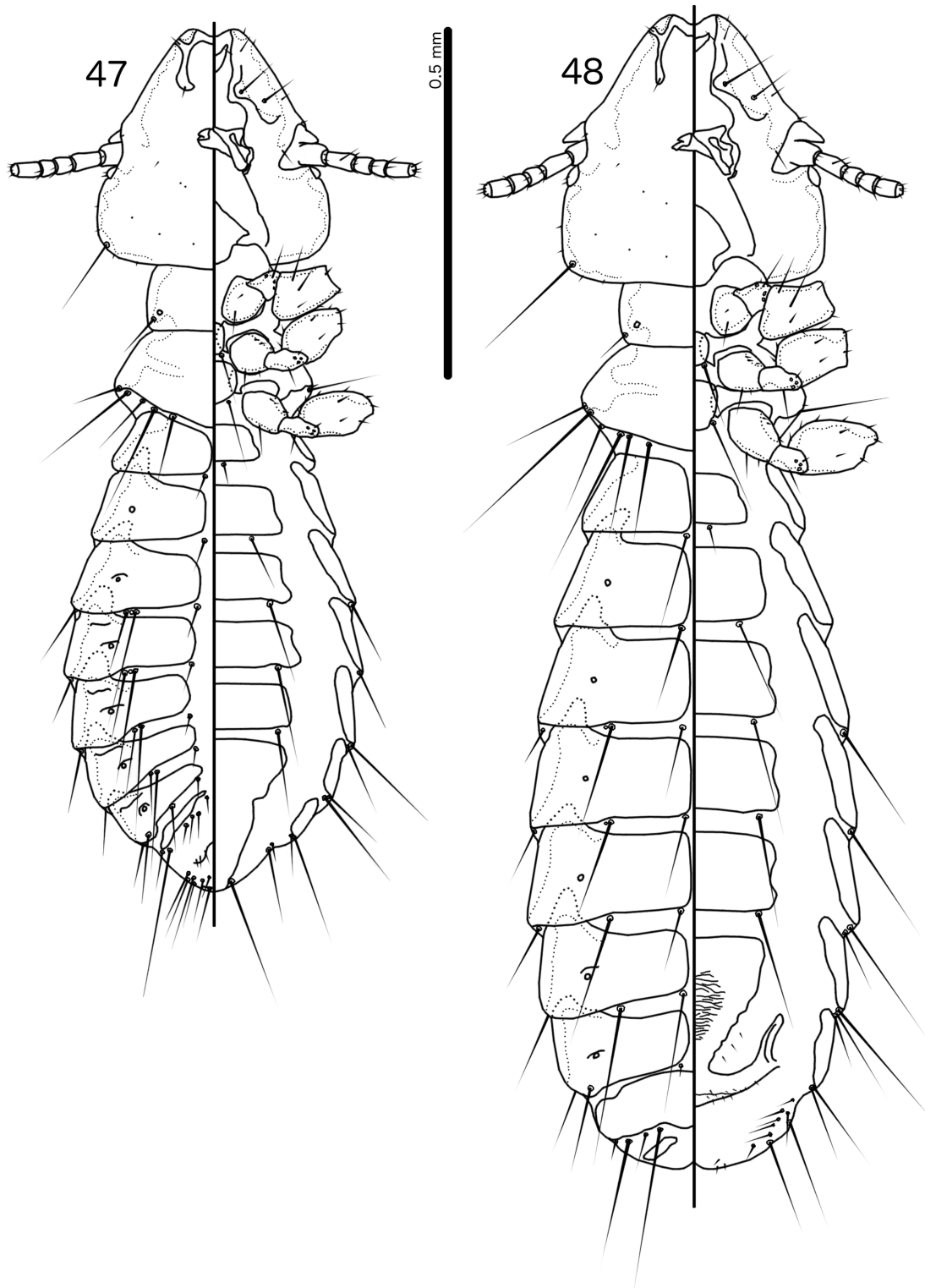
(*C.* *philiproundi* (Figs 17–18) but not in *G. (C.) ambusta* (Fig. 49); (2) female subgenital plate reticulated in *G. (C.) philiproundi* (Fig. 22) but with latitudinal striation in *G. (C.) ambusta* (Fig. 53); (3) mesosomal ventral sclerite with an anterior rugose area in *G. (C.) ambusta* (Fig. 51) but without such area in *G. (C.) philiproundi* (Fig. 20); (4) gonopore with complicated ornamentation in *G. (C.) philiproundi* (Fig. 21) but simply crescent-shaped in *G. (C.) ambusta* (Fig. 51); and (5) distal end of lateral concavity of mesosome with a comb-like structure in *G. (C.) ambusta* (Fig. 51) but absent in all other species of *Cicchinella*.



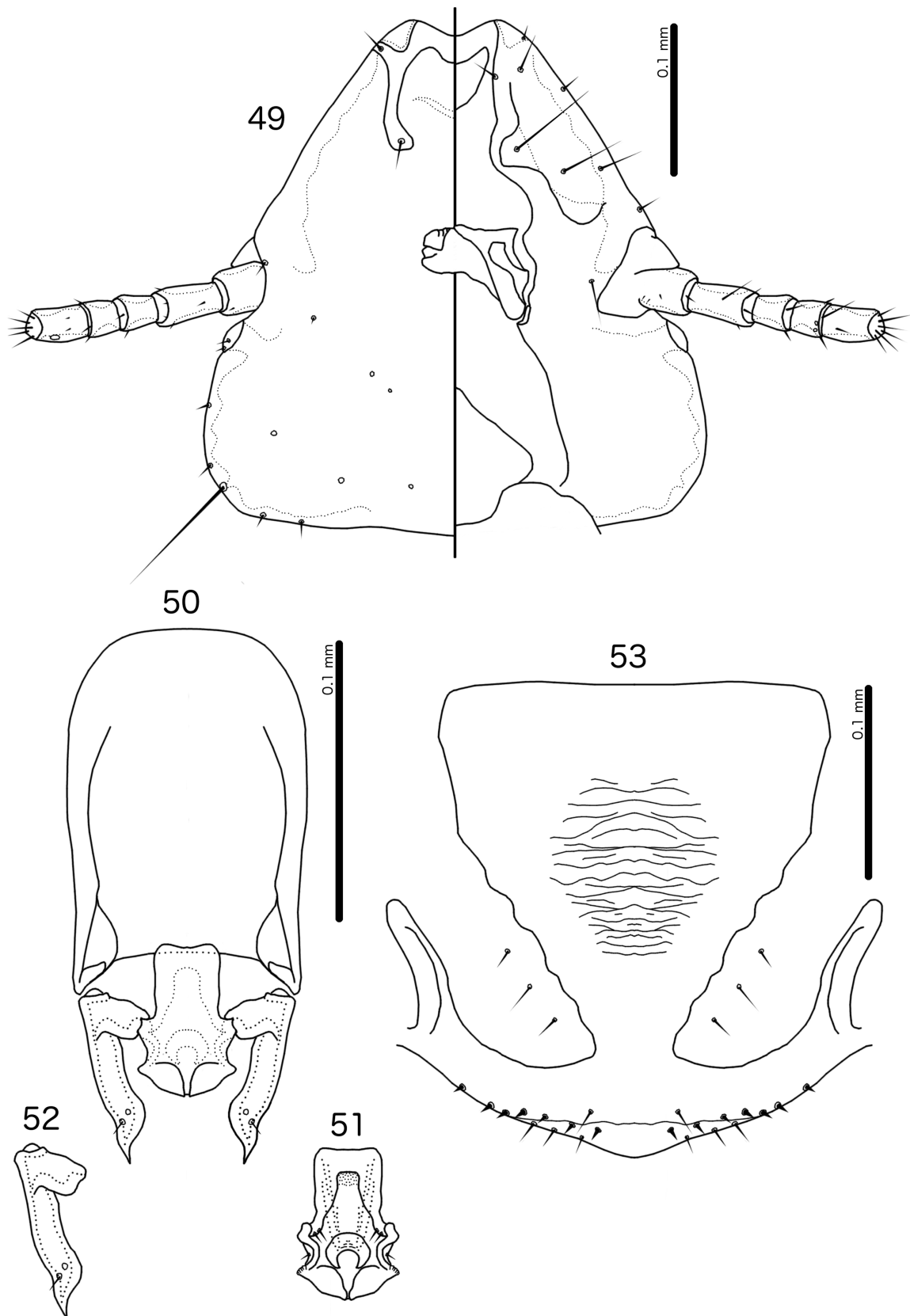
**FIGURES 39–40.** *Guimaraesiella (Cicchinella) pallidobrunneis* n. sp. **39**, male, whole body, dorsal and ventral views. **40**, female, whole body, dorsal and ventral views.



**FIGURES 41–46.** *Guimaraesiella (Cicchinella) pallidobrunneis* n. sp. **41**, male head, dorsal and ventral views. **42**, female antenna, ventral view. **43**, male genitalia, dorsal view. **44**, male mesosome, ventral view. **45**, male paramere, dorsal view. **46**, female subgenital plate and vulval margin, ventral view.



**FIGURES 47–48.** *Guimaraesiella (Cicchinella) ambusta* n. sp. 47, male, whole body, dorsal and ventral views. 48, female, whole body, dorsal and ventral views.



**FIGURES 49–53.** *Guimaraesiella (Cicchinella) ambusta* n. sp. **49**, male head, dorsal and ventral views. **50**, male genitalia, dorsal view. **51**, male mesosome, ventral view. **52**, male paramere, dorsal view. **53**, female subgenital plate and vulval margin, ventral view.

**Description. Both sexes.** Head trapezoidal (Fig. 49). Lateral margins of preantennal head slightly convex. Dorsal preantennal suture reaches lateral margin of head, but does not completely separate dorsal anterior plate from main head plate. Head chaetotaxy as in Fig. 49; *pns* microsetae. Coni broad, short, not reaching distal margin of scape. Antennae not sexually dimorphic. Gular plate broad, triangular. Thoracic and abdominal segments as in Figs 47–48. Reentrant heads of pleurites long and broad, often blunter in more posterior segments.

**Male.** Thoracic and abdominal chaetotaxy as in Fig. 47. Genitalia as in Figs 50–52. Basal apodeme comparatively short (Fig. 50), broad, rectangular. Proximal mesosome rectangular (Fig. 51), with fairly straight lateral margins and flat (Fig. 51) or slightly concave (Fig. 50) anterior margin. Ventral sclerite broad, blunt with rugose anterior end. Mesosomal lobes with strongly sinuous lateral margins. Marginal thickenings of lobes not displaced medianly in anterior end, but displaced medianly at concavity. Posterior end of lateral concavity of mesosomal lobes with distinct comb-shaped structure unique within subgenus. Large almost oval nodi with rounded anterior margins on distal mesosome. Gonopore crescent-shaped; 2 *ames* microsetae on each side near antero-lateral corners of mesosomal lobes; *gpmes* not visible in examined material; 1 *lpmes* microseta on each side situated in lateral concavity. Parameral heads irregular (Fig. 52), slanted. Parameral blades broad, tapering only distally; *pst1–2* close together. Measurements (n = 4): TL = 1.21–1.30; HL = 0.33–0.34; HW = 0.33–0.34; PRW = 0.20–0.21; PTW = 0.28–0.31; AW = 0.43–0.53.

**Female.** Thoracic and abdominal chaetotaxy as in Fig. 48; *ss* of tergopleurite VIII much shorter than *ss* of tergopleurites II–VII. Subgenital plate as in Fig. 53, with central latitudinal striation; cross-piece with moderate connection to subgenital plate. Vulval margin convergent to blunt median point (Fig. 53), with 3–4 short, slender *vms* on each side, and 6–7 short, thorn-like *vss* on each side; 3–4 *vos* short, slender on each side; distal *vos* anterior to *vss*. Measurements (n = 4): TL = 1.61–1.75; HL = 0.36–0.38; HW = 0.37–0.39; PRW = 0.23–0.24; PTW = 0.32–0.35; AW = 0.48–0.51.

**Etymology.** The species epithet is derived from “*ambustus*”, Latin for “scorched”, referring to the dark lateral margins of the abdomen.

**Type material.** Ex *Leiothrix argenteauris rubrogularis*: **Holotype** ♂, Shiwan Dashan National Park, Guangxi Province, China, 26 Apr. 2005, S.E. Bush & D.H. Clayton, host MBR-6721, KU collection; Lice P-673 (NHML). **Paratypes:** 1♂, 2♀, same data as holotype (PIPeR); 2♂, 2♀, same data as holotype, except host TJD-6245, lice P-674 (PIPeR).

### ***Guimaraesiella (Cicchinella) falcifrons* Gustafsson, Clayton & Bush, new species** (Figs 54–58)

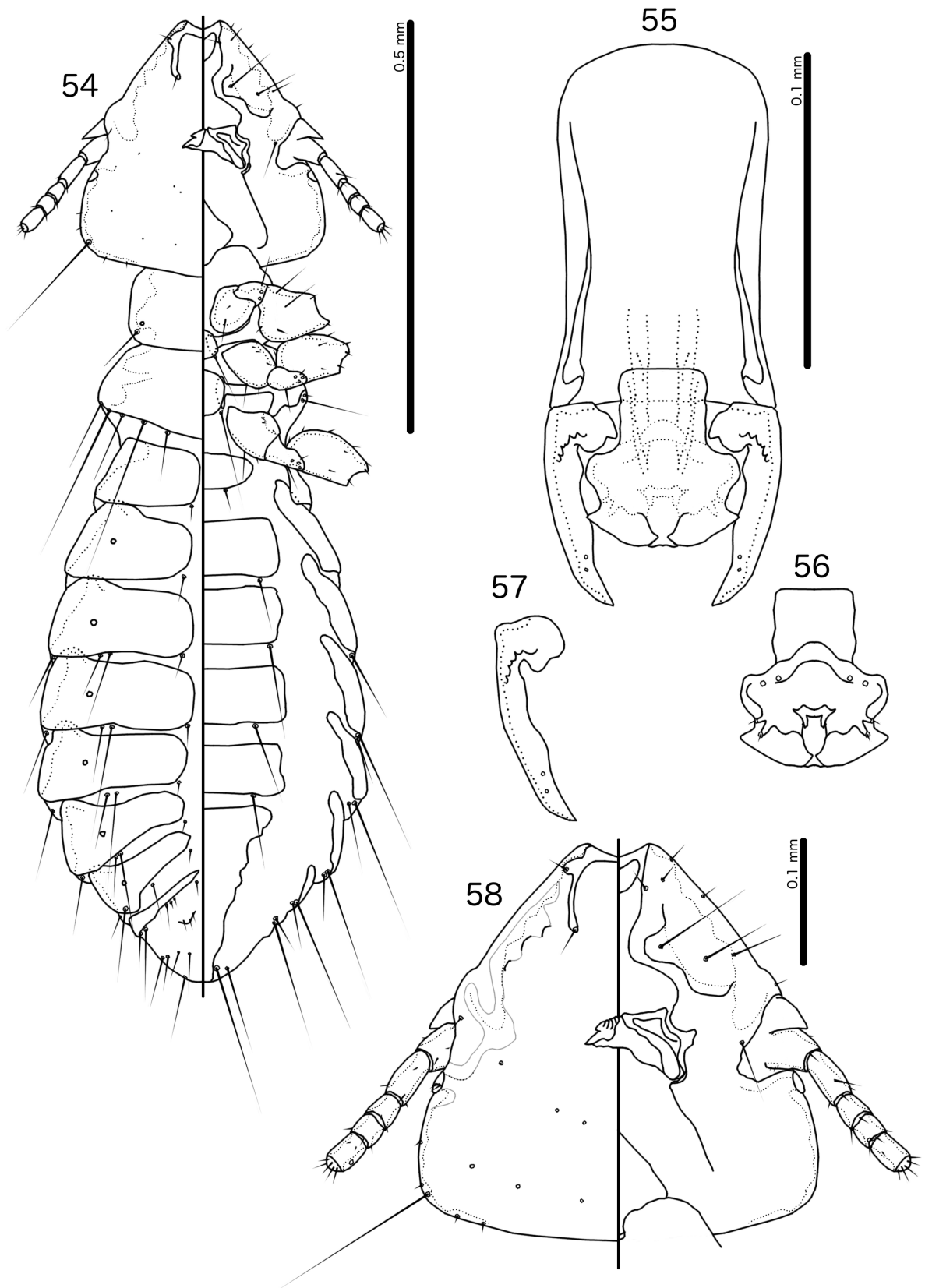
**Type host.** *Actinodura cyanouroptera sordidior* (Sharpe, 1888)—blue-winged minla (Leiothrichidae).

**Type locality.** Mount Brinchang, Malaysia.

**Diagnosis.** The male genitalia of *Guimaraesiella (C.) falcifrons* is unique among all species of *Cicchinella*, easily distinguishing it from all other species in the subgenus. Non-genitalic characters of *G. (C.) falcifrons* are superficially similar to those of *G. (C.) sehri*, with which it shares the following characters: (1) lateral margins of preantennal head (Figs 3, 58) fairly straight; (2) antennae not sexually dimorphic (Figs 3, 58); (3) *pns* microsetae (Figs 3, 58); and (4) dorsal preantennal suture does not reach lateral margins of head (Figs 3, 58). However, these two species are separated by the following genitalic characters: (1) anterior basal apodeme flattened in *G. (C.) falcifrons* (Fig. 55) but rounded in *G. (C.) sehri* (Fig. 4); (2) mesosomal ventral sclerite long and narrow, with an anterior rugose area in *G. (C.) sehri* (Fig. 5) but short and broad, and without such area in *G. (C.) falcifrons* (Fig. 56); (3) distal mesosome much broader in *G. (C.) falcifrons* (Fig. 56) than in *G. (C.) sehri* (Fig. 5); (4) anterior margin of distal nodi concave in *G. (C.) sehri* (Fig. 5) but sinuous in *G. (C.) falcifrons* (Fig. 56); and (5) both *lpmes* lateral in *G. (C.) sehri* (Fig. 5) but distal and sublateral in *G. (C.) falcifrons* (Fig. 56).

**Description. Male.** Head pentagonal (Fig. 58). Lateral margins of preantennal head straight. Dorsal preantennal suture does not reach lateral margins of head, nor completely separate dorsal anterior plate from main head plate. Attachments of mandibular adductor muscles prominent. Head chaetotaxy as in Fig. 58; *pns* microsetae. Coni broad, short, not approaching distal margin of scape. Scape not swollen. Gular plate moderate, triangular. Thoracic and abdominal segments and chaetotaxy as in Fig. 54. Reentrant heads of pleurites broad, blunt. Genitalia as in Figs 55–57. Basal apodeme broad (Fig. 55), roughly rectangular, with slight constriction at mid-length.





**FIGURES 54–58.** *Guimaraesiella (Cicchinella) falcifrons* n. sp. **54**, male, whole body, dorsal and ventral views. **55**, male genitalia, dorsal view. **56**, male mesosome, ventral view. **57**, male paramere, dorsal view. **58**, male head, dorsal and ventral views.

Proximal mesosome broad (Fig. 56), rectangular. Ventral sclerite broad, short, not extending much anteriorly. Mesosomal lobes broad, with strongly sinuous lateral margins. Marginal thickenings of mesosomal lobes not displaced medianly in anterior end. Large irregular nodi with sinuous anterior margins on distal mesosome. Gonopore simple, as in Fig. 56; 2 *ames* sensilla on each side near antero-lateral corners of mesosomal lobes; *gpms* not visible in examined male; 2 *lpms* microsetae on each side, the anterior one situated laterally in concavity of mesosomal margin, the posterior one situated sublaterally. Parameral heads irregular (Fig. 57), narrowing proximally. Parameral blades long, slender, tapering gently; *pst1–2* both sensilla, close together. Measurements (n = 1): TL = 1.13; HL = 0.29; HW = 0.30; PRW = 0.17; PTW = 0.26; AW = 0.38.

**Female.** Unknown.

**Etymology.** The species epithet is formed by “*falx*”, Latin for “reaping hook”, and “*frons*”, Latin for “forehead”, referring to the hook-shaped dark markings on the preantennal area (grey lines in Fig. 58).

**Type material.** Ex *Actinodura cyanouroptera sordidior*: **Holotype** ♂, Mount Brinchang, Malaysia, 20 Nov. 1961, M-00488 (OSUS).

### ***Guimaraesiella (Cicchinella) hannesundinae* Gustafsson, Clayton & Bush, new species**

(Figs 59–66)

**Type host.** *Heterophasia picaoides wrayi* (Ogilvie-Grant, 1910)—long-tailed sibia (Leiothrichidae).

**Type locality.** Mount Brinchang, Malaysia.

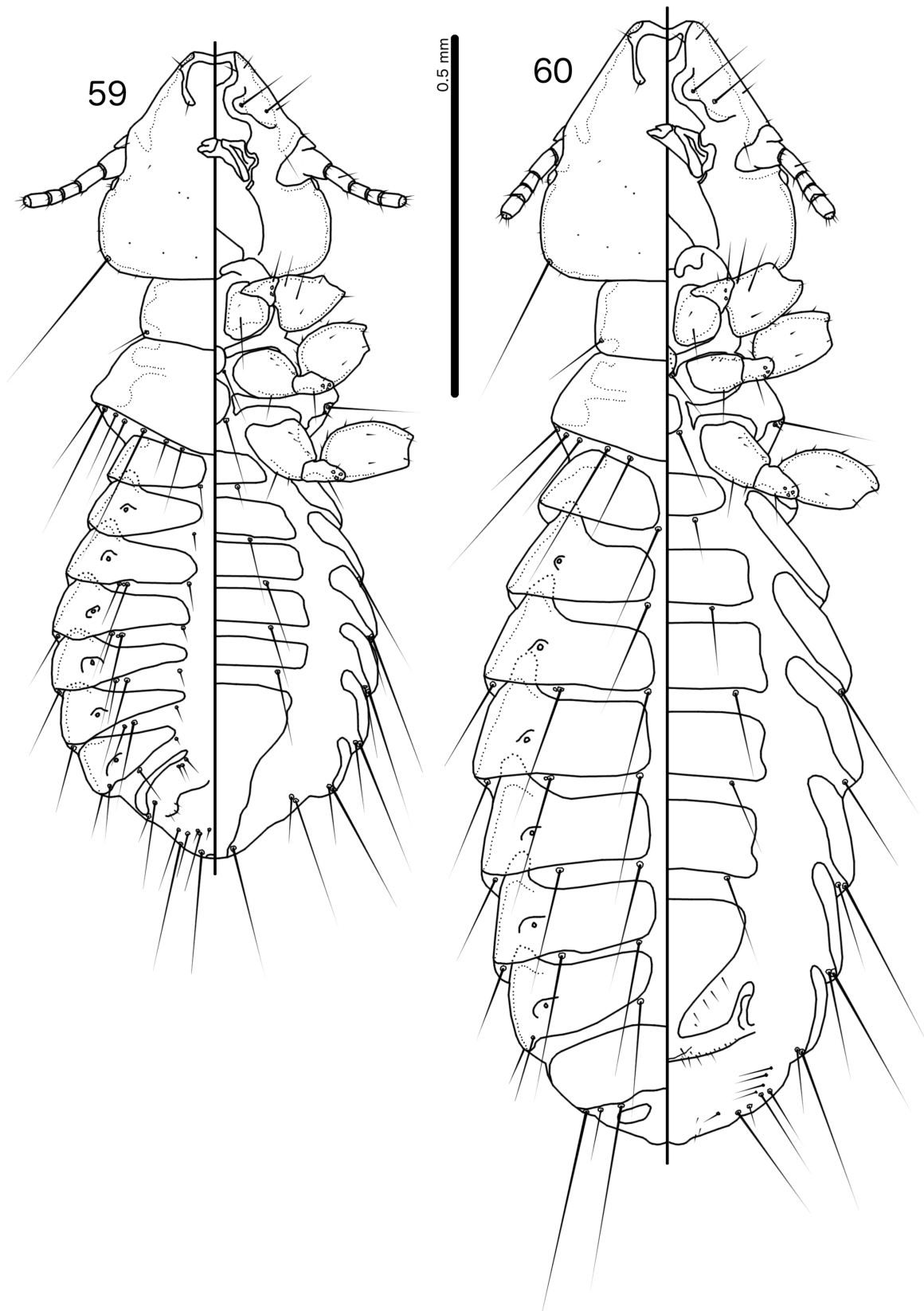
**Diagnosis.** *Guimaraesiella (C.) hannesundinae* is most similar to *Guimaraesiella (C.) hampuslybecki* (see below), with which it shares the following characters: (1) antennae sexually dimorphic (Figs 61–62, 69–70); (2) male with more than 5 *mms* on each side (Figs 59, 67); (3) basal apodeme narrowing proximally (Figs 63, 71); (4) proximal mesosome with sinuous lateral margins (Figs 64, 72); and (5) marginal thickenings of mesosomal lobes continuous with distal nodi (Figs 65, 72). However, these two species can be separated by the following characters: (1) female subgenital plate reticulated in *G. (C.) hampuslybecki* (Fig. 74) but not in *G. (C.) hannesundinae* (Fig. 66); (2) *ss* of female tergopleurite VIII long in *G. (C.) hannesundinae* (Fig. 60) but short in *G. (C.) hampuslybecki* (Fig. 68); (3) mesosomal ventral sclerite short and blunt in *G. (C.) hannesundinae* (Fig. 64) but long and slender in *G. (C.) hampuslybecki* (Fig. 72); (4) marginal thickenings of mesosomal lobes broad and not displaced at concavity in *G. (C.) hannesundinae* (Fig. 64) but slender and displaced medianly at concavity in *G. (C.) hampuslybecki* (Fig. 72); (5) *ames* microsetae in *G. (C.) hannesundinae* (Fig. 64) but sensilla in *G. (C.) hampuslybecki* (Fig. 72); and (6) papillate area of parameral heads more extensive in *G. (C.) hannesundinae* (Fig. 65) than in *G. (C.) hampuslybecki* (Fig. 73).

**Description. Both sexes.** Head pentagonal (Fig. 61). Lateral margins of preantennal head straight. Dorsal preantennal suture does not reach lateral margins of head, and does not completely separate dorsal anterior plate from main head plate. Head chaetotaxy as in Fig. 61; *pns* microsetae. Coni long, broad, almost reaching distal margin of scape in female. Antennae sexually dimorphic. Gular plate sinuously triangular. Thoracic and abdominal segments as in Figs 59–60. Reentrant heads of pleurites short and blunt in male, longer in female.

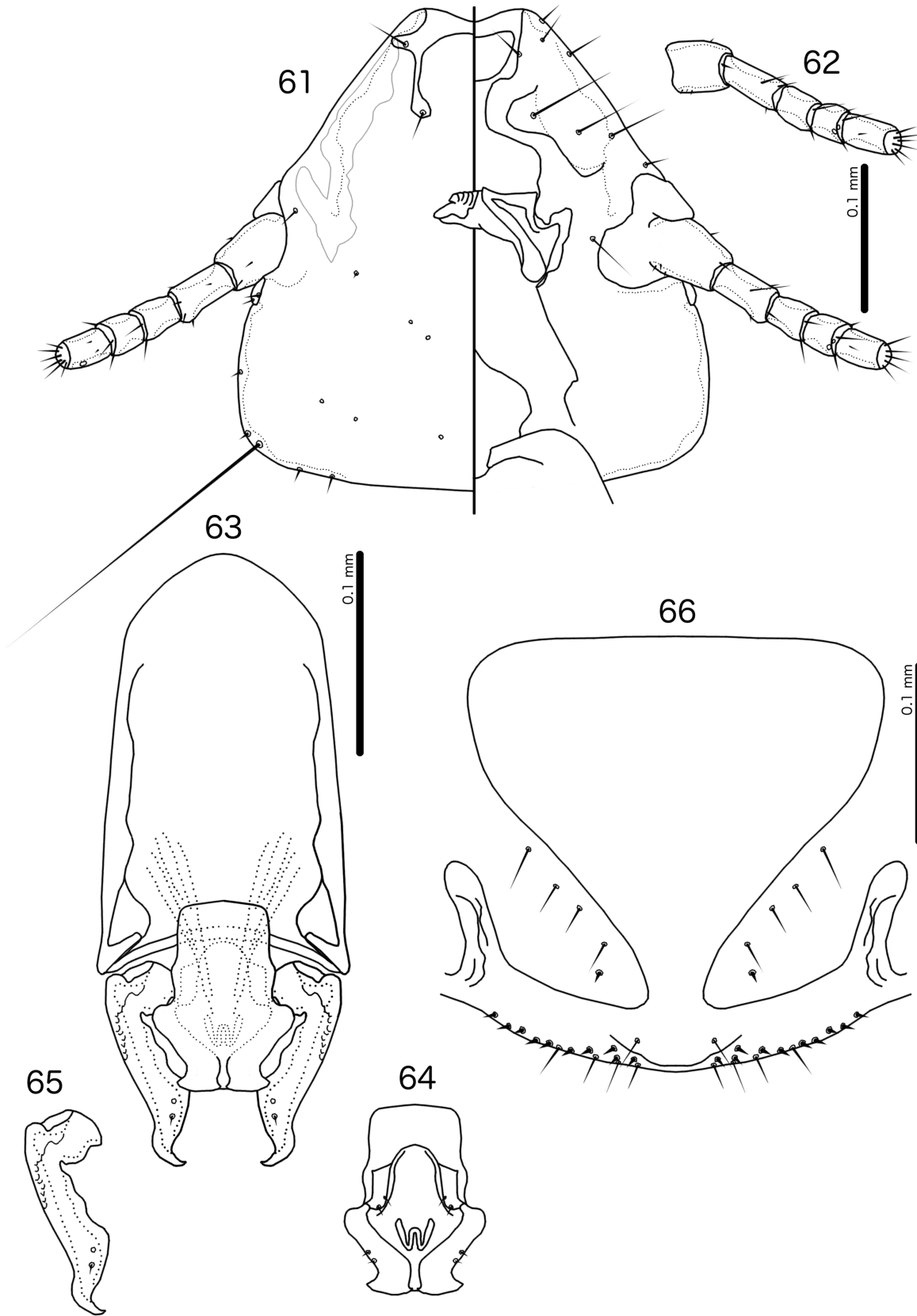
**Male.** Scape enlarged as in Fig. 61. Thoracic and abdominal chaetotaxy as in Fig. 59. Genitalia as in Figs 63–65. Basal apodeme broad distally but narrowing proximally (Fig. 63); proximal margin rounded. Proximal mesosome broad (Fig. 64), rectangular, with slightly bulging lateral margins. Ventral sclerite broad, blunt, not approaching proximal margin of mesosome. Mesosomal lobes with strongly sinuous lateral margins. Marginal thickenings of mesosomal lobes broad throughout, not displaced medianly at any point; thickenings continuous with large, irregular distal nodi. Gonopore W-shaped; 2 *ames* microsetae on each side near antero-lateral corner of mesosomal lobes; *gpms* not visible in examined material; 2 *lpms* microsetae on each side situated in lateral concavity of mesosome. Parameral heads irregular (Fig. 65), with extensive papillate area. Parameral blades with sinuous median margin, tapering only distally; *pst1–2* close together. Measurements (n = 4, except TL where n = 3): TL = 1.14–1.20; HL = 0.31–0.33; HW = 0.31–0.35; PRW = 0.19–0.22; PTW = 0.30–0.35; AW = 0.43–0.47.

**Female.** Scape as in Fig. 62. Thoracic and abdominal as in Fig. 60; *ss* of tergopleurite VIII as long as *ss* of tergopleurites II–VII. Subgenital plate as in Fig. 66, not reticulated; cross-piece with moderate connection to subgenital plate. Submarginal fold on cross-piece. Vulval margin gently rounded, somewhat flattened medianly (Fig. 66), with 3–5 slender *vms* on each side, and 9–10 thorn-like *vss* on each side; at least some *vss* arranged in double rows; 5–6 slender *vos* on each side; distal *vos* situated median to *vss*. All examined females with a thorn-

like seta positioned anterior to cross-piece on at least one side, as in Fig. 66; these setae not symmetrical in any examined specimen. Measurements (n = 3): TL = 1.59–1.62; HL = 0.35–0.36; HW = 0.35–0.36; PRW = 0.21–0.22; PTW = 0.34–0.35; AW = 0.55–0.56.



**FIGURES 59–60.** *Guimaraesiella (Cicchinella) hannesundinae* n. sp. **59**, male, whole body, dorsal and ventral views. **60**, female, whole body, dorsal and ventral views.



**FIGURES 61–66.** *Guimaraesiella (Cicchinella) hannesundinae* n. sp. **61**, male head, dorsal and ventral views. **62**, female antenna, ventral view. **63**, male genitalia, dorsal view. **64**, male mesosome, ventral view. **65**, male paramere, dorsal view. **66**, female subgenital plate and vulval margin, ventral view.

**Etymology.** The species epithet is in honor of Hanne Sundin (previously at Chalmers Technical University, Gothenburg, Sweden), friend of the first author, who hosted DRG during his collection trips in Sweden.

**Type material.** Ex *Heterophasia picaoides wrayi*: **Holotype** ♂, Mount Brinchang, Malaysia, 19 Mar. 1962, M-01087, 24701 on reverse (OSUS). **Paratypes:** 2♂, 3♀, same data as holotype, 24700–24702 on reverse (OSUS); 1♂, Mount Brinchang, Malaysia, 13 Dec. 1961, M-00625, 24696 on reverse (OSUS).

### *Guimaraesiella (Cicchinella) hampuslybecki* Gustafsson, Clayton & Bush, new species

(Figs 67–74)

**Type host.** *Heterophasia auricularis* (Swinhoe, 1864)—white-eared sibia (Leiothrichidae).

**Type locality.** Liukuei, Taiwan.

**Diagnosis.** *Guimaraesiella (C.) hampuslybecki* is most similar to *G. (C.) hannesundinae*, with which it shares the characters listed under the latter species, above. However these two species can be separated by the following characters: (1) female subgenital plate with central reticulation in *G. (C.) hampuslybecki* (Fig. 74) but not in *G. (C.) hannesundinae* (Fig. 66); (2) single thorn-like setae lateral to *vos* in *G. (C.) hannesundinae* (Fig. 66) but no such seta in *G. (C.) hampuslybecki* (Fig. 74); (3) *ss* of female tergopleurite VIII short in *G. (C.) hampuslybecki* (Fig. 68) but long in *G. (C.) hannesundinae* (Fig. 60); (4) mesosomal ventral sclerite long and slender in *G. (C.) hampuslybecki* (Fig. 72) but short and blunt in *G. (C.) hannesundinae* (Fig. 64); (5) marginal thickenings of mesosomal lobes broad and not displaced at concavity in *G. (C.) hannesundinae* (Fig. 64) but slender and displaced medianly at concavity in *G. (C.) hampuslybecki* (Fig. 72); (6) *ames* sensilla in *G. (C.) hampuslybecki* (Fig. 72) but microsetae in *G. (C.) hannesundinae* (Fig. 64); and (7) papillate area of parameral heads more extensive in *G. (C.) hannesundinae* (Fig. 65) than in *G. (C.) hampuslybecki* (Fig. 73).

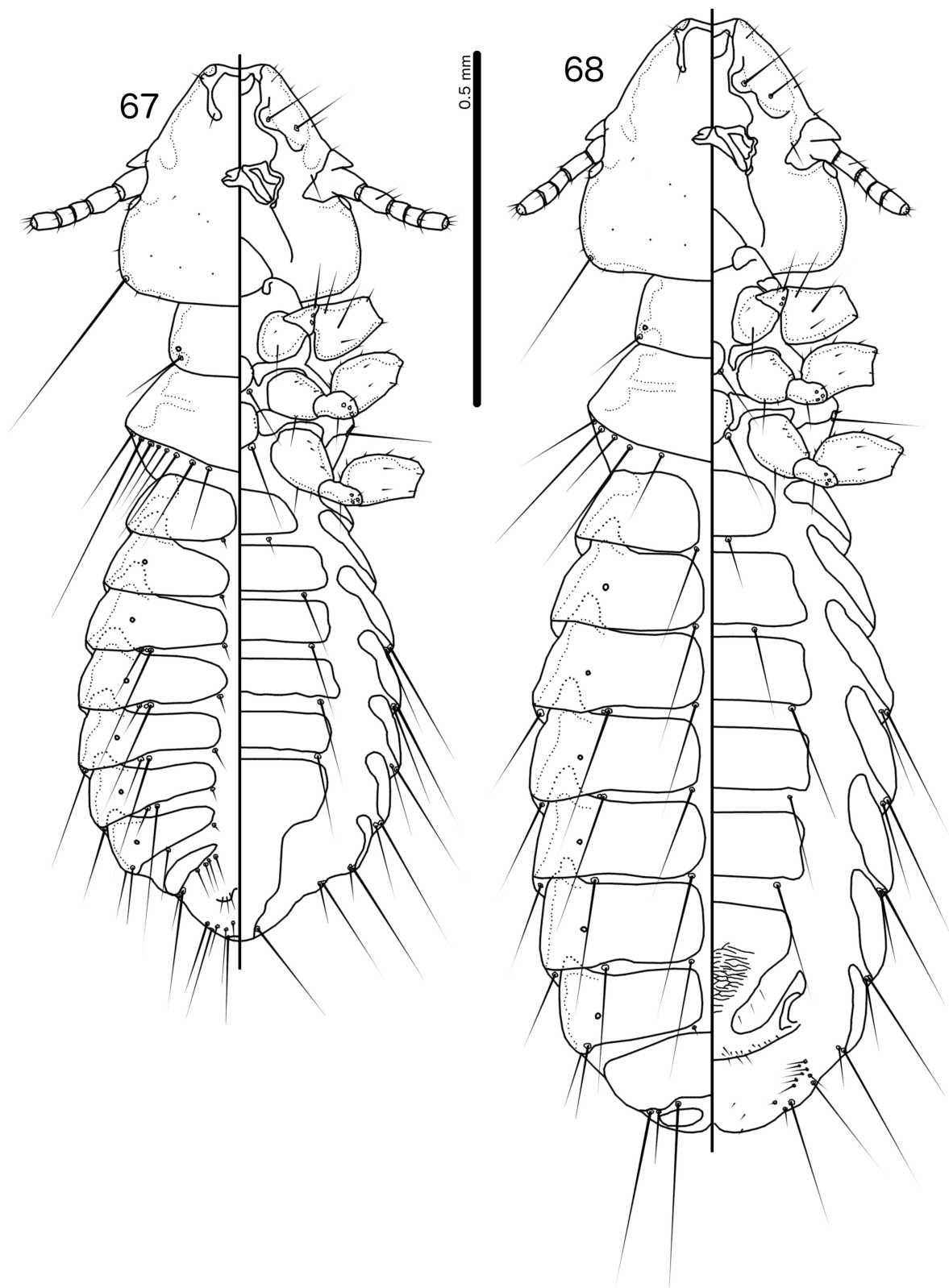
**Description. Both sexes.** Head rounded pentagonal (Fig. 69). Lateral margins of preantennal head convex. Dorsal preantennal suture does not reach lateral margin of head, and does not completely separate dorsal anterior plate from main head plate. Attachments of mandibular adductor muscles prominent. Head chaetotaxy as in Fig. 69; *pns* microsetae. Coni long, broad, reaching distal margin of scape in female. Antennae sexually dimorphic. Gular plate roughly triangular. Thoracic and abdominal segments as in Figs 67–68. Reentrant heads of pleurites broader and blunter in male than in female.

**Male.** Scape as in Fig. 69. Thoracic and abdominal chaetotaxy as in Fig. 67. Genitalia as in Figs 71–73. Basal apodeme broader distally than proximally (Fig. 71), with rounded to slightly flattened proximal margin. Proximal mesosome roughly rectangular (Fig. 72), with bulging lateral margins. Ventral sclerite slender, with median elongation that almost reaches proximal margin of mesosome. Mesosomal lobes with strongly sinuous lateral margins. Marginal thickenings of mesosomal lobes displaced medianly at concavity, and continuous with broad, rounded trapezoidal nodi on distal mesosome. Gonopore complicated, as in Fig. 72; 2 *ames* sensilla on each side near antero-lateral corners of mesosomal lobes; *gpms* not visible in examined material; 2 *lpms* microsetae on each side situated in lateral concavity. Parameral heads irregular (Fig. 73). Parameral blades broad, tapering only distally; *pst1–2* close together. Measurements ( $n = 7$ , except for TL where  $n = 6$ ): TL = 1.11–1.23; HL = 0.32–0.34; HW = 0.32–0.35; PRW = 0.20–0.22; PTW = 0.31–0.34; AW = 0.44–0.49.

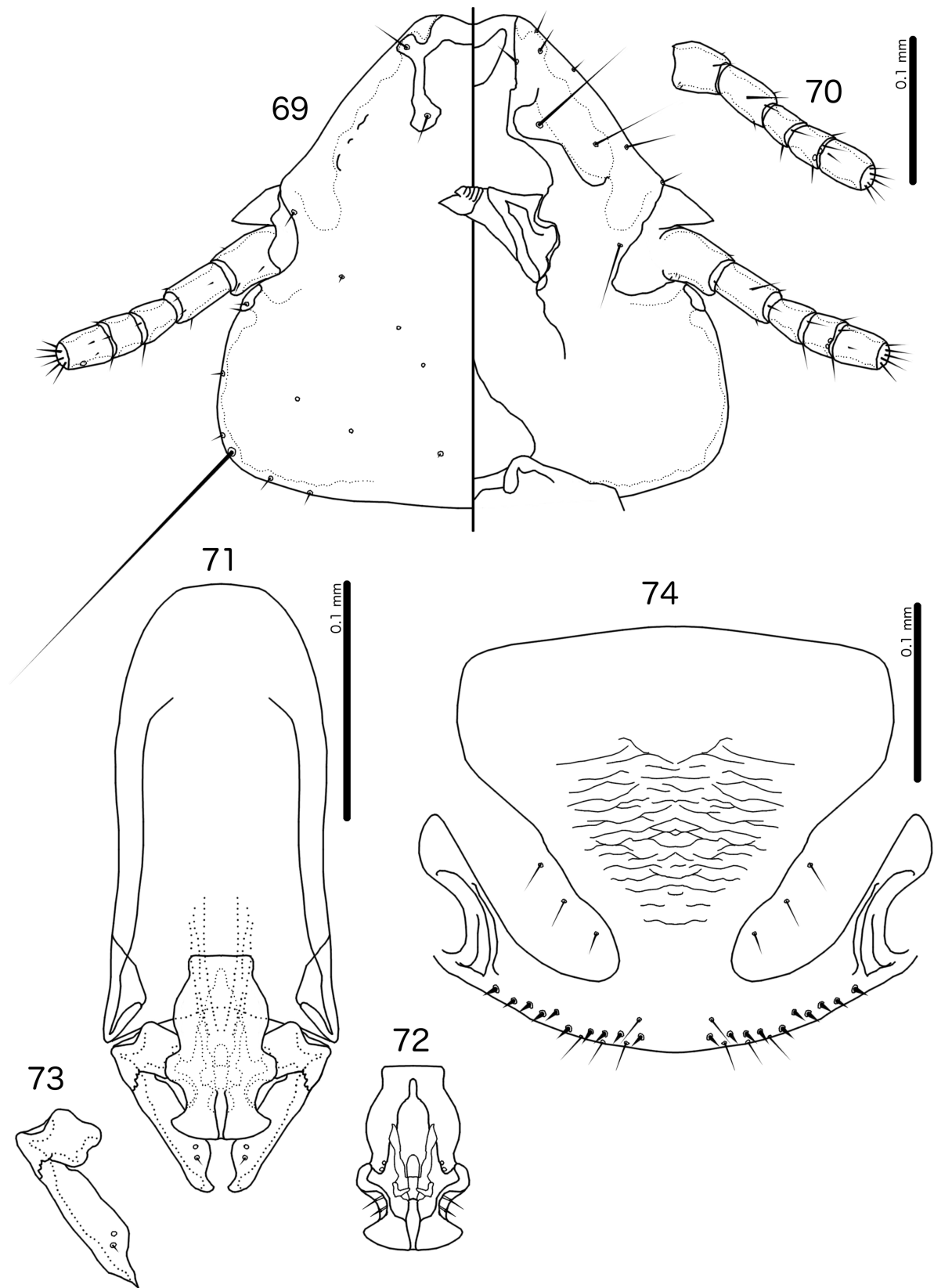
**Female.** Scape as in Fig. 70. Thoracic and abdominal chaetotaxy as in Fig. 68. *ss* of tergopleurite VIII much shorter than *ss* of tergopleurites II–VII. Subgenital plate as in Fig. 74, with extensive central reticulation; cross-piece with broad connection to subgenital plate. Vulval margin gently rounded (Fig. 74), with 2–3 slender *vms* on each side, and 6–10 thorn-like *vss* on each side; 4–5 *vos* on each side; distal *vos* situated anterior to *vss*. Measurements ( $n = 4$ ): TL = 1.50–1.68; HL = 0.35–0.38; HW = 0.37–0.41; PRW = 0.21–0.26; PTW = 0.33–0.38; AW = 0.52–0.56.

**Etymology.** The species epithet is in honor of Hampus Lybeck (previously at the University of Gothenburg, Sweden) who assisted DRG while collecting lice in Sweden in 2007–2008, and has remained a good friend and bird-watching companion to DRG ever since.

**Type material.** Ex *Heterophasia auricularis*: **Holotype** ♂, Liukuei, Taiwan, T.C. Maa, TMT-1764–1765 (UMSP). **Paratypes:** 1♂, 1♀, same data as holotype (UMSP); 2♂, 1♀, Puli Nantou Hsien, Taiwan, Jan. 1964, T.C. Maa, TMT-185–188 (UMSP); 1♂, 1♀, same data (PIPeR); 1♂, 1♀, same data except TMT-419 (UMSP); 1♂, same data as holotype (PIPeR).



**FIGURES 67–68.** *Guimaraesiella (Cicchinella) hampuslybecki* n. sp. **67**, male, whole body, dorsal and ventral views. **68**, female, whole body, dorsal and ventral views.

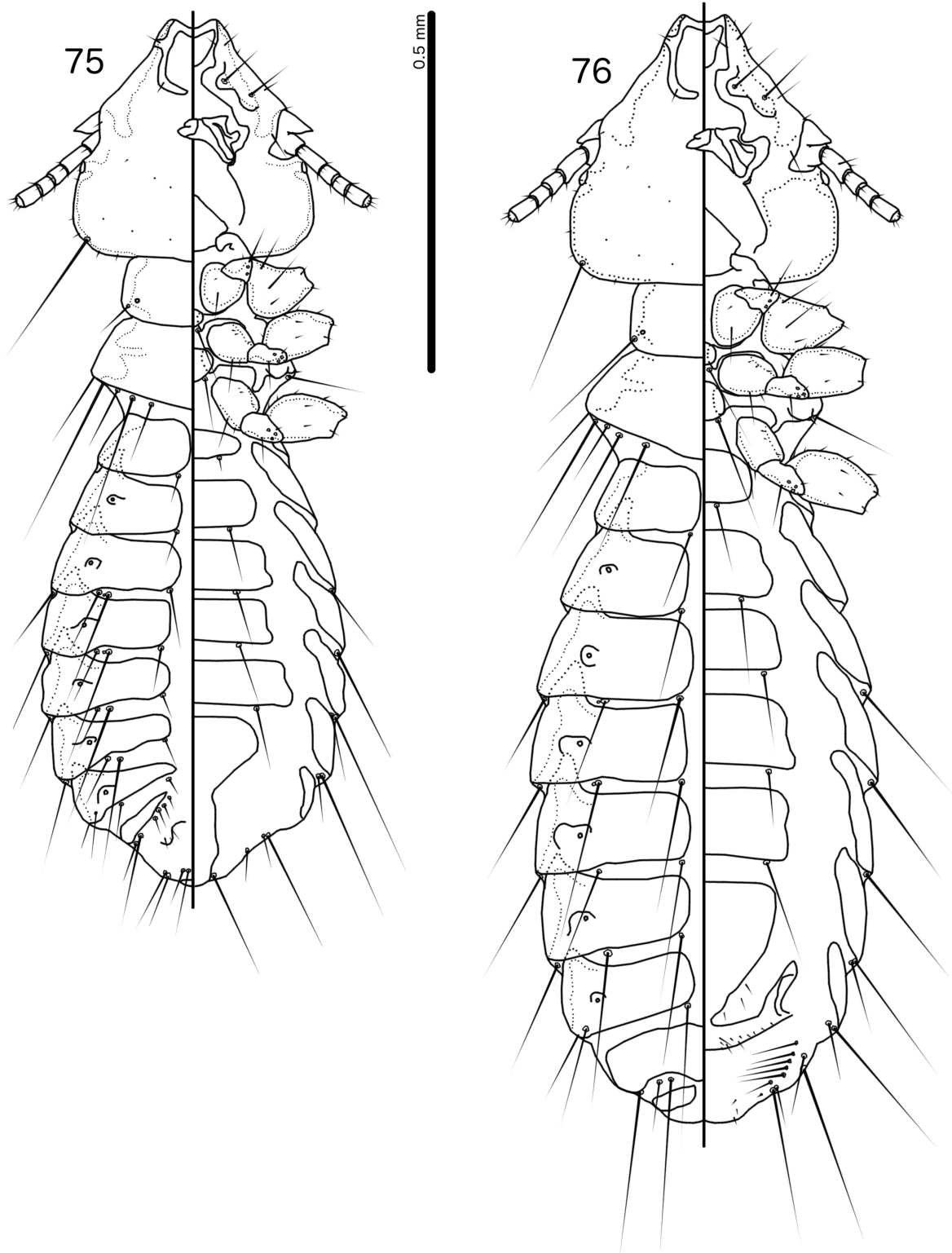


**FIGURES 69–74.** *Guimaraesiella (Cicchinella) hampuslybecki* n. sp. 69, male head, dorsal and ventral views. 70, female antenna, ventral view. 71, male genitalia, dorsal view. 72, male mesosome, ventral view. 73, male paramere, dorsal view. 74, female subgenital plate and vulval margin, ventral view.

***Guimaraesiella (Cicchinella) gombakensis* Gustafsson, Clayton & Bush, new species**  
(Figs 75–81)

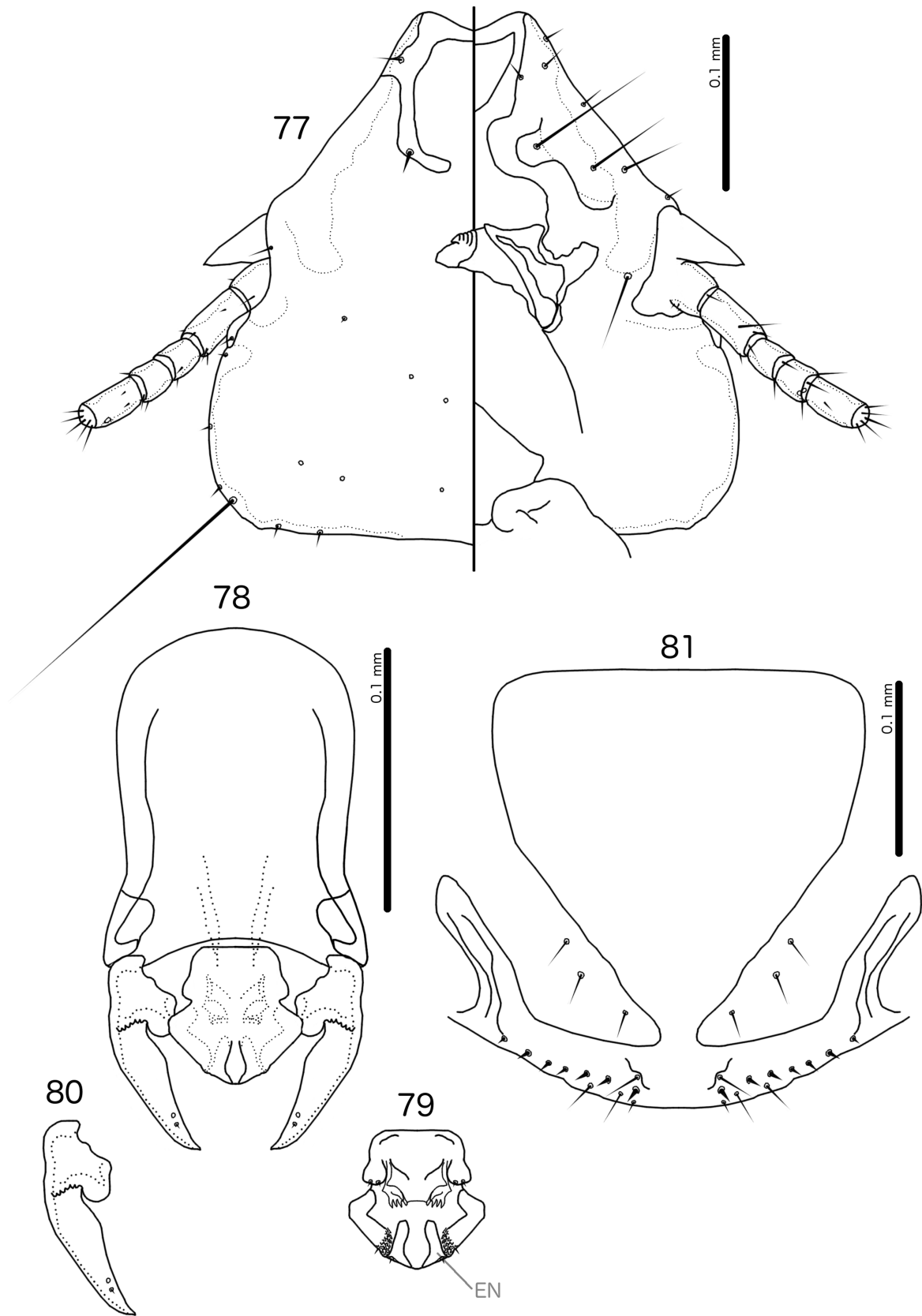
**Type host.** *Turdinus abbotti abbotti* (Blyth, 1845)—Abbott's babbler (Pellorneidae).

**Type locality.** Gombak, Malaysia.



**FIGURES 75–76.** *Guimaraesiella (Cicchinella) gombakensis* n. sp. 75, male, whole body, dorsal and ventral views. 76, female, whole body, dorsal and ventral views.





**FIGURES 77–81.** *Guimaraesiella (Cicchinella) gombakensis* n. sp. **77**, male head, dorsal and ventral views. **78**, male genitalia, dorsal view. **79**, male mesosome, ventral view. **80**, male paramere, dorsal view. **81**, female subgenital plate and vulval margin, ventral view. Abbreviation: EN = elongated nodus.

**Diagnosis.** *Guimaraesiella* (*C.*) *gombakensis* is not particularly similar to any other species of the subgenus *Cicchinella*, but shares the extensive rugose areas and elongated distal nodi of the mesosome (Fig. 79) with *Guimaraesiella* (*C.*) *mcgrewi* (see below) (Fig. 87) and *Guimaraesiella* (*C.*) *iuga* (see below) (Fig. 94). These three species also lack the mesosomal ventral sclerite (Figs 79, 87, 94) and have a posteriorly displaced parameral head, with a fairly prominent bulge anterior to the main parameral head (Figs 80, 88, 95). However, *Guimaraesiella* (*C.*) *gombakensis* can be separated from both these other species on the following characters: (1) proximal mesosome short, not overlapping with basal apodeme in *G.* (*C.*) *gombakensis* (Fig. 78) but longer and with extensive overlapping with distal basal apodeme in *G.* (*C.*) *mcgrewi* (Fig. 86) and *G.* (*C.*) *iuga* (Fig. 93); (2) gonopore not clearly demarcated, with a comb-like structure on each side in *G.* (*C.*) *gombakensis* (Fig. 79) but clearly demarcated and without such structure in *G.* (*C.*) *mcgrewi* (Fig. 87) and *G.* (*C.*) *iuga* (Fig. 94); (3) *ames* situated on distinct lateral bulges in *G.* (*C.*) *gombakensis* (Fig. 79) but not visible in *G.* (*C.*) *mcgrewi* (Fig. 87) and not situated on bulges in *G.* (*C.*) *iuga* (Fig. 94); and (4) *pst1–2* close together in *G.* (*C.*) *gombakensis* (Fig. 80) but far apart in *G.* (*C.*) *mcgrewi* (Fig. 88) and *G.* (*C.*) *iuga* (Fig. 95).

**Description. Both sexes.** Head trapezoidal (Fig. 77). Lateral margins of preantennal area concave. Dorsal preantennal suture reaches lateral margins of head, but does not completely separate dorsal anterior plate from main head plate. Head chaetotaxy as in Fig. 77; *pns* microsetae. Coni long, broad, reaching well beyond distal margin of scape. Antennae not sexually dimorphic. Gular plate broad, triangular. Thoracic and abdominal segments as in Figs 75–76. Reentrant heads of pleurites slender and long.

**Male.** Thoracic and abdominal chaetotaxy as in Fig. 75. Genitalia as in Figs 78–80. Basal apodeme very broad (Fig. 78), widening distally, with rounded proximal margin. Proximal mesosome broad and short (Fig. 79), with distinct latero-ventral bulges near distal ends on which *ames* are situated. Ventral sclerite absent. Mesosomal lobes wide, angular, without lateral concavity. Marginal thickenings broad, not displaced medianly. Rugose area present, but not as distinct nodi. Elongated nodi present on distal mesosome. Gonopore not distinct, and with a unique comb-like structure on each side; 2 *ames* microsetae on each side on latero-ventral bulges; *gpmes* not visible in examined material; 2 *lpmes* microsetae on each side, situated on lateral margin, one distal and one proximal to rugose area. Parameral heads slanted posteriorly (Fig. 80), irregular, with slight secondary bulge near proximal end. Parameral blades wide, tapering gently; *pst1–2* close together. Measurements (n = 2): TL = 1.07–1.17; HL = 0.32; HW = 0.31–0.34; PRW = 0.19; PTW = 0.28; AW = 0.39–0.41.

**Female.** Thoracic and abdominal chaetotaxy as in Fig. 76; *ss* of tergopleurite VIII as long as *ss* of tergopleurites II–VII. Subgenital plate as in Fig. 81; cross-piece transparent, not clearly visible, with narrow connection to subgenital plate. Vulval margin gently rounded (Fig. 81), with 2–3 slender *vms* on each side, and 7 thorn-like *vss* on each side; 4 slender *vos* on each side; distal *vos* median to *vss*. Measurements (n = 1): TL = 1.49; HL = 0.36; HW = 0.38; PRW = 0.21; PTW = 0.33; AW = 0.47.

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

**Type material.** Ex *Turdinus abbotti abbotti*: **Holotype** ♂, Gombak, Malaysia, 28 Jan. 1963, M-02301, 24703 on reverse (OSUS). **Paratypes**: 1♂, 1♀, Gombak, Malaysia, 29 Jan. 1963, M-02302, 24704 on reverse (OSUS).

### *Guimaraesiella* (*Cicchinella*) *mcgrewi* Gustafsson, Clayton & Bush, new species

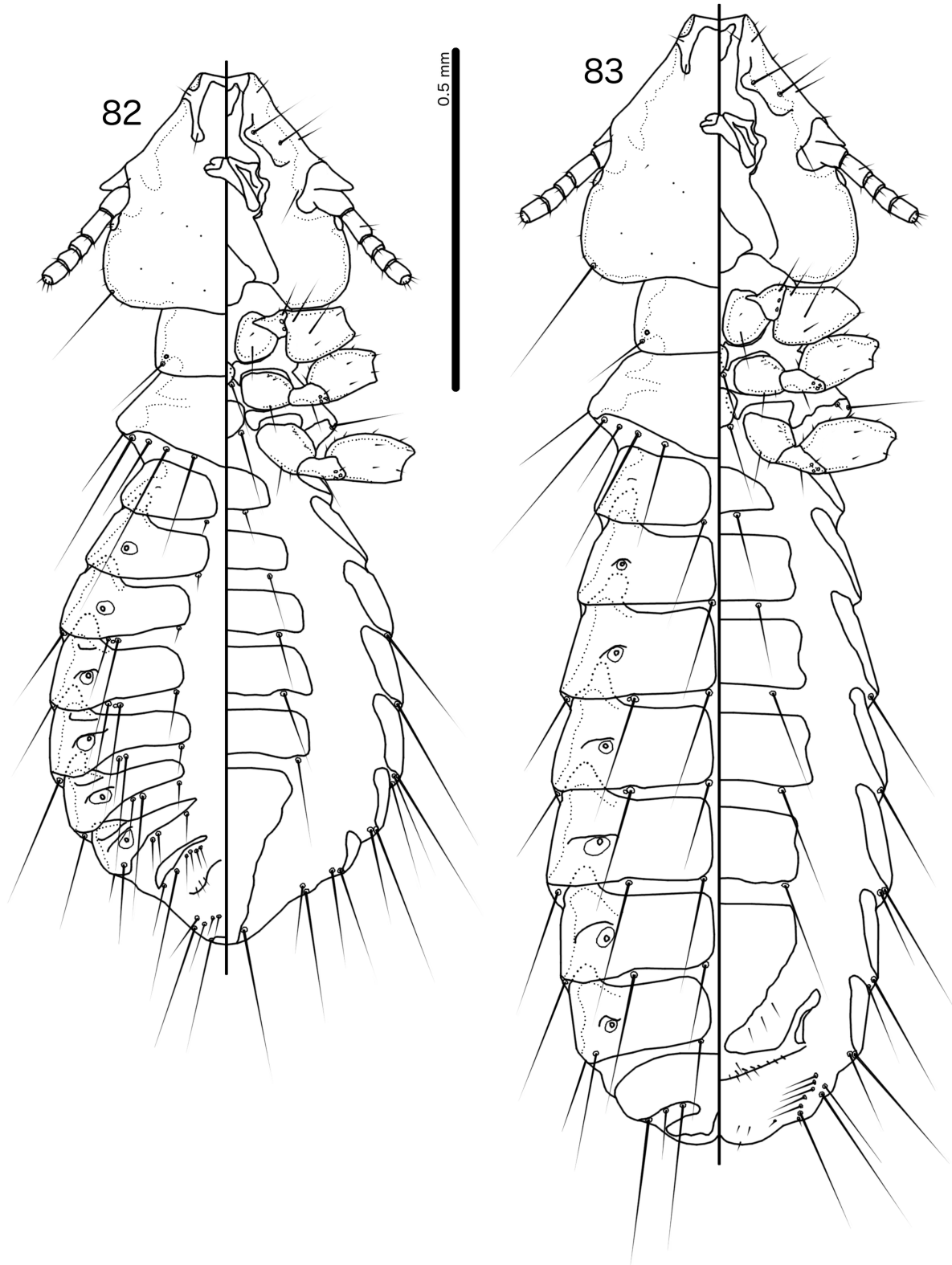
(Figs 82–89)

**Type host.** *Alcippe morrisonia* Swinhoe, 1863—grey-cheeked fulvetta (Leiothrichidae).

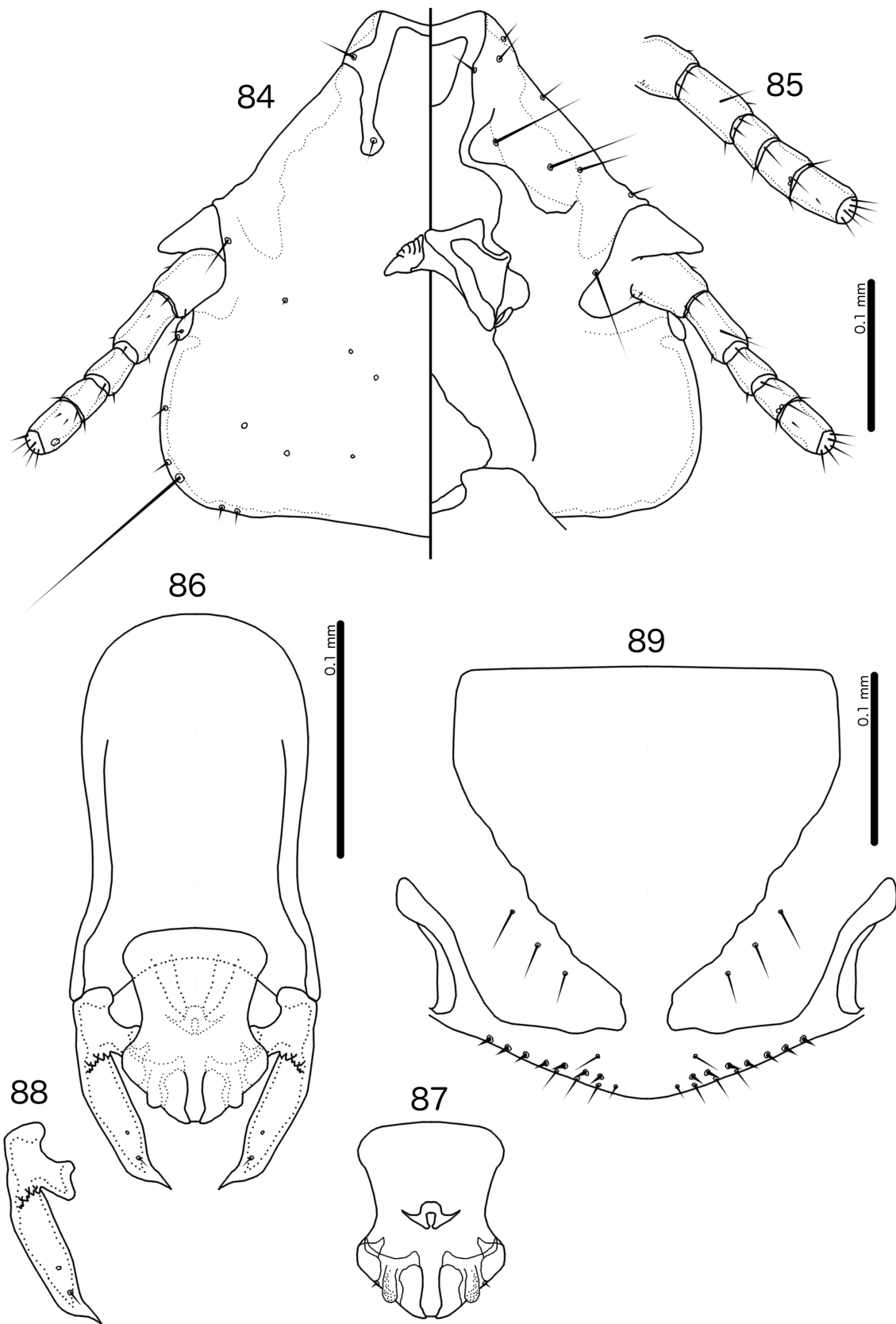
**Type locality.** Shiwan Dashan National Park, Guangxi Province, China.

**Diagnosis.** *Guimaraesiella* (*C.*) *mcgrewi* is most similar to *Guimaraesiella* (*C.*) *iuga* (see below) with which it shares the following characters: (1) proximal mesosome widening proximally, with concave lateral margins and convex anterior margin (Figs 87, 94); (2) rugose area of mesosome forms distinct nodi that protrude beyond margin of mesosome (Figs 87, 94); and (3) gonopore distinct, with no comb-like lateral structures (Figs 87, 94). However, these two species can be separated by the following characters: (1) mesosome broader and with flatter anterior margin in *G.* (*C.*) *mcgrewi* (Fig. 87) than in *G.* (*C.*) *iuga* (Fig. 94); (2) gonopore small, with triangular postero-lateral extensions in *G.* (*C.*) *mcgrewi* (Fig. 87) but with quadratic antero-lateral extensions in *G.* (*C.*) *iuga* (Fig. 94); (3) basal apodeme more slender in *G.* (*C.*) *iuga* (Fig. 93) than in *G.* (*C.*) *mcgrewi* (Fig. 86); (4) parameral heads with prominent anterior bulge in *G.* (*C.*) *mcgrewi* (Fig. 88) but with only slight anterior bulge in *G.* (*C.*) *iuga* (Fig. 95);

(5) dorsal preantennal suture reaches lateral margin of head in *G. (C.) mcgrewi* (Fig. 84) but not in *G. (C.) iuga* (Fig. 92); (6) female tergopleurite XI fused with tergopleurite IX+X in *G. (C.) mcgrewi* (Fig. 83) but not fused in *G. (C.) iuga* (Fig. 91); and (7) antennae sexually dimorphic in *G. (C.) mcgrewi* (Figs 84–85) but not dimorphic in *G. (C.) iuga* (Fig. 92).



**FIGURES 82–83.** *Guimaraesiella (Cicchinella) mcgrewi* n. sp. **82**, male, whole body, dorsal and ventral views. **83**, female, whole body, dorsal and ventral views.



**FIGURES 84–89.** *Guimaraesiella (Cicchinella) mcgrewi* n. sp. **84**, male head, dorsal and ventral views. **85**, female antenna, ventral view. **86**, male genitalia, dorsal view. **87**, male mesosome, ventral view. **88**, male paramere, dorsal view. **89**, female subgenital plate and vulval margin, ventral view.

**Description. Both sexes.** Head broadly bulb-shaped (Fig. 84). Lateral margins of preantennal head concave. Dorsal preantennal suture reaches lateral margins of head, but does not completely separate dorsal anterior plate from main head plate. Head chaetotaxy as in Fig. 84; *pns* microsetae. Coni long and broad, not reaching distal margin of scape. Antennae sexually dimorphic. Gular plate sinuously triangular. Thoracic and abdominal segments as in Figs 82–83. Reentrant heads of pleurites broad and long.

**Male.** Scape as in Fig. 84. Thoracic and abdominal chaetotaxy as in Fig. 82. Genitalia as in Figs 86–88. Basal apodeme broad (Fig. 86), widening distally, with rounded proximal margin. Proximal mesosome trapezoidal (Fig. 87), widening proximally, with concave lateral margins and slightly convex proximal margin. Ventral sclerite absent. Mesosomal lobes wide, convex. Marginal thickenings of mesosomal lobes displaced medianly in anterior end. Rugose area forms distinct nodus on each side, extending beyond mesosomal margin. Elongated nodi on distal end of mesosome. Gonopore with pointed postero-lateral extensions; *ames* and *gpms* not visible in examined material; 1 *lpms* microseta visible on each side, anterior to rugose nodi; second *lpms* may be obscured by rugose nodi. Parameral heads much displaced posteriorly (Fig. 88); anterior bulge large. Parameral blades broad, tapering only distally; *pst1*–2 far apart. Measurements (n = 2): TL = 1.26–1.27; HL = 0.34; HW = 0.35–0.36; PRW = 0.21–0.22; PTW = 0.32; AW = 0.48–0.49.

**Female.** Scape as in Fig. 85. Thoracic and abdominal chaetotaxy as in Fig. 83. Tergopleurite IX+X fused medially with tergopleurite XI (Fig. 83). Subgenital plate as in Fig. 89, without reticulation; cross-piece with narrow connection to subgenital plate. Vulval margin (Fig. 89) convergent to median point, with 3–4 short, slender *vms* on each side, and 7–8 short, thorn-like *vss* on each side; 4–5 *vos* on each side; distal *vos* situated anterior to *vss*. Measurements (n = 2 except AW where n = 1): TL = 1.60–1.66; HL = 0.37–0.38; HW = 0.39–0.40; PRW = 0.22; PTW = 0.35; AW = 0.48.

**Etymology.** The species epithet is in honor of Stanley E. McGrew (Mountain Green, Utah, U.S.A.), in recognition of his interest in, and support for, all things scientific.

**Type material.** Ex *Alcippe morrisonia*: **Holotype** ♂, Shiwan Dashan National Park, Guangxi Province, China, 20 Apr. 2005, S.E. Bush & D.H. Clayton, P-879 (NHML). **Paratypes:** 1♂, 2♀, same data as holotype (PIPeR).

**Remarks.** Following Zou *et al.* (2007), many recent checklists—including Clements *et al.* (2017)—have divided *Alcippe morrisonia* into several species, with *A. morrisonia* restricted to Taiwan and *A. davidi schaefferi* La Touche, 1923, occurring in Guangxi. However, on recommendation from Mark B. Robbins (pers. comm., 2017), who identified the hosts, we retain the type host species as *Alcippe morrisonia*, considering that the taxonomy of this complex is still not well known.

### ***Guimaraesiella (Cicchinella) iuga* Gustafsson, Clayton & Bush, new species** (Figs 90–96)

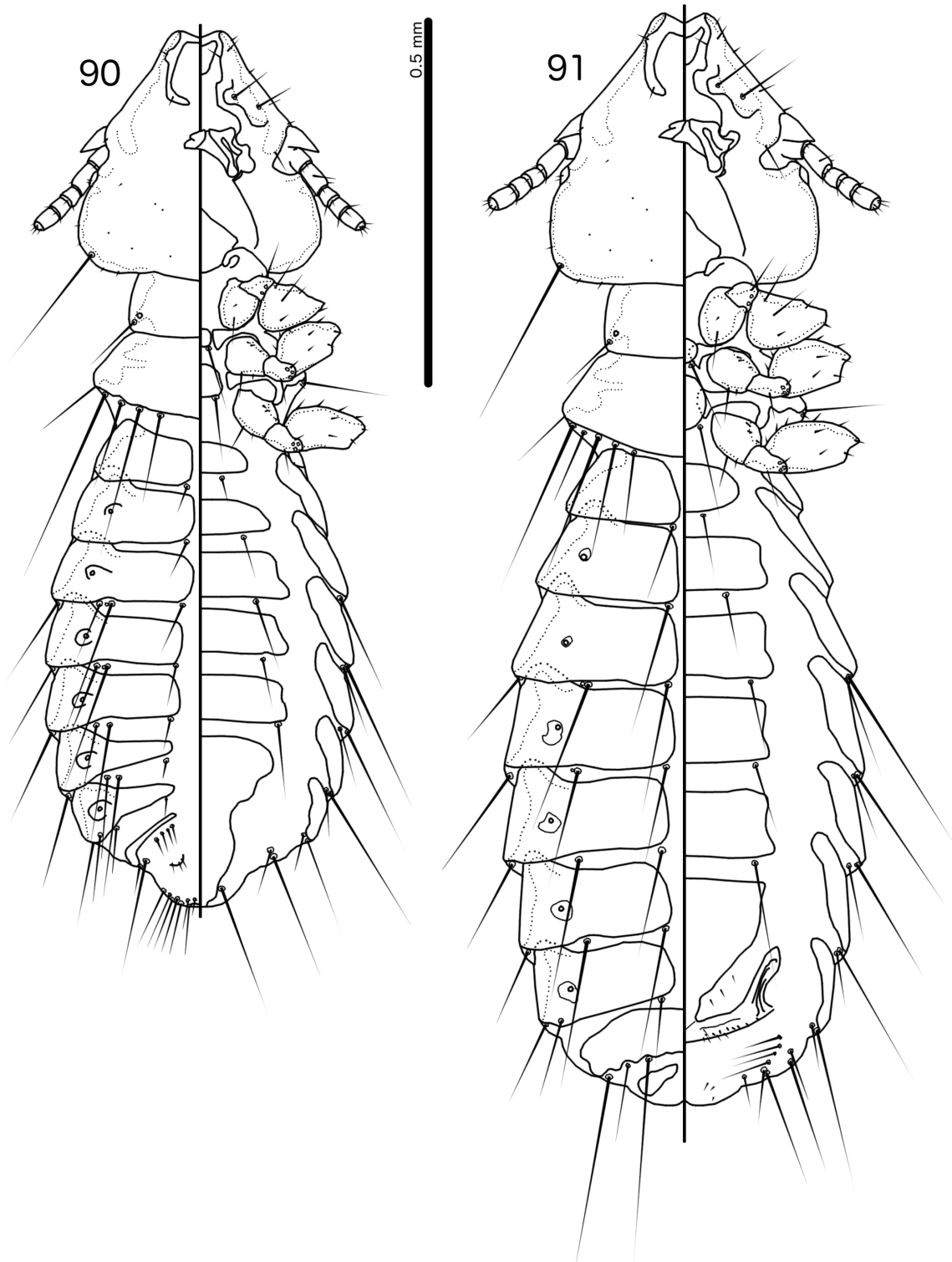
**Type host.** *Alcippe peracensis peracensis* Sharpe, 1887—mountain fulvetta (Leiothrichidae).

**Type locality.** Terengganu, Malaysia.

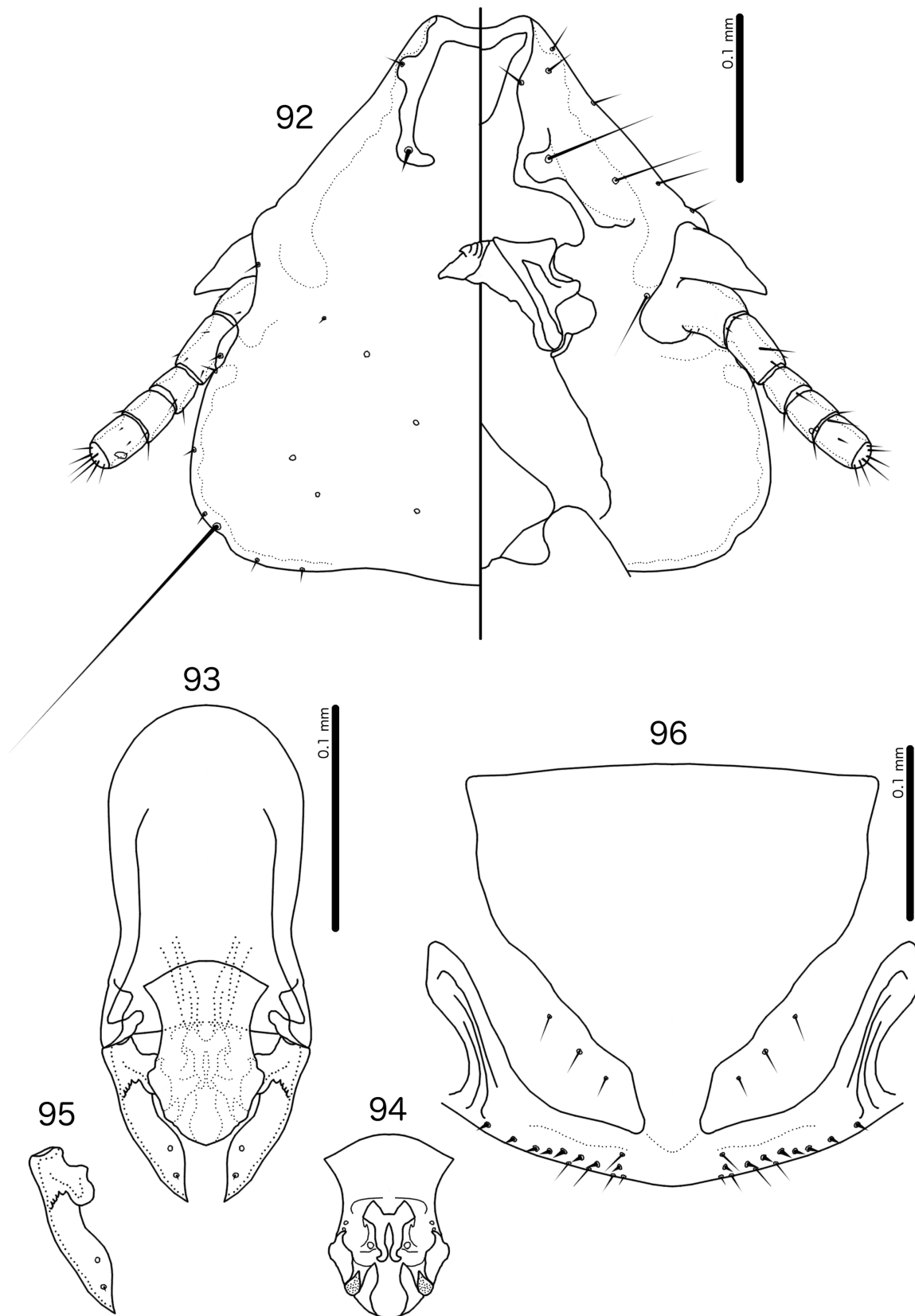
**Diagnosis.** *Guimaraesiella (C.) iuga* is most similar to *G. (C.) mcgrewi*, with which it shares the characters listed under the latter species, above. However, these two species can be separated by the following characters: (1) dorsal preantennal suture reaches lateral margin of head in *G. (C.) mcgrewi* (Fig. 84) but not in *G. (C.) iuga* (Fig. 92); (2) female tergopleurite XI fused with tergopleurite IX+X in *G. (C.) mcgrewi* (Fig. 83) but not in *G. (C.) iuga* (Fig. 91); (3) antennae sexually dimorphic in *G. (C.) mcgrewi* (Figs 84–85) but not in *G. (C.) iuga* (Fig. 92); (4) basal apodeme more slender in *G. (C.) iuga* (Fig. 93) than in *G. (C.) mcgrewi* (Fig. 86); (5) proximal mesosome with more pronounced convex anterior margin in *G. (C.) iuga* (Fig. 94) than in *G. (C.) mcgrewi* (Fig. 87); (6) mesosome proportionally broader in *G. (C.) mcgrewi* (Fig. 87) than in *G. (C.) iuga* (Fig. 94); (7) gonopore with quadratic antero-lateral extensions in *G. (C.) iuga* (Fig. 94) but with triangular postero-lateral extensions in *G. (C.) mcgrewi* (Fig. 87); and (8) parameral heads with prominent anterior bulge in *G. (C.) mcgrewi* (Fig. 88) but with only slight anterior bulge in *G. (C.) iuga* (Fig. 95).

**Description. Both sexes.** Head broadly trapezoidal (Fig. 92). Lateral margins of preantennal head concave. Dorsal preantennal suture does not reach lateral margins of head, and does not completely separate dorsal anterior plate from main head plate. Head chaetotaxy as in Fig. 92; *pns* microsetae. Coni long and broad, reaching beyond

distal margin of scape. Antennae not sexually dimorphic. Gular plate triangular. Thoracic and abdominal segments as in Figs 90–91. Reentrant heads of pleurites short, blunt, broad.



**FIGURES 90–91.** *Guimaraesiella (Cicchinella) iuga* n. sp. **90**, male, whole body, dorsal and ventral views. **91**, female, whole body, dorsal and ventral views.



**FIGURES 92–96.** *Guimaraesiella (Cicchinella) iuga* n. sp. 92, male head, dorsal and ventral views. 93, male genitalia, dorsal view. 94, male mesosome, ventral view. 95, male paramere, dorsal view. 96, female subgenital plate and vulval margin, ventral view.

**Male.** Thoracic and abdominal chaetotaxy as in Fig. 90. Genitalia as in Figs 93–95. Basal apodeme comparatively slender (Fig. 93), rounded, with slight constrictions at about mid-length. Proximal mesosome with deeply concave lateral margins and distinctly convex anterior margin (Fig. 94). Ventral sclerite absent. Mesosomal lobes comparatively slender, convex. Marginal thickenings of mesosomal lobes displaced medianly in anterior end. Rugose area forms distinct nodus on each side that slightly extends beyond mesosomal margins. Elongated nodi on distal mesosome slender. Gonopore uniquely shaped, with large quadratic antero-lateral extensions and small hook-shaped extensions distally; 2 *ames* sensilla on each side near antero-lateral corners of mesosomal lobes; 1 *gpms* on each side of gonopore; *lpms* not visible in examined material. Parameral heads irregular (Fig. 95), with slight anterior bulge. Parameral blades broad, tapering only distally; *pst1–2* far apart. Measurements (n = 4): TL = 1.10–1.20; HL = 0.32–0.34; HW = 0.32–0.34; PRW = 0.19–0.20; PTW = 0.29–0.31; AW = 0.40–0.43.

**Female.** Thoracic and abdominal chaetotaxy as in Fig. 91; *ss* of tergopleurite VIII nearly as long as *ss* of tergopleurites II–VII. Subgenital plate as in Fig. 96; cross-piece with narrow connection to subgenital plate. Cross-piece very pale, in some specimens entirely transparent. Vulval margin gently rounded (Fig. 96), with 3–4 slender *vms* on each side, and 7–9 thorn-like *vss* on each side; 4 *vos* on each side; distal *vos* median to *vss*. Measurements (n = 8): TL = 1.41–1.58 HL = 0.35–0.37; HW = 0.36–0.40; PRW = 0.21–0.23; PTW = 0.32–0.35; AW = 0.48–0.53.

**Etymology.** The species epithet is derived from “*iugum*”, Latin for “yoke”, referring to the large, yoke-like gonopore.

**Type material.** Ex *Alcippe peracensis peracensis*: **Holotype** ♂, Terengganu, 102° 37' E, 5° 25' N, Malaysia, 4 Mar. 1974, Gunung Lawit Expedition, Brit. Mus. 1974-2 (NHML). **Paratypes:** 2♀, same data as holotype (NHML); 2♂, 3♀, Terengganu, 102° 36' E, 5° 25' N, Malaysia, 14 Mar. 1974, Gunung Lawit Expedition, Brit. Mus. 1974-2 (NHML); 1♂, 3♀, Terengganu, 102° 36' E, 5° 25' N, Malaysia, 16 Mar. 1974, Gunung Lawit Expedition, Brit. Mus. 1974-2 (NHML).

### ***Guimaraesiella (Cicchinella) tenella* Gustafsson, Clayton & Bush, new species**

(Figs 97–103)

**Type host.** *Cyanoderma ruficeps davidi* (Oustalet, 1899)—rufous-capped babbler (Timaliidae).

**Type locality.** Shiwan Dashan National Park, Guangxi Province, China.

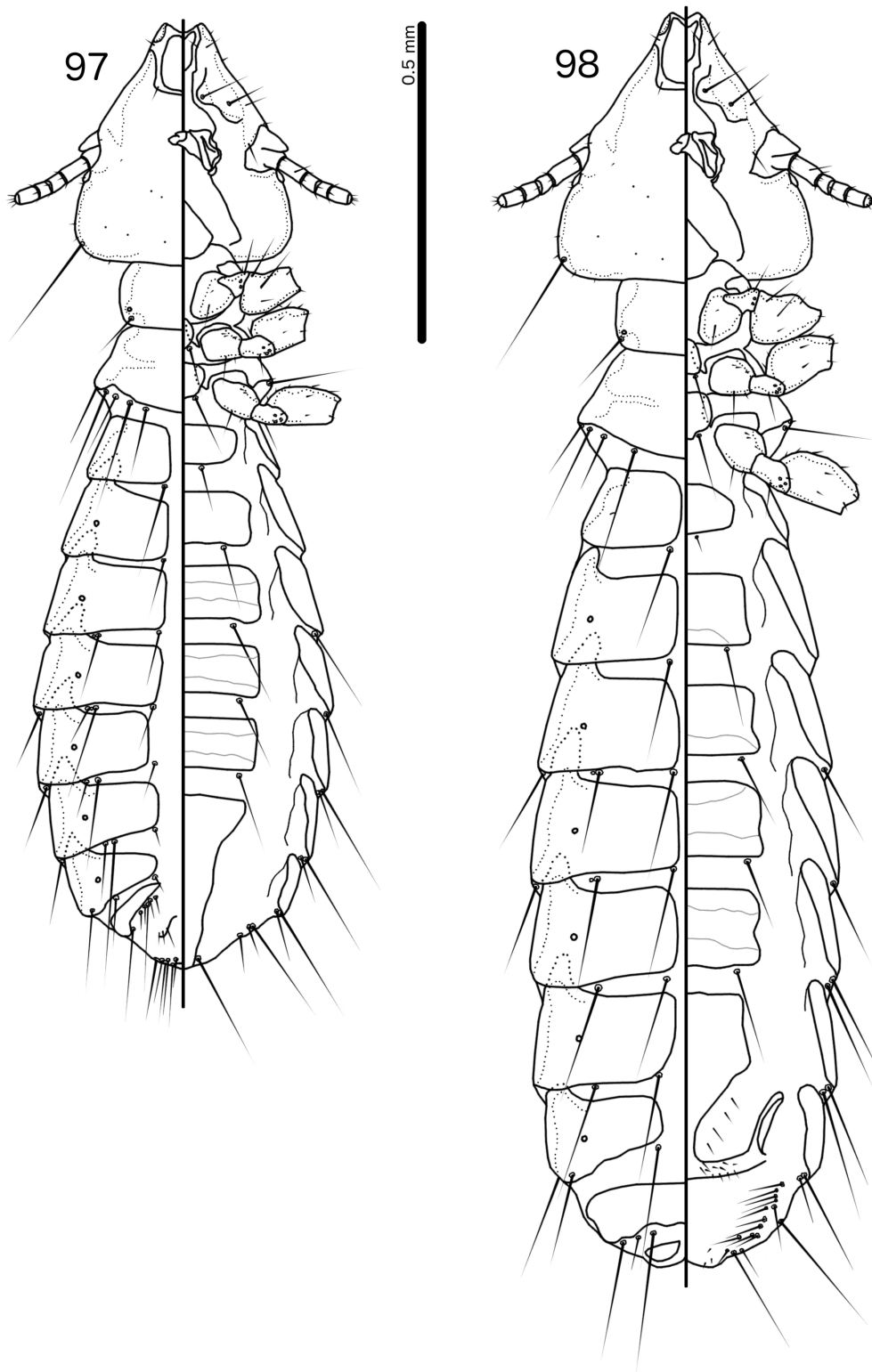
**Diagnosis.** *Guimaraesiella (C.) tenella* is neither similar to any species of the subgenus *Cicchinella*, nor to any other known species of *Guimaraesiella*, having a unique male genitalia within the *Brueelia*-complex. Further, it can be separated from all other species of *Cicchinella* on the following combination of characters: (1) dorsal anterior plate completely separated from main head plate (Fig. 99); (2) abdomen slender in both sexes (Figs 97–98); (3) margins of sternites IV–VI in males and III–VI in females with darkly pigmented bands (Figs 97–98); (4) *aps* absent from male tergopleurite IV (Fig. 97); (5) female subgenital plate of unique shape (Fig. 103); (6) mesosomal ventral sclerite extends beyond anterior margin of mesosome (Fig. 101); (7) marginal thickenings of mesosomal lobes absent (Fig. 101); (8) distal nodi of mesosomal lobes shaped as arches (AN in Fig. 101); and (9) mesosome with lateral rugose nodi (Fig. 101).

**Description. Both sexes.** Head trapezoidal (Fig. 99). Lateral margins of preantennal head concave. Dorsal preantennal suture reaches lateral margins of head and completely separates dorsal anterior plate from main head plate. Head chaetotaxy as in Fig. 99; *pns* microsetae. Coni long and broad, almost reaching distal margin of scape. Antennae not sexually dimorphic. Gular plate rounded triangular. Thoracic and abdominal segments as in Figs 97–98. Reentrant heads of pleurites long and slender. Sternites IV–VI in male and sternites V–VI in female with dark pigmentation on anterior and posterior margins; female sternites III–IV with dark pigmentation only on posterior margin (grey lines in Figs 97–98).

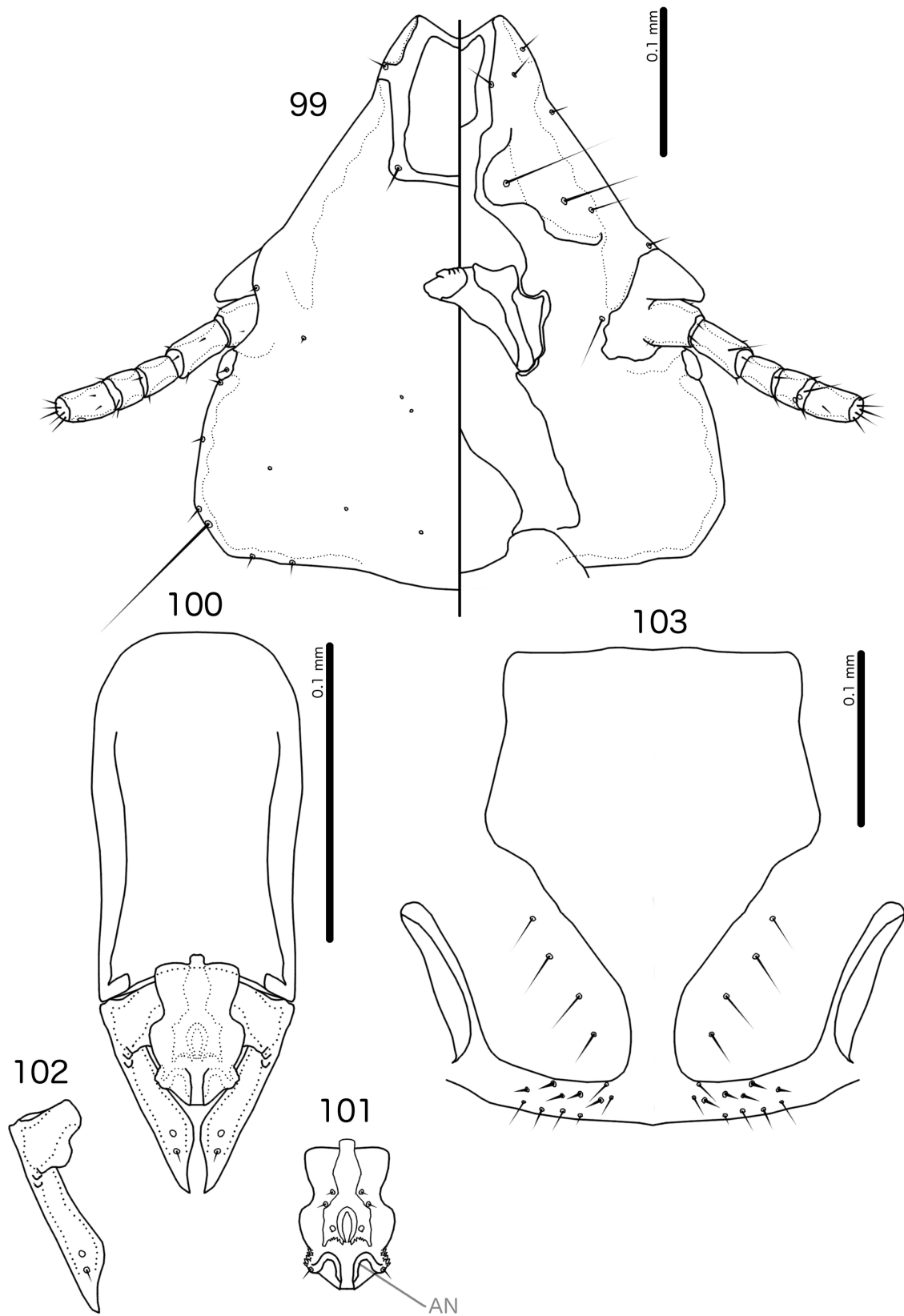
**Male.** Thoracic and abdominal chaetotaxy as in Fig. 97. Genitalia as in Figs 100–102. Basal apodeme comparatively slender (Fig. 100), rectangular. Proximal mesosome trapezoidal (Fig. 101), wider anteriorly. Ventral sclerite present, slender, extending beyond proximal margin of mesosome. Mesosomal lobes slender, with sinuous lateral margins. Marginal thickenings of mesosomal lobes absent. Small lateral rugose area near distal end of mesosomal lobes. Distal nodi of mesosome arched. Gonopore longer than broad, open distally; 2 *ames* microsetae on each side near midline in anterior end of mesosomal lobes; 1 *gpms* microseta on each side of gonopore; 1 *lpms* long microseta on lateral margin of mesosome, distal to rugose area. Parameral heads irregular (Fig. 102), large.



Parameral blades broad, tapering only distally; *pst1*–*2* close together. Measurements (n = 1): TL = 1.42; HL = 0.36; HW = 0.33; PRW = 0.19; PTW = 0.28; AW = 0.43.



**FIGURES 97–98.** *Guimaraesiella (Cicchinella) tenella* n. sp. **97**, male, whole body, dorsal and ventral views. **98**, female, whole body, dorsal and ventral views.



**FIGURES 99–103.** *Guimaraesiella (Cicchinella) tenella* n. sp. **99**, male head, dorsal and ventral views. **100**, male genitalia, dorsal view. **101**, male mesosome, ventral view. **102**, male paramere, dorsal view. **103**, female subgenital plate and vulval margin, ventral view. Abbreviation: AN = arched nodus.

**Female.** Thoracic and abdominal chaetotaxy as in Fig. 98. Subgenital plate of unique shape (Fig. 103), not reticulated; cross-piece with slender connection to subgenital plate. Vulval margin (Fig. 103) only slightly rounded, with 3–4 long, slender *vms* on each side, and 4–5 long, thorn-like *vss* on each side; 6 long, slender *vos* on each side; distal 2 *vos* median to *vss*. Measurements (n = 1): TL = 1.82 HL = 0.39; HW = 0.38; PRW = 0.21; PTW = 0.31; AW = 0.46.

**Etymology.** The species epithet derives from “*tenellus*”, Latin for “tender, delicate”, referring to the slender body, head, and male genitalia of this species.

**Type material.** Ex *Cyanoderma ruficeps davidi*: **Holotype** ♂, Shiwan Dashan National Park, Guangxi Province, China, 25 Apr. 2005, S.E. Bush & D.H. Clayton, host MBR-6714, lice P-991 (NHML). **Paratype:** 1♀, same data as holotype (PIPeR).

## Discussion

The chewing lice of Asian babblers have long been poorly known. However, recent publications have begun to elucidate the diversity and relationships of lice across this diverse assemblage of hosts (Gustafsson & Bush 2017; Mey 2017; Gustafsson *et al.* 2018). The following host-association patterns among feather lice in the *Brueelia*-complex are emerging. In *Priceiella*, the species of three of the four known subgenera [*Priceiella* (*Priceiella*), *P.* (*Camurnirmus*), and *P.* (*Torosinirmus*)] are known only from species of the Leiothrichidae. In contrast, members of the fourth subgenus [*Priceiella* (*Thescelovora*)] are widely distributed among three babbler families, but are not known from Leiothrichidae (Gustafsson *et al.* 2018). In addition, the only species of *Priceiella* known from a non-babbler host belongs in *Thescelovora* (Gustafsson & Bush 2017). Among the three species groups of *Guimaraesiella* (*Cicchinella*), two are known from just one host family each: the *G. (C.) sehri* species group from the Leiothrichidae and the *G. (C.) tenella* species group from the Timaliidae. However, the *G. (C.) gombakensis* species group is known from hosts in both the Pellorneidae and the Leiothrichidae. Moreover, congeneric host species are typically infested with morphologically similar species of *Guimaraesiella* (*Cicchinella*). For instance, both *G. (C.) hannesundinae* and *G. (C.) hampuslybecki* share several unique morphological characters, and both parasitize species in the genus *Heterophasia* Blyth, 1842. This suggests that cospeciation of lice with their hosts may be more common in *Guimaraesiella* (*Cicchinella*) than in *Priceiella* (*Thescelovora*).

The degree of host specificity also differs among these groups. Two subgenera of *Priceiella* [*P.* (*Thescelovora*) and *P.* (*Camurnirmus*)] contain species that have broad host distributions. By contrast, the only species of *Guimaraesiella* (*Cicchinella*) that occurs on more than one host species is *G. (C.) philiproundi*, which is known from two host species that have been only recently classified as separate species (Collar 2006).

Such host-louse distributions suggest that species of *Priceiella* and *Guimaraesiella* may differ in their ability to disperse to or establish on novel hosts. Gustafsson *et al.* (2018) suggested that the reason for several species of *Priceiella* occurring on multiple “babbler” hosts is that those hosts often participate in mixed-species flocks (McClure 1967; Partridge & Ashcroft 1976; Chen & Hsieh 2002; Kotagama & Goodale 2004), which may give the lice repeated opportunities to transfer from one host species to another. Several groups of *Guimaraesiella* are known from multiple host species belonging to different families, including cases in which genetically similar lice occur on hosts in very different regions of the world (Bush *et al.* 2016). However, species of *Guimaraesiella* (*Cicchinella*) are more host specific. Whether this higher host specificity is driven by limited dispersal ability, or by an inability to establish on novel hosts is not known.

More data is needed before the patterns described above can be interpreted in a sufficiently rigorous context. There are currently 254 species of babblers in the families Leiothrichidae, Pellorneidae and Timaliidae (Clements *et al.* 2017) but only 15 of them are known hosts of species of *Guimaraesiella* (*Cicchinella*). Thus, the patterns suggested above may be bias due to under-sampling of lice. Future collections of lice from “babblers” are needed to more fully understand the distribution, morphology and evolutionary history of this group.

## Key to the species of the subgenus *Guimaraesiella* (*Cicchinella*) from “babblers”

1. Dorsal anterior plate completely separated from main head plate (Fig. 99); abdomen slender (Figs 97–98); *aps* absent from male tergopleurite IV (Fig. 97); mesosomal ventral sclerite extends beyond proximal margin of mesosome (Fig. 101) . . . . .

	..... <i>Guimaraesiella (C.) tenella</i>	
-	Dorsal anterior plate connected to main head plate medianly; abdomen broad; <i>aps</i> present on male tergopleurite IV; mesosomal ventral sclerite, if present, not reaching anterior margin of mesosome	2.
2.	Mesosomal ventral sclerite absent (Fig. 79); rugose nodi present near elongated smooth nodi on distal mesosome (Fig. 79); parameral heads slanted distally, with anterior bulge present (Fig. 88)	3.
-	Mesosomal ventral sclerite present; rugose nodi absent; distal nodi of mesosome roughly triangular or trapezoidal; parameral heads not slanted distally, and without such bulge	5.
3.	Gonopore not clearly defined, with comb-like structures on each side (Fig. 79); <i>ames</i> on latero-ventral bulges (Fig. 79); rugose area of distal mesosome not forming distinct nodi protruding beyond lateral margin of mesosome (Fig. 79)	.....
	..... <i>Guimaraesiella (C.) gombakensis</i>	
-	Gonopore clearly defined, without comb-like lateral structures; <i>ames</i> not on latero-ventral bulges; rugose area of distal mesosome forming distinct nodi that protrude beyond lateral margin of mesosome	4.
4.	Dorsal preantennal suture reaches lateral margin of head (Fig. 84); antennae sexually dimorphic (Figs 84–85); female tergopleurites IX+X and XI fused (Fig. 83); gonopore wider than long, with postero-lateral, pointed extensions (Fig. 87); parameral heads with prominent anterior bulge (Fig. 88)	.....
	..... <i>Guimaraesiella (C.) mcgrewi</i>	
-	Dorsal preantennal suture does not reach lateral margin of head (Fig. 92); antennae not sexually dimorphic (Fig. 92); female tergopleurites IX+X and XI not fused (Fig. 91); gonopore longer than wide, with quadratic antero-lateral extensions and distal hook-like extensions (Fig. 94); parameral heads with slight anterior bulge (Fig. 95)	.....
	..... <i>Guimaraesiella (C.) iuga</i>	
5.	Mesosomal ventral sclerite broad, short, blunt (Fig. 56); distal <i>lpmes</i> displaced medianly (Fig. 56)	.....
	..... <i>Guimaraesiella (C.) falcifrons</i>	
-	Mesosomal ventral sclerite elongated; distal <i>lpmes</i> on lateral margin of mesosome	6.
6.	Distal nodi of mesosome continuous with marginal thickenings of mesosomal lobes	7.
-	Distal nodi of mesosome separate from marginal thickenings of mesosomal lobes	8.
7.	Female subgenital plate without reticulation (Fig. 66); <i>ss</i> of female tergopleurite VIII long (Fig. 60); marginal thickenings of mesosomal lobes broad (Fig. 64); mesosomal ventral sclerite broad, rounded, not approaching proximal margin of mesosome (Fig. 64)	.....
	..... <i>Guimaraesiella (C.) hannesundinae</i>	
-	Female subgenital plate with reticulation (Fig. 74); <i>ss</i> of female tergopleurite VIII short (Fig. 68); mesosomal ventral sclerite narrow, pointed, approaching proximal margin of mesosome (Fig. 72)	.....
	..... <i>Guimaraesiella (C.) hampuslybecki</i>	
8.	Gonopore crescent-shaped (Fig. 51); marginal thickenings of mesosomal lobes displaced medianly at concavity (Fig. 51); small, comb-shaped area on lateral margin distal to lateral concavity (Fig. 51)	.....
	..... <i>Guimaraesiella (C.) ambusta</i>	
-	Gonopore not crescent-shaped; marginal thickenings of mesosomal lobes not displaced at concavity; no comb-like lateral structure at distal mesosome	9.
9.	Lateral margins of preantennal head straight; antennae not sexually dimorphic	10.
-	Lateral margins of preantennal head convex; antennae sexually dimorphic	11.
10.	Dorsal preantennal suture reaches lateral margin of head (Fig. 10); female subgenital plate with median reticulation (Fig. 14); mesosomal ventral sclerite without anterior rugose area (Fig. 12); distal nodi of mesosome roughly trapezoidal (Fig. 12)	.....
	..... <i>Guimaraesiella (C.) retusa</i>	
-	Dorsal preantennal suture does not reach lateral margins of head (Fig. 3); female subgenital plate without reticulation (Fig. 7); mesosomal ventral sclerite with anterior rugose area (Fig. 5); distal nodi of mesosome roughly triangular (Fig. 12)	.....
	..... <i>Guimaraesiella (C.) sehri</i>	
11.	Proximal mesosome rectangular (Figs 20, 28); gonopore with <i>gpmes</i> situated on marginal thickenings (Figs 20, 28); distal thickenings of mesosomal lobes roughly triangular (Fig. 28) or with irregular anterior margin (Fig. 20)	12.
-	Proximal mesosome not rectangular (Figs 36, 44); gonopore without <i>gpmes</i> situated on marginal thickening (Figs 36, 44); distal nodi of mesosomal lobes roughly trapezoidal (Figs 36, 44)	13.
12.	Female subgenital plate with reticulation (Fig. 22); distal nodi of mesosomal lobes with irregular anterior margin (Fig. 20); mesosomal ventral sclerite slender, rounded (Fig. 20); basal apodeme broad, with rounded anterior margin (Fig. 19)	.....
	..... <i>Guimaraesiella (C.) philiproundi</i>	
-	Female subgenital plate without reticulation (Fig. 30); distal nodi of mesosomal lobes roughly triangular (Fig. 28); mesosomal ventral sclerite broader, rectangular (Fig. 28); basal apodeme slender, with flat anterior margin (Fig. 27)	.....
	..... <i>Guimaraesiella (C.) scottvillai</i>	
13.	Mesosomal ventral sclerite broadly oval, with anterior thickening seemingly continuous with marginal thickenings of mesosomal lobes (Fig. 44); basal apodeme with rounded anterior end (Fig. 43); proximal mesosome with sinuous lateral margins (Fig. 44)	.....
	..... <i>Guimaraesiella (C.) pallidobrunneis</i>	
-	Mesosomal ventral sclerite rounded rectangular, with no such thickening (Fig. 36); basal apodeme rectangular (Fig. 35); proximal mesosome with fairly straight lateral margins (Fig. 36)	.....
	..... <i>Guimaraesiella (C.) avinus</i>	

### Checklist of species included in the subgenus *Guimaraesiella (Cicchinella)* with their hosts

Louse taxa are arranged alphabetically, with known hosts indented below, arranged alphabetically by genus and species, and with host family in square brackets, following Clements *et al.* (2017).

- Guimaraesiella (Cicchinella) ambusta* **n. sp.**  
*Leiothrix argentauris rubrogularis* Kinnear, 1925 [Leiothrichidae]
- Guimaraesiella (Cicchinella) avinus* (Ansari, 1956)  
*Trochalopteron subunicolor subunicolor* Blyth, 1843 [Leiothrichidae]
- Guimaraesiella (Cicchinella) falcifrons* **n. sp.**  
*Actinodura cyanouroptera sordidior* (Sharpe, 1888) [Leiothrichidae]
- Guimaraesiella (Cicchinella) gombakensis* **n. sp.**  
*Turdinus abbotti abbotti* (Blyth, 1845) [Pellorneidae]
- Guimaraesiella (Cicchinella) hampuslybecki* **n. sp.**  
*Heterophasia auricularis* (Swinhoe, 1864) [Leiothrichidae]
- Guimaraesiella (Cicchinella) hannesundinae* **n. sp.**  
*Heterophasia picaoides wrayi* (Ogilvie-Grant, 1910) [Leiothrichidae]
- Guimaraesiella (Cicchinella) iuga* **n. sp.**  
*Alcippe peracensis peracensis* Sharpe, 1887 [Leiothrichidae]
- Guimaraesiella (Cicchinella) mcgrewi* **n. sp.**  
*Alcippe morrisonia* Swinhoe, 1863 [Leiothrichidae]
- Guimaraesiella (Cicchinella) pallidobrunneis* **n. sp.**  
*Heterophasia melanoleuca melanoleuca* (Blyth, 1859) [Leiothrichidae]
- Guimaraesiella (Cicchinella) philiproundi* **n. sp.**  
*Trochalopteron melanostigma schistaceum* (Deignan, 1938) [Leiothrichidae]  
*Trochalopteron peninsulae* Sharpe, 1887 [Leiothrichidae]
- Guimaraesiella (Cicchinella) retusa* **n. sp.**  
*Trochalopteron milnei sinianum* Stresemann, 1930 [Leiothrichidae]
- Guimaraesiella (Cicchinella) scottvillai* **n. sp.**  
*Liocichla steerii* Swinhoe, 1877 [Leiothrichidae]
- Guimaraesiella (Cicchinella) sehri* (Ansari, 1955)  
*Trochalopteron lineatum lineatum* (Vigors, 1831) [Leiothrichidae]  
*Trochalopteron lineatum setafer* (Hodgson, 1836) [Leiothrichidae]
- Guimaraesiella (Cicchinella) tenella* **n. sp.**  
*Cyanoderma ruficeps davidi* (Oustalet, 1899) [Timaliidae]

#### **Host-louse list for the subgenus *Guimaraesiella (Cicchinella)***

Host taxa are arranged alphabetically by family, genus and species, following Clements *et al.* (2017), with louse taxa indented below.

#### Leiothrichidae

- Actinodura cyanouroptera sordidior* (Sharpe, 1888)  
*Guimaraesiella (Cicchinella) falcifrons* **n. sp.**
- Alcippe morrisonia* Swinhoe, 1863  
*Guimaraesiella (Cicchinella) mcgrewi* **n. sp.**
- Alcippe peracensis peracensis* Sharpe, 1887  
*Guimaraesiella (Cicchinella) iuga* **n. sp.**
- Heterophasia auricularis* (Swinhoe, 1864)  
*Guimaraesiella (Cicchinella) hampuslybecki* **n. sp.**
- Heterophasia melanoleuca melanoleuca* (Blyth, 1859)  
*Guimaraesiella (Cicchinella) pallidobrunneis* **n. sp.**
- Heterophasia picaoides wrayi* (Ogilvie-Grant, 1910)  
*Guimaraesiella (Cicchinella) hannesundinae* **n. sp.**
- Leiothrix argentauris rubrogularis* Kinnear, 1925  
*Guimaraesiella (Cicchinella) ambusta* **n. sp.**
- Liocichla steerii* Swinhoe, 1877  
*Guimaraesiella (Cicchinella) scottvillai* **n. sp.**

*Trochalopteron lineatum lineatum* (Vigors, 1831)  
    *Guimaraesiella (Cicchinella) sehri* (Ansari, 1955)  
*Trochalopteron lineatum setafer* (Hodgson, 1836)  
    *Guimaraesiella (Cicchinella) sehri* (Ansari, 1955)  
*Trochalopteron melanostigma schistaceum* (Deignan, 1938)  
    *Guimaraesiella (Cicchinella) philiproundi* **n. sp.**  
*Trochalopteron milnei sinianum* Stresemann, 1930  
    *Guimaraesiella (Cicchinella) retusa* **n. sp.**,  
*Trochalopteron peninsulae* Sharpe, 1887  
    *Guimaraesiella (Cicchinella) philiproundi* **n. sp.**  
*Trochalopteron subunicolor subunicolor* Blyth, 1843  
    *Guimaraesiella (Cicchinella) avimus* (Ansari, 1956)

#### Pellorneidae

*Turdinus abbotti abbotti* (Blyth, 1845)  
    *Guimaraesiella (Cicchinella) gombakensis* **n. sp.**

#### Timaliidae

*Cyanoderma ruficeps davidi* (Oustalet, 1899)  
    *Guimaraesiella (Cicchinella) tenella* **n. sp.**

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