



## Taxonomic revision of the Malaysian Idiocerinae (Hemiptera: Cicadellidae), with description of new taxa

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### Abstract

The leafhopper subfamily Idiocerinae is revised for Malaysia. Thirteen genera and 17 species are recognized including 1 new genus, *Serridiocerus* **n. gen.**, 2 new species, *Serridiocerus membranaceus* **n. sp.** and *Burmascopus longidens* **n. sp.**, 3 newly recorded genera and 2 newly recorded species: *Burmascopus* **n. rec.**, *Chunra* **n. rec.**, *Philipposcopus* **n. rec.**, *Chunra australis* **n. rec.**, *Philipposcopus maquilangensis* **n. rec.**. A checklist and a key to species of Malaysian Idiocerinae are also provided.

**Key words:** Homoptera, Auchenorrhyncha, morphology, taxonomy, Malaysia

### Introduction

The Idiocerinae is one of the largest groups of arboreal leafhoppers with almost 800 extant species, placed in more than 110 genera, and distributed in all zoogeographical regions.

Until now, the Malaysian idiocerine leafhopper fauna comprised 9 genera and 13 species described by Distant (1908a), Ghauri (1985a, b), Maldonado-Capriles (1961, 1968, 1977), Metcalf (1966), Wei *et al.* (2010) and Xue & Zhang (2015a, b). Study of specimens deposited in the U.S. National Museum, Washington DC, and the Illinois Natural History Survey revealed the presence of several additional genera and species.

In the present paper the Malaysian Idiocerinae are reviewed, including description of one new genus and two new species, and new Malaysian records for three genera and two species. Most species are photographed and illustrated. In addition, a checklist of genera and species and a key to species of Idiocerinae from Malaysia are provided.

### Material and methods

Materials used in this study are deposited in the National Museum of Natural History, Washington DC, USA (USNM) and the Illinois Natural History Survey, Champaign, USA (INHS).

The male abdomen was removed from the specimen and treated with 8–10% KOH for 24 h, rinsed with water and then transferred to glycerol for further dissection and examination. After we examined the dissected male genitalia, they were stored in a microvial with fresh glycerol and pinned below the specimen from which the abdomen was removed. The habitus images of adults were captured with a Microvision system and Cartograph 8.0.6 automontage software and adjusted in Adobe Photoshop. Drawings were made under the Zeiss stereoscopic microscope.

Morphological terminology mainly follows Zhang (1990) and Dietrich (2005).

## Taxonomy

### Checklist of Malaysian Idiocerinae

#### Genus *Balocha* Distant, 1908b: 189

*Balocha bicolor* Maldonado-Capriles, 1968: 99, figs. 4–11.

Distribution. Malaysia (Sabah).

*Balocha lucida* Maldonado-Capriles, 1961: 302, figs. 1, 4–8.

Distribution. Malaysia (Sarawak).

#### Genus *Brachylorus* Maldonado-Capriles, 1972b: 630

*Brachylorus leucoclavus* Maldonado-Capriles, 1972b: 631, figs. 13–20.

Distribution. Malaysia (Sabah).

#### Genus *Burmascopus* Viraktamath, 2007: 23 n. rec.

*Burmascopus longidens* sp. nov.

Distribution. Malaysia (Sabah).

#### Genus *Busonia* Distant 1908b: 198

*Busonia amentata* Distant, 1908b: 199, fig. 130.

Distribution. Burma, China, India, Indonesia, Malaysia (Sabah), Thailand.

*Busonia apicalis* Maldonado-Capriles, 1977: 498, figs. 32–34.

Distribution. Malaysia (Sabah).

*Busonia serrata* Xue & Zhang, 2015b: 549, figs. 2E–H, 5A–E.

Distribution. Malaysia (Sarawak).

#### Genus *Busoniomimus* Maldonado-Capriles, 1977: 491

*Busoniomimus umbellatus* Xue & Zhang, 2015a: 136, figs. 1A–D, 2.

Distribution. Malaysia (Sarawak).

#### Genus *Chunra* Distant, 1908b: 193 n. rec.

*Chunra australis* Webb, 1983: 75, figs. 541–545, n. rec..

Distribution. Malaysia (Sabah), Australia.

#### Genus *Idioscopus* Baker, 1915: 338

*Idioscopus clypealis* (Lethierry, 1889: 252).

Distribution. Australia, China, India, Indonesia, Japan, Malaysia, Pakistan, Papua New Guinea, Philippines, Singapore, Sri Lanka, Vietnam.

*Idioscopus nitidulus* (Walker, 1870: 322).

Distribution. Australia, China, India, Indonesia, Japan, Malaysia, Myanmar, Pakistan, Philippines, Singapore, Sri Lanka, Vietnam.

#### Genus *Kuchingella* Wei & Webb, in Wei *et al.*, 2010: 27

*Kuchingella gigantea* (Distant, 1908a: 136).

Distribution. Malaysia (Sarawak).

#### Genus *Muinocerus* Ghauri, 1985b: 67

*Muinocerus qadirii* Ghauri, 1985b: 68, figs. 1–15.

Distribution. Malaysia (Sarawak).

#### Genus *Namiocerus* Ghauri, 1985a: 41

*Namiocerus cephalotes* (Walker, 1857: 174).

Distribution. Malaysia (Sabah, Sarawak).

**Genus *Pedioscopus* kirkaldy, 1906: 349**

*Pedioscopus balochoides* Maldonado-Capriles, 1968: 97, figs. 1–3.

Distribution. Malaysia (Sabah).

**Genus *Philipposcopus* Maldonado-Capriles, 1972a: 542 n. rec.**

*Philipposcopus maquilingensis* (Baker, 1915: 333) n. rec..

Distribution. Malaysia (Sabah), Philippines.

**Genus *Serridiocerus* gen. nov.**

*Serridiocerus membranaceus* sp. nov.

Distribution. Malaysia (Sabah).

**Key to species of Idiocerinae from Malaysia**

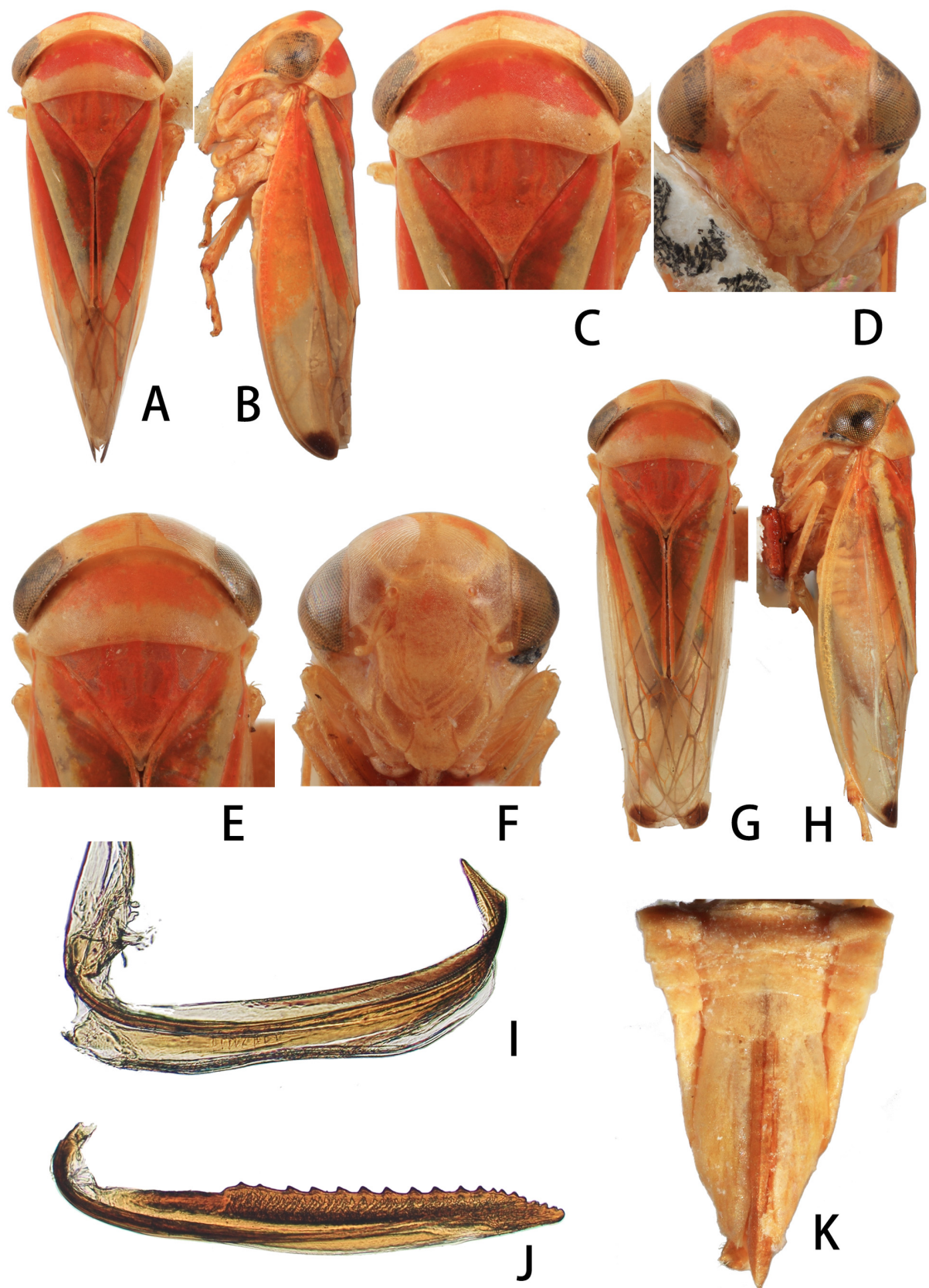
1. Hind femoral macrosetae 2+0 ..... 2
- Hind femoral macrosetae 2+1 ..... 7
2. Forewing with third apical cell pedunculate (*Balocha*) ..... 3
- Forewing without pedunculate apical cell. .... 4
3. Peduncle three times as long as pedunculate cell ..... *Balocha lucida*
- Peduncle as long as pedunculate cell ..... *Balocha bicolor*
4. Forewing with 3 subapical cells ..... 5
- Forewing with 2 subapical cells ..... 6
5. Head and thorax with dense patches brown and yellow (Figs. 5C–D); subgenital plate without flattened dorsoventrally .....  
..... *Chunra australis*
- Head and thorax with brown bands (Wei *et al.*, 2010: figs. 2–3); subgenital plate flattened dorsoventrally (Wei *et al.*, 2010: fig. 26)..... *Kuchingella gigantea*
6. Style apical process elongate (Fig. 14F) ..... *Namiocerus cephalotes*
- Style not such above ..... *Muinocerus qadirii*
7. Lateral frontal sutures absent (Fig. 3D) (*Busonia*) ..... 8
- Lateral frontal sutures present (Fig. 7D) ..... 10
8. Gonopore with finely serrate margin (Xue & Zhang, 2015b: figs. 5D–E) ..... *Busonia serrata*
- Gonopore without serrate margin (Figs. 11D–E) ..... 9
9. Crown brown; aedeagus not tapering apically in lateral view (Fig. 11D) ..... *Busonia amentata*
- Crown yellow; aedeagus tapering apically in lateral view (Fig. 12D) ..... *Busonia apicalis*
10. Crown and pronotum with an orange transverse band (Fig. 4E) ..... *Pedioscopus balochoides*
- Crown and pronotum without such band ..... 11
11. Aedeagal shaft pustulate (Xue & Zhang, 2015a: figs. 2D–E) ..... *Busoniomimus umbellatus*
- Aedeagal shaft not pustulate (Figs. 15D–E) ..... 12
12. Aedeagal shaft ventral margin with pair of long processes basally (Maldonado-Capriles, 1972b: fig. 14) .....  
..... *Brachylorus leucoclavus*
- Aedeagal shaft without such process ..... 13
13. Aedeagus with 2 pairs of processes (Khatri & Webb, 2014: figs. 4D, 5E) (*Idioscopus*) ..... 14
- Aedeagus without process ..... 15
14. Forewing with third subapical cell (Khatri & Webb, 2014: fig. 4B) ..... *Idioscopus nitidulus*
- Forewing without third subapical cell (Khatri & Webb, 2014: fig. 5B) ..... *Idioscopus clypealis*
15. Style with dense setae on dorsal margin (Fig. 10F) ..... *Burmascopus longidens* sp. nov.
- Style without setae on dorsal margin (Fig. 16G) ..... 16
16. Aedeagal shaft with lateral margin serrate in apical half (Figs. 16E–F) ..... *Serridiocerus membranaceus* sp. nov.
- Aedeagal shaft with lateral margin smooth (Figs. 15D–E)..... *Philipposcopus maquilingensis*

***Balocha bicolor* Maldonado-Capriles**

(Figs. 1, 9)

**Material examined.** 3♂♂6♀♀ (Paratypes), Malaysia, Sandakan, Borneo, coll. Baker (USNM).

**Remarks.** *B. bicolor* externally resembles *B. lucida*, but differs in having the forewing peduncle as long as the pedunculate cell and the aedeagus with posterior spines arising below the apex.



**FIGURE 1.** *Balocha bicolor* Maldonado-Capriles A, habitus of male, dorsal view; B, habitus of male, lateral view; C, head and thorax of male, dorsal view; D, face of male; E, head and thorax of female, dorsal view; F, face of female; G, habitus of female, dorsal view; H, habitus of female, lateral view; I, first valvulae (apex distorted); J, second valvulae; K, female genitalia, ventral view.



## ***Balocha lucida* Maldonado-Capriles**

**Material examined.** None.

**Remarks.** *Balocha lucida* was described by Maldonado-Capriles (1961) based on specimens collected from Sarawak, Malaysia. Types are deposited in the Natural History Museum, London (BMNH). This species resembles *B. tricolor* but differs in having a bright or pale reddish area on the face above the ocelli.

## **Genus *Brachylorus* Maldonado-Capriles**

**Material examined.** None.

**Remarks.** The species was originally described from only one male specimen from Malaysia, and deposited in the Bernice Pauahi Bishop Museum, Honolulu (BPBM). The species can be recognized by the broad anteclypeus, the clearly rectangular frontoclypeus, and two long processes arising from base of aedeagus.

## ***Burmascopus longidens* sp. nov.**

(Figs. 2, 10)

**Description.** Length (including wings): male 5.3 mm, female 5.5 mm.

Crown yellowish brown (Fig. 2A). Frontoclypeus, anteclypeus and lora brownish (Fig. 2D). Gena brown with dark brown grooves. Ocelli dark brown. Pronotum and scutellum brown. Mesonotum with basal triangles only slightly darker than rest of sclerite (Fig. 2C). Forewing brown with veins slightly paler.

Face including eyes slightly wider than long; lateral frontal sutures reaching ocelli; frontoclypeus broad; lateral margin of anteclypeus concave; lora broad (Fig. 2D). Mesonotum and scutellum longer than pronotum and crown together.

Pygofer elongate, dorsum with broad membranous area. Segment X fused to pygofer with internal process forked apically; inner ventral process curved dorsad subapically, nearly reaching caudal margin, apex fork-shaped (Fig. 10A). Subgenital plate shorter than pygofer, with fine and long setae on dorsal margin in distal 2/3 and near base of ventral margin (Fig. 10A). Connective with medial longitudinal dorsal keel. Style curved dorsally, dorsal margin with tubercle near apical third, apex evenly tapered, with distinct apical and preapical groups of dense fine setae on dorsal margin (Fig. 10F). Aedeagal shaft slender and evenly curved dorsad, crenulate along lateral margin; apex tapered to blunt tip in lateral view, narrowly rounded in ventral view; dorsal apodeme somewhat expanded dorsad and rounded in ventral view; preatrium longer than shaft, with membranous area on ventral margin; gonopore subapically on ventral surface (Figs. 10D–E).

**Material examined.** Holotype, ♂, Malaysia, Sandakan, coll. Baker (USNM). Paratypes, 1♂1♀, same data as holotype (USNM).

**Etymology.** The specific epithet refers to the longer crenulate on lateral margin of the aedeagal shaft.

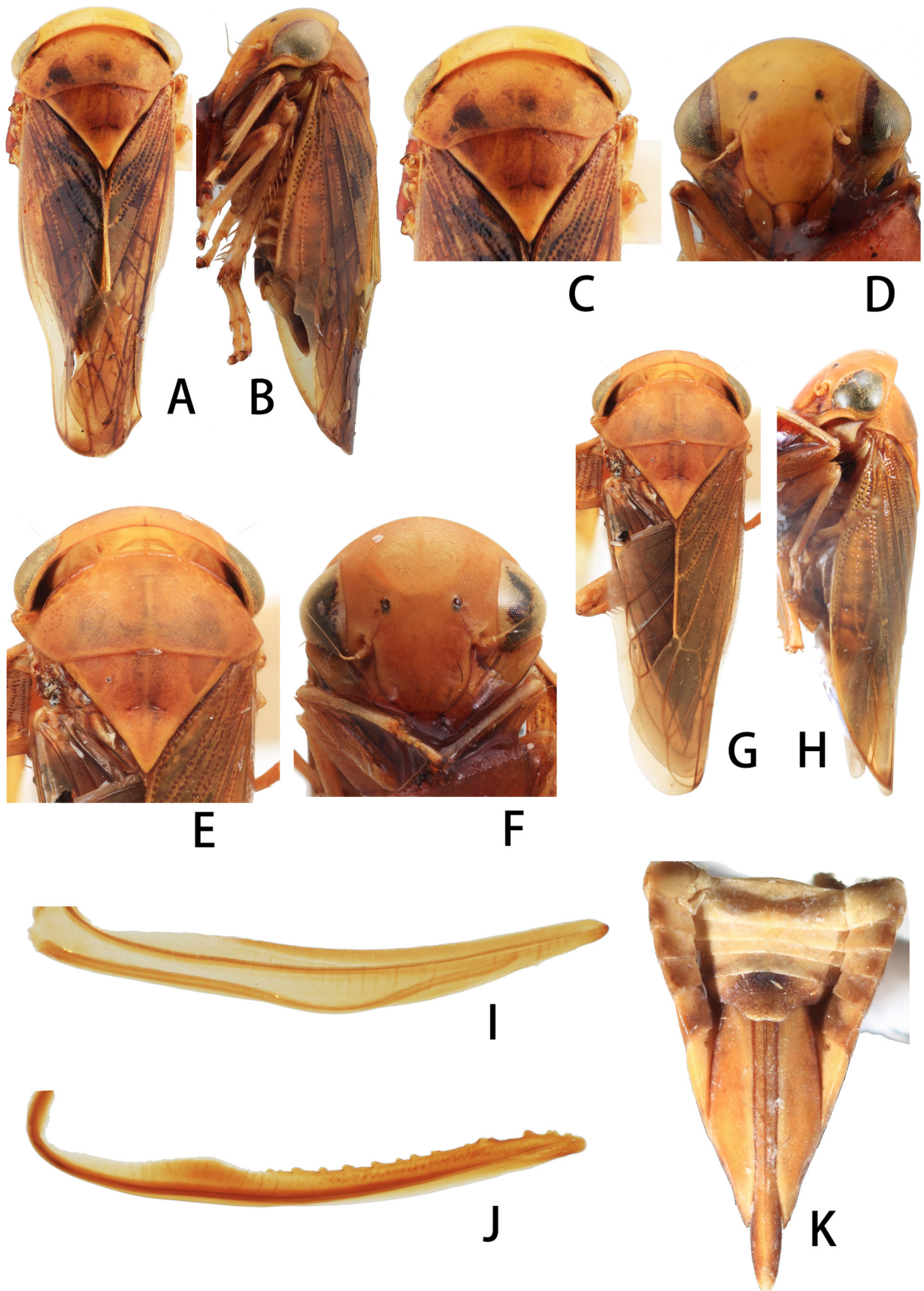
**Remarks.** This species can differ from the type species in lacking dark markings on the pronotum and scutellum and face, and in the crenulate lateral margin of the aedeagal shaft.

## ***Busonia amentata* Distant**

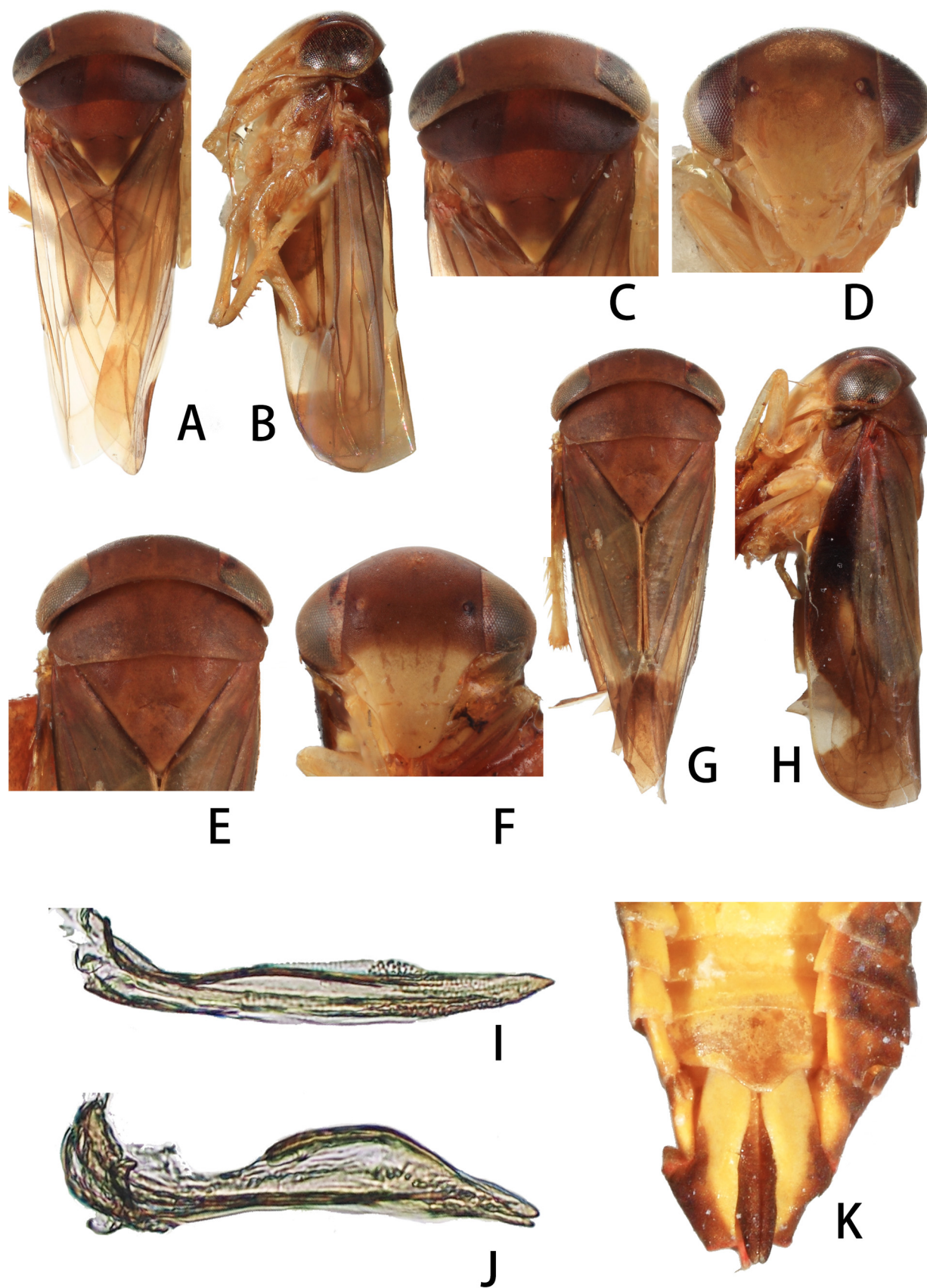
(Figs. 3, 11)

**Material examined.** 1♂1♀, Malaysia, Sandakan, coll. Baker (USNM).

**Remarks.** *B. amentata* is similar to that of *B. albilateralis* in coloration but can be readily distinguished by the structure of the aedeagus and style.



**FIGURE 2.** *Burmascopus longidens* sp. nov. A, habitus of male, dorsal view; B, habitus of male, lateral view; C, head and thorax of male, dorsal view; D, face of male; E, head and thorax of female, dorsal view; F, face of female; G, habitus of female, dorsal view; H, habitus of female, lateral view; I, first valvulae; J, second valvulae; K, female genitalia, ventral view.



**FIGURE 3.** *Busonia amentata* Distant A, habitus of male, dorsal view; B, habitus of male, lateral view; C, head and thorax of male, dorsal view; D, face of male; E, head and thorax of female, dorsal view; F, face of female; G, habitus of female, dorsal view; H, habitus of female, lateral view; I, first valvulae; J, second valvulae; K, female genitalia, ventral view.



***Busonia apicalis* Maldonado-Capriles**

(Figs. 4A–D, 12)

**Material examined.** 1♂ (Paratype), Malaysia, Sandakan, coll. Baker (USNM).

**Remarks.** The shape of aedeagus in this species is similar to that of *B. albilateralis*, but the head, pronotum and scutellum yellowish, and the style is elongate.

***Busonia serrata* Xue & Zhang**

**Material examined.** 1♂ (Holotype), Malaysia, Sarawak (Borneo), Gunung Mulu National Park, S Miri, N4°02'329" E114°48'46.7", 30–50m, 2006-x-16-22, coll. J.R. Cryan & J.M. Urban, light (INHS).

**Remarks.** *Busonia serrata* was described by Xue & Zhang, 2015 based on one male from Malaysia. It can be distinguished from all other known species of *Busonia* by the finely serrate gonopore margin.

***Busoniomimus umbellatus* Xue & Zhang**

**Material examined.** 1♂ (Holotype), Malaysia, Sarawak (Lambir) Hills Natl Park, S Miri, N4°11'53.9" E114°02'31.4", 2006-x-12–23. J.R. Cryan & J.M. Urban, Hg vapor light (INHS).

**Remarks.** *Busoniomimus umbellatus* was described by Xue & Zhang, 2015 based on one male from Malaysia. It closely resembles *B. hainanensis* but differs in having the pygofer dorsum with a fork-shaped process.

***Chunra australis* Webb n. rec.**

(Figs. 5, 13)

**Material examined.** 1♂, Malaysia, Sabah, 7 km NNW Kudat, Tanjung Tajau, 1983-ix-19, coll. G.F. & J.F. Hevel & W.E. Steiner, black light (USNM); 1♀, Malaysia, Sabah, 5 km N Sandakan, 1983-viii-16, coll. G.F. Hevel & W.E. Steiner (USNM).

**Remarks.** Webb (1983) described this species from Australia and it is. It can be distinguished from other species of *Chunra* by the aedeagus with a pair of triangular processes on the lateral margin.

***Idioscopus clypealis* (Lethierry)**

*Idiocerus clypealis* Lethierry, 1889: 252.

*Idioscopus clypealis* (Lethierry); Baker, 1915: 339; Khatri & Webb, 2014: 282, fig. 5; Fletcher & Dangerfield, 2002: 35, figs. 1–3, 7–10.

**Material examined.** 2♂♂, Malaysia, Sandakan, Borneo, coll. Baker (USNM); 1♀, Malaysia, Sabah, Telipok, 1983-viii-12, coll. G.F. Hevel & W.E. Steiner (USNM).

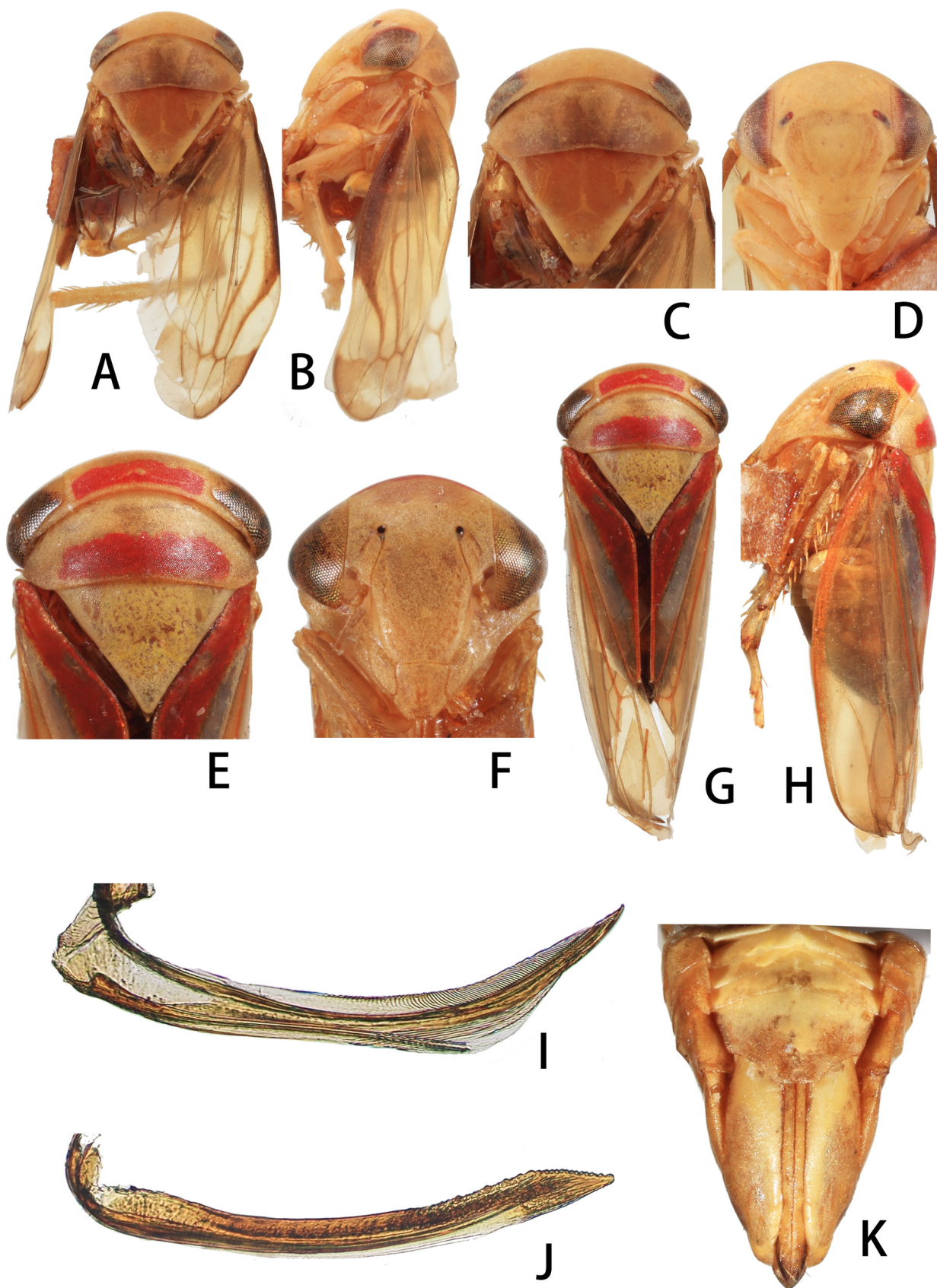
**Remarks.** This species is widely distributed in the Oriental and Australian regions. It is an important economic pest, breeding on mango.

***Idioscopus nitidulus* (Walker)**

*Iassus nitidulus* Walker, 1870: 322.

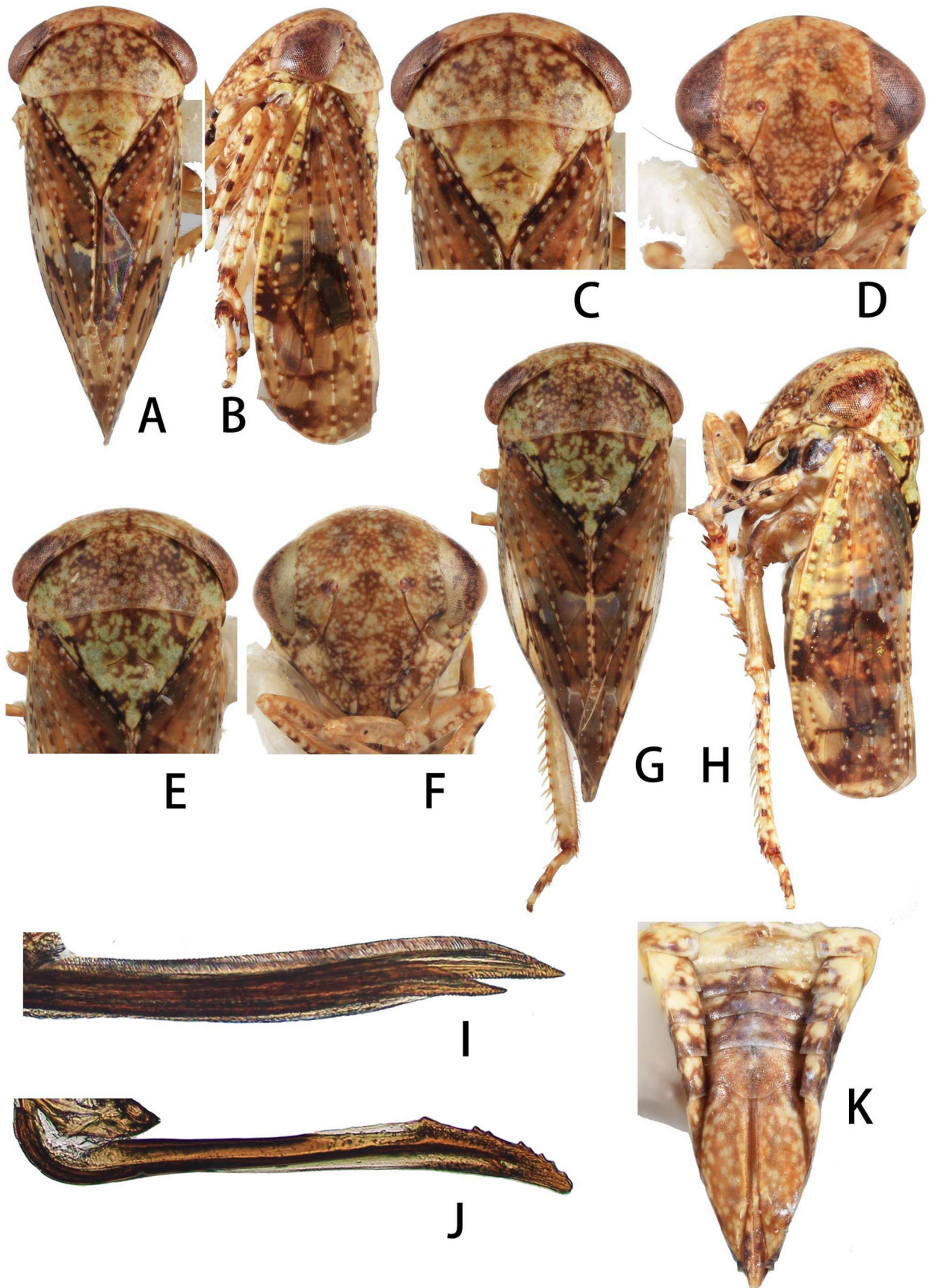
*Idioscopus nitidulus* (Walker); Maldonado-Capriles, 1973: 181; Khatri & Webb, 2014: 282, fig. 4; Fletcher & Dangerfield, 2002: 36, figs. 4–6, 11–14.

**Material examined.** 1♀, Malaysia, Sandakan, Borneo, coll. Baker (USNM).



**FIGURE 4.** *Busonia apicalis* Maldonado-Capriles A, habitus of male, dorsal view; B, habitus of male, lateral view; C, head and thorax of male, dorsal view; D, face of male. *Pedioscopus balochoides* Maldonado-Capriles E, head and thorax of female, dorsal view; F, face of female; G, habitus of female, dorsal view; H, habitus of female, lateral view; I, first valvulae; J, second valvulae; K, female genitalia, ventral view.





**FIGURE 5.** *Chunra australis* Webb A, habitus of male, dorsal view; B, habitus of male, lateral view; C, head and thorax of male, dorsal view; D, face of male; E, head and thorax of female, dorsal view; F, face of female; G, habitus of female, dorsal view; H, habitus of female, lateral view; I, first valvulae; J, second valvulae; K, female genitalia, ventral view.



**Remarks.** Khatri & Webb (2014) recently studied this species and confirmed *Idioscopus karachiensis* Ahmed, Naheed & Ahmed and *Idioscopus freytagi* Ahmed, Naheed & Ahmed as synonyms of *Idioscopus nitidulus* (Walker).

### ***Kuchingella gigantea* (Distant)**

*Chunra gigantea* Distant, 1908a: 136, plate VII, fig. 11, 11a.  
*Kuchingella gigantea* (Distant); Wei *et al.*, 2010: 31, figs. 1–33.

**Material examined.** None.

**Remarks.** Wei *et al.* (2010) gave an adequate description and illustration of the species. Types are deposited in the Natural History Museum, London (BMNH). The species can easily be recognized by the male genitalia with ventroposterior pygofer process arising directly from the pygofer margin rather than as a continuation of an internal sclerotized band.

### ***Muinocerus qadirii* Ghauri**

**Material examined.** None.

**Remarks.** The species was originally described from one male and one female specimen from Malaysia, and deposited in the Natural History Museum, London (BMNH). *Muinocerus qadirii* is similar to *Namiocerus cephalotes* but it can be distinguished by the anal tube process longer than the pygofer.

### ***Namiocerus cephalotes* (Walker)**

(Figs. 6, 14)

*Bythoscopus cephalotes* Walker, 1857: 174.  
*Namiocerus cephalotes* (Walker); Ghauri, 1985a: 44, figs. 1–15.

**Material examined.** 10♂♂5♀♀, Malaysia, Sandakan, coll. Baker (USNM).

**Remarks.** This species is sexually dimorphic in color, with males having dark brown markings on the lora and lateral margin of the frontoclypeus and anteclypeus; females have the face uniformly yellowish. Males also have the anteclypeus distinctly swollen and much broader compared to that of the female.

### ***Pedioscopus balochoides* Maldonado-Capriles**

(Figs. 4E–K)

**Material examined.** 1♀(Paratype), Malaysia, Sandakan, coll. Baker (USNM).

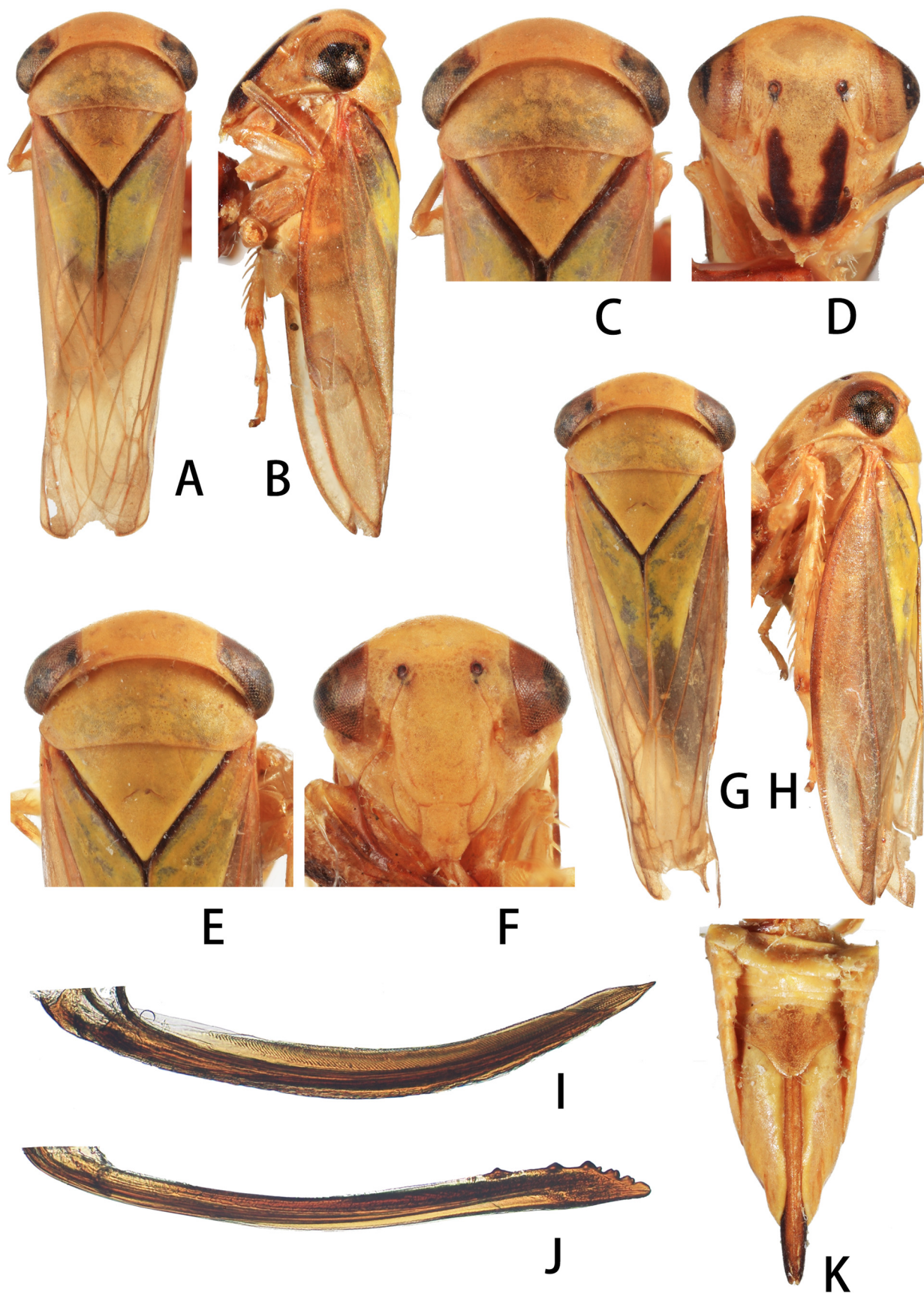
**Remarks.** This species is known only from the two female type specimens collected from Sandakan by Baker. The hind femur has 2+1 apical setae and the chaetotaxy of the hind tibia is: PD 13–14, AD 7, AV 8–9.

### ***Philipposcopus maquilingensis* (Baker) n. rec.**

(Figs. 7, 15)

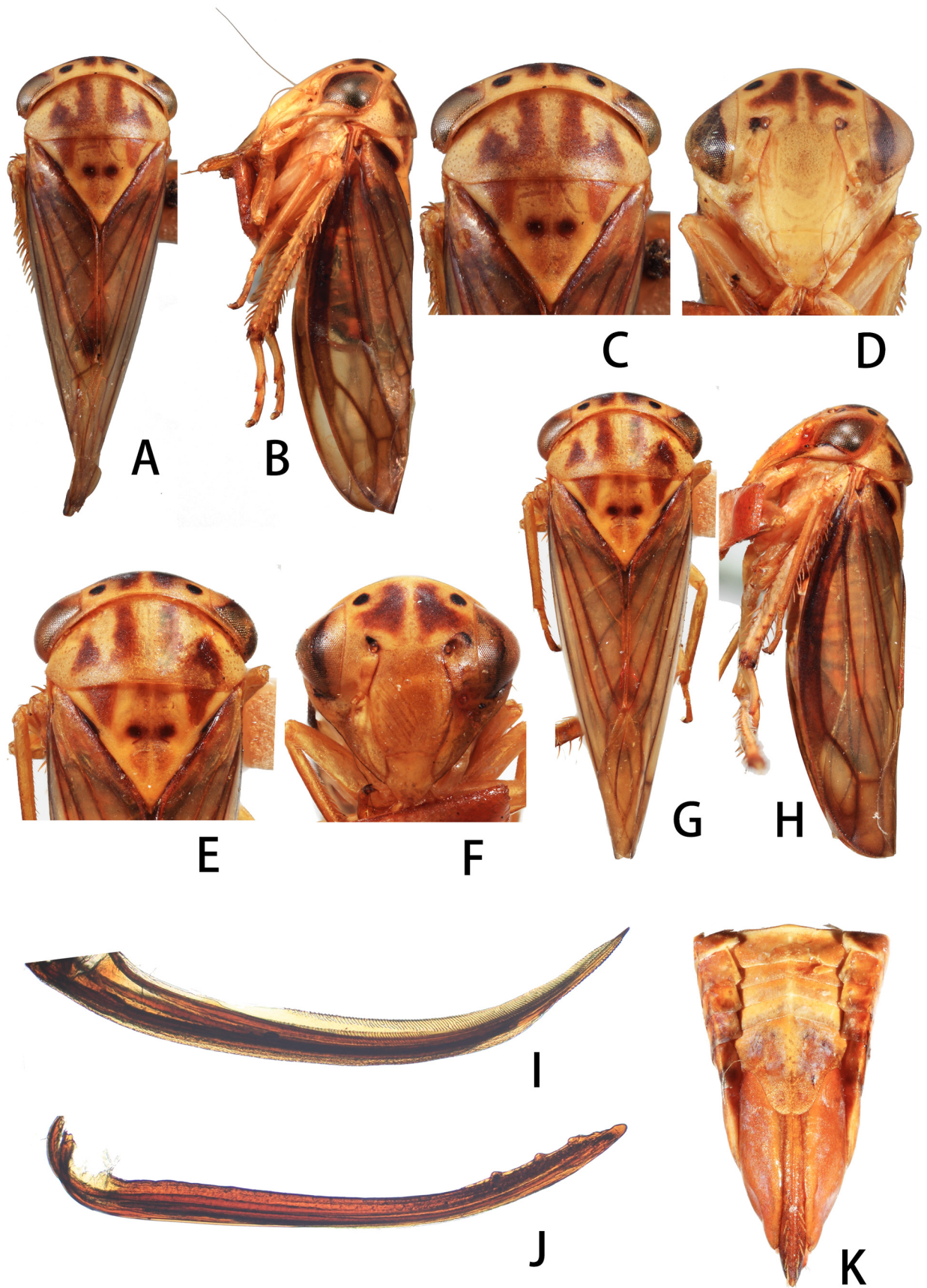
*Pedioscopus maquilingensis* Baker, 1915: 333.  
*Philipposcopus maquilingensis* (Baker); Maldonado-Capriles, 1972a: 543, figs. 72–78.

**Material examined.** 21♂♂17♀♀, Malaysia, Sandakan, coll. Baker (USNM); 1♂, Malaysia, Sarawak, Gunung Mulu National Park, near hdqtrs, 04.04.25-114.81.38, 2010-vii, coll. J. Urban (INHS).



**FIGURE 6.** *Namiockerus cephalotes* (Walker) A, habitus of male, dorsal view; B, habitus of male, lateral view; C, head and thorax of male, dorsal view; D, face of male; E, head and thorax of female, dorsal view; F, face of female; G, habitus of female, dorsal view; H, habitus of female, lateral view; I, first valvulae; J, second valvulae; K, female genitalia, ventral view.





**FIGURE 7.** *Philipposcopus maquilingensis* (Baker) A, habitus of male, dorsal view; B, habitus of male, lateral view; C, head and thorax of male, dorsal view; D, face of male; E, head and thorax of female, dorsal view; F, face of female; G, habitus of female, dorsal view; H, habitus of female, lateral view; I, first valvulae; J, second valvulae; K, female genitalia, ventral view.

**Remarks.** *Philipposcopus maquilingensis* is similar to *Neoscopus ceylonensis* in the venation of forewing, but it can be distinguished by the anal collar without a process and the smooth style ventral margin.

### ***Serridiocerus* gen. nov.**

Type species: *Serridiocerus membranaceus* sp. nov.

Body robust. Head wider than pronotum. Crown short with median length as long as length next to eyes, shagreen. Face wider than long; lateral frontal sutures present, curved, reaching ocelli; frontoclypeus and anteclypeus elevated, apex of frontoclypeus and base of anteclypeus broad; anteclypeus strongly convex, base wider than apex, surpassing apex of gena; lateral margin of gena concave in middle; lora narrow; ocelli placed closer to eyes than to each other; antenna aristiform, not expanded apically or subapically (Fig. 8D). Pronotum shagreen, sparsely punctate, with short lateral margin, anterior margin convex, and posterior margin straight. Mesonotum and scutellum as long as pronotum and crown together (Fig. 8C). Forewing with 4 apical and 2 subapical cells (crossveins absent, r-m1 and m-cu2 present), outer apical cell very large; appendix broad, extending to middle of 3rd apical cell (Fig. 8B). Fore femur with setae irregularly arranged and short. Fore tibia with several stout setae on apical half of AV and PV. Hind femur with 2+1 apical setae. Hind tibiae chaetotaxy PD 17–18, AD 6, AV 9–10.

Male abdomen with pair of long tergal apodemes almost reaching entire length of sternite 5; sternal apodeme short, less than one segment long (Fig. 16D).

Male pygofer divided into short dorsal and long ventral section by horizontal membranous cleft; caudal margin with hooklike process (Fig. 16A). Segment X with elongate, finger-shaped ventrolateral extension. Subgenital plate slender, with short, sparse setae distally (Fig. 16A). Style foot-shaped, curved dorsally with ventral margin produced; apical half tapering (Fig. 16G). Connective T-shaped, with medial longitudinal keel (Figs. 16B–C). Aedeagal lateral margin serrate in apical half, dorsal and ventral apodemes well developed; gonopore on ventral surface (Figs. 16E–F).

**Distribution.** Malaysia (Sandakan).

**Etymology.** The generic name is derived by combining two words *Serr-*, referring to the lateral serrations of the aedeagus, with *Idiocerus*, the type genus of the tribe.

**Diagnosis.** *Serridiocerus* gen. nov. can be distinguished by its body brown; frontoclypeus and anteclypeus elevated, apex of frontoclypeus and base of anteclypeus broad; lora narrow; lateral frontal sutures curved, reaching corresponding ocelli; forewing with 2 subapical cells, outer apical cell largest; male pygofer with membranous on dorsum and medial and ventral area; style foot-shaped; aedeagal shaft serrate lateral margin, dorsal and ventral apodeme developed; gonopore situated an ventral margin apically.

**Remarks.** *Serridiocerus* gen. nov. is distinguishable from other Idiocerinae by the broad anteclypeus, the laterally serrate aedeagal shaft and presence of a ventral aedeagal apodeme. At present, the genus is known only from male specimens, but it seems likely that the structure of the lower part of the face is sexually dimorphic, as in *Namiocerus*.

### ***Serridiocerus membranaceus* sp. nov.**

(Figs. 8, 16)

**Description.** Length (including wings): male 5.5–5.8 mm.

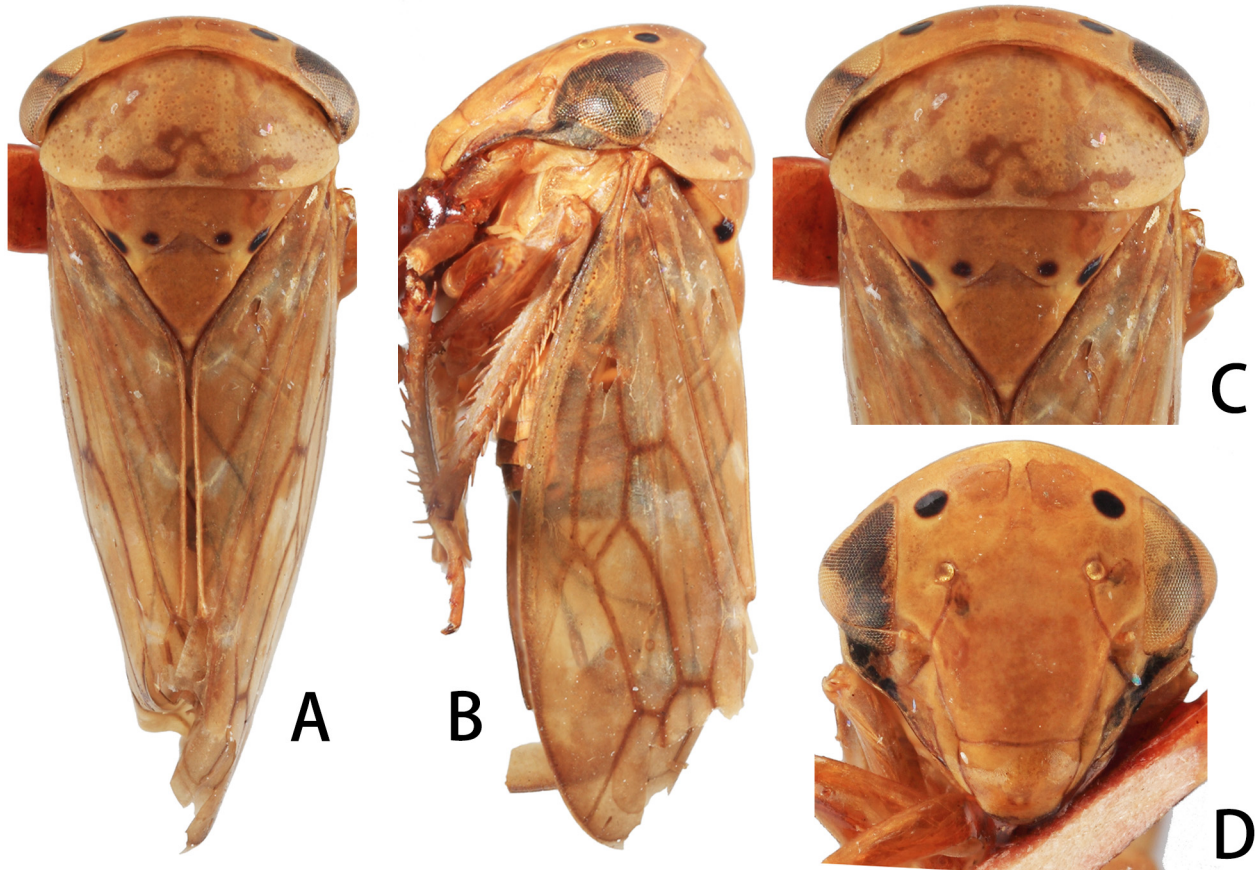
Body brown. Crown-face transition with round black spot on either side of midline closer to eyes than ocelli. Face brown; gena brownish with black markings. Pronotum brownish with indistinct brown markings. Mesonotum with basal triangles brownish and small, disc with two black spots, and two black stripes on lateral margin. Forewing transparent, veins mostly darker but with white on apex of claval veins.

Male pygofer broadened medially, dorsum and medial and ventral margin with membranous area. Subgenital slightly shorter than pygofer, with few short setae. Aedeagal shaft somewhat foot-shaped in lateral view, with heel-like ventral projection and slightly curved and tapered distal part; atrium in ventral view with each side expanded and trilobed; gonopore near midlength of distal portion of shaft. Style with elongate tapered distal section extended lateral beyond acutely rounded medial heel.

**Material examined.** Holotype, ♂, Malaysia, Sandakan, coll. Baker (USNM); Paratypes, 2♂♂, same data as holotype (USNM).

**Etymology.** The specific epithet refers to the pygofer with a membranous area on the dorsum and medial and ventral margins.

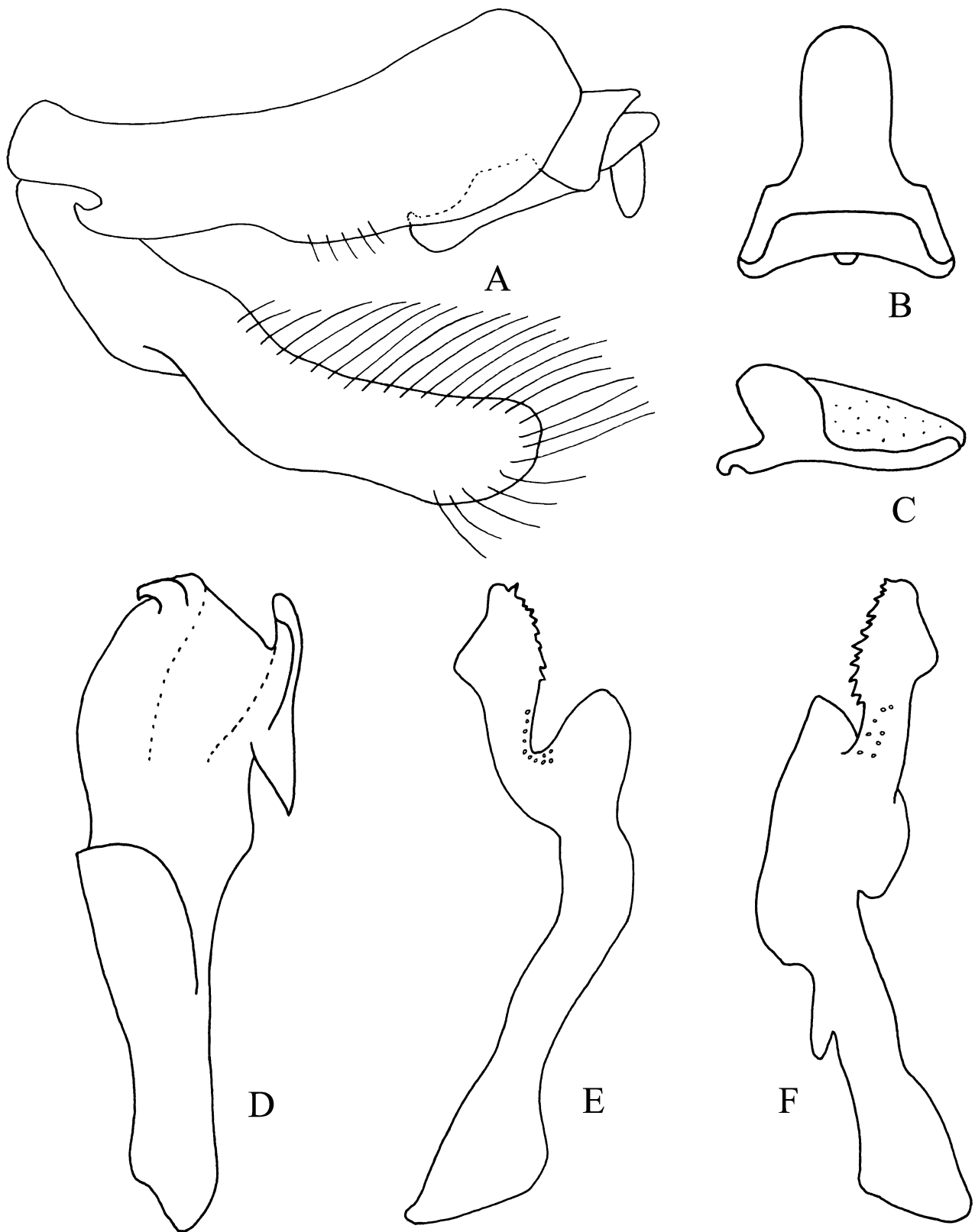
**Remarks.** This species can easily be recognized by the well developed ventral apodeme and serrate lateral margin of the aedeagus.



**FIGURE 8.** *Serridiocerus membranaceus* sp. nov. A, habitus of male, dorsal view; B, habitus of male, lateral view; C, head and thorax of male, dorsal view; D, face of male,

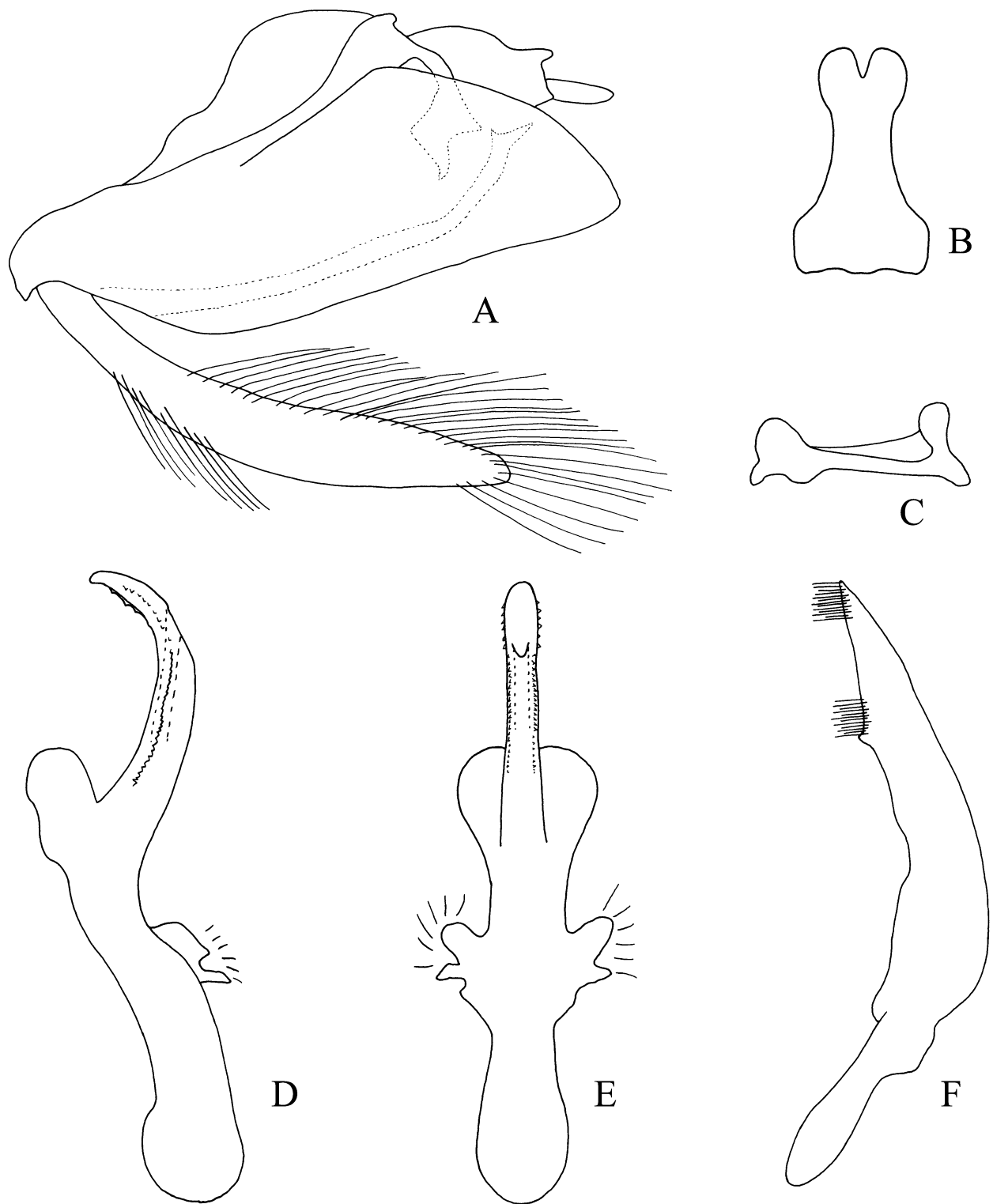
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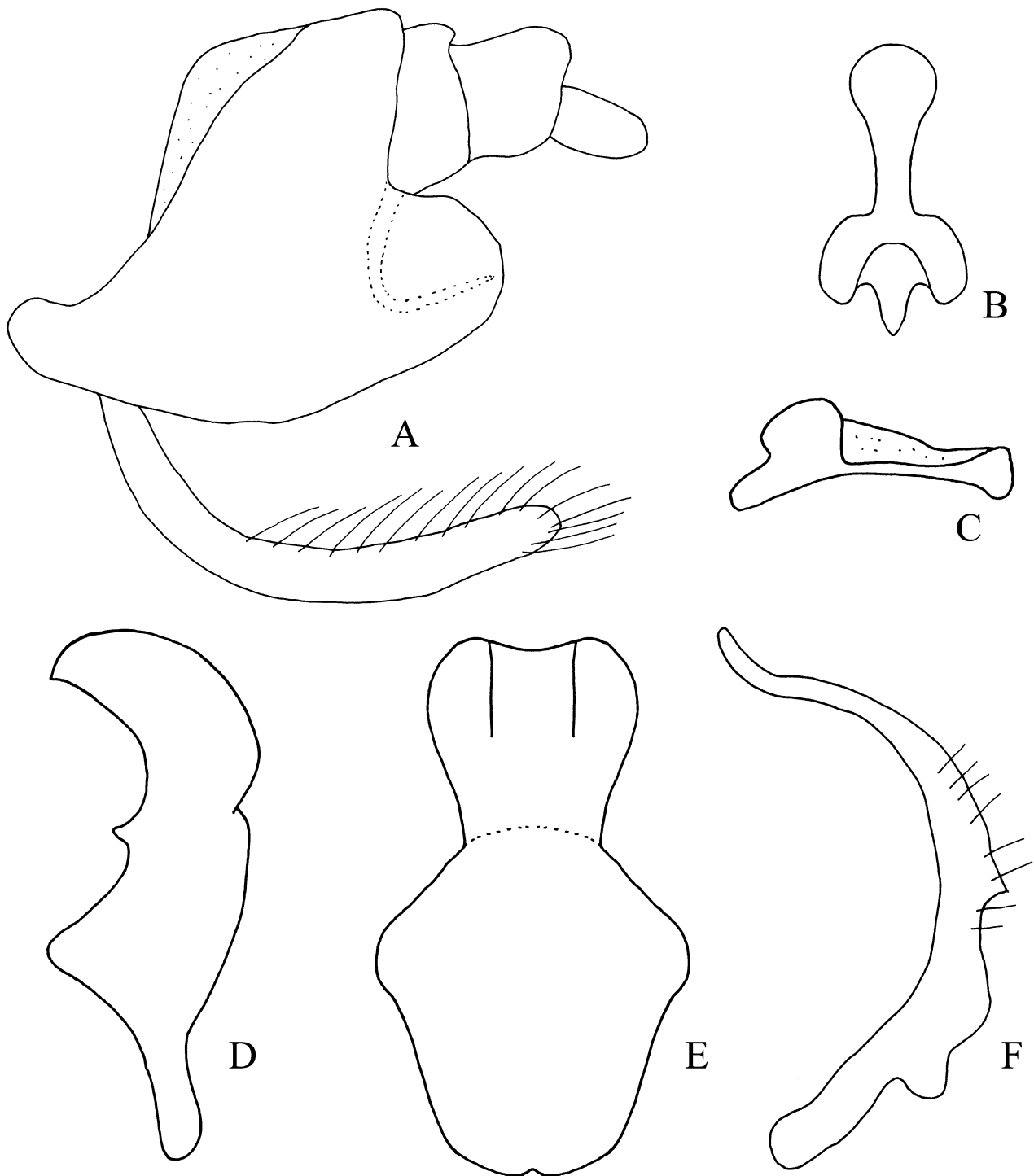


**FIGURE 9.** *Balocha bicolor* Maldonado-Capriles A, male pygofer, anal tube and subgenital plate, lateral view; B, connective, ventral view; C, connective, lateral view; D, aedeagus, lateral view; E, style, ventrolateral view; F, style, lateral view.

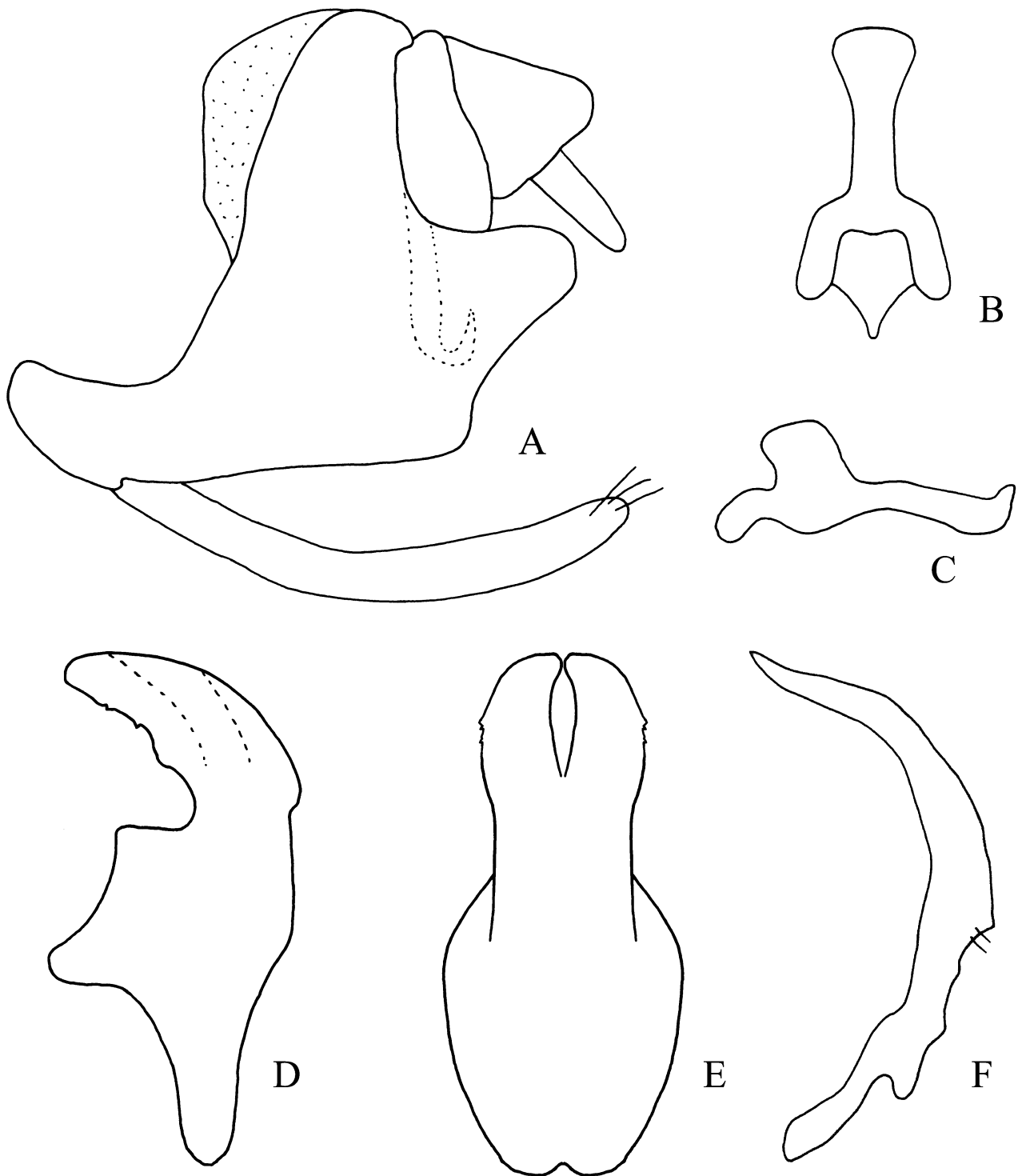




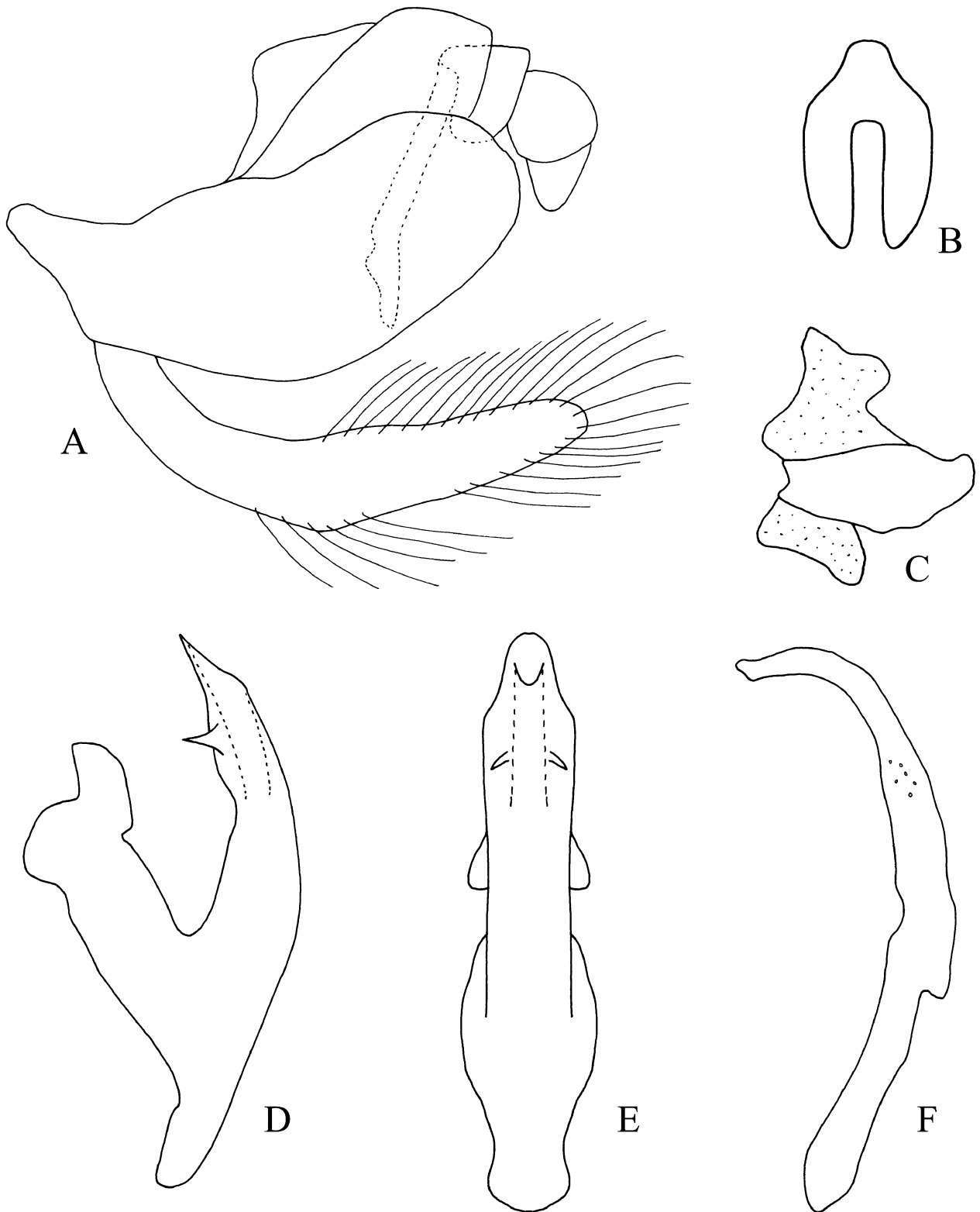
**FIGURE 10.** *Burmascopus longidens* sp. nov. A, male pygofer, anal tube and subgenital plate, lateral view; B, connective, ventral view; C, connective, lateral view; D, aedeagus, lateral view; E, aedeagus, ventral view; F, style, lateral view.



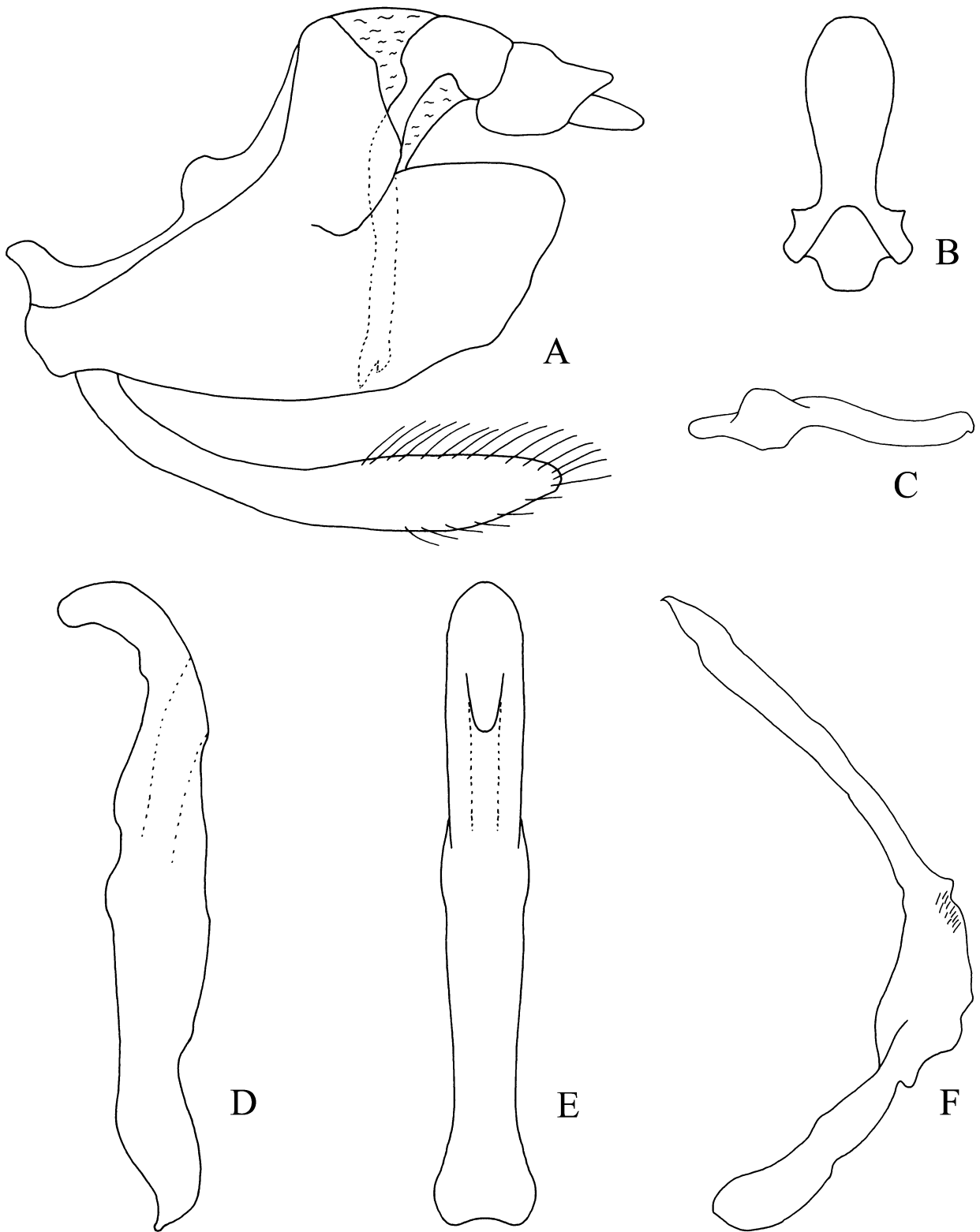
**FIGURE 11.** *Busonia amentata* Distant A, male pygofer, anal tube and subgenital plate, lateral view; B, connective, ventral view; C, connective, lateral view; D, aedeagus, lateral view; E, aedeagus, ventral view; F, style, lateral view.



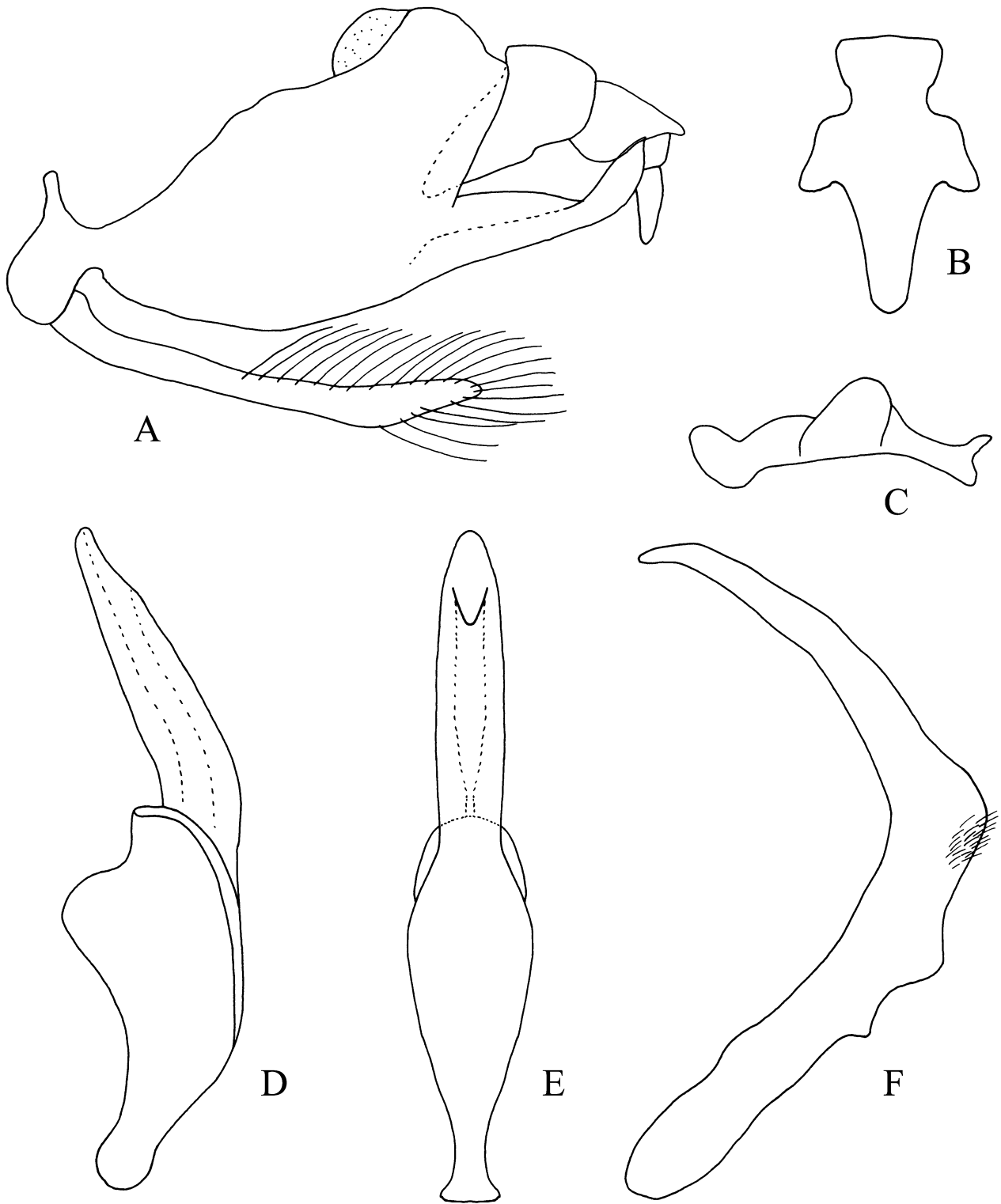
**FIGURE 12.** *Busonia apicalis* Maldonado-Capriles A, male pygofer, anal tube and subgenital plate, lateral view; B, connective, ventral view; C, connective, lateral view; D, aedeagus, lateral view; E, aedeagus, ventral view; F, style, lateral view.



**FIGURE 13.** *Chunra australis* Webb A, male pygofer, anal tube and subgenital plate, lateral view; B, connective, ventral view; C, connective, lateral view; D, aedeagus, lateral view; E, aedeagus, ventral view; F, style, lateral view.

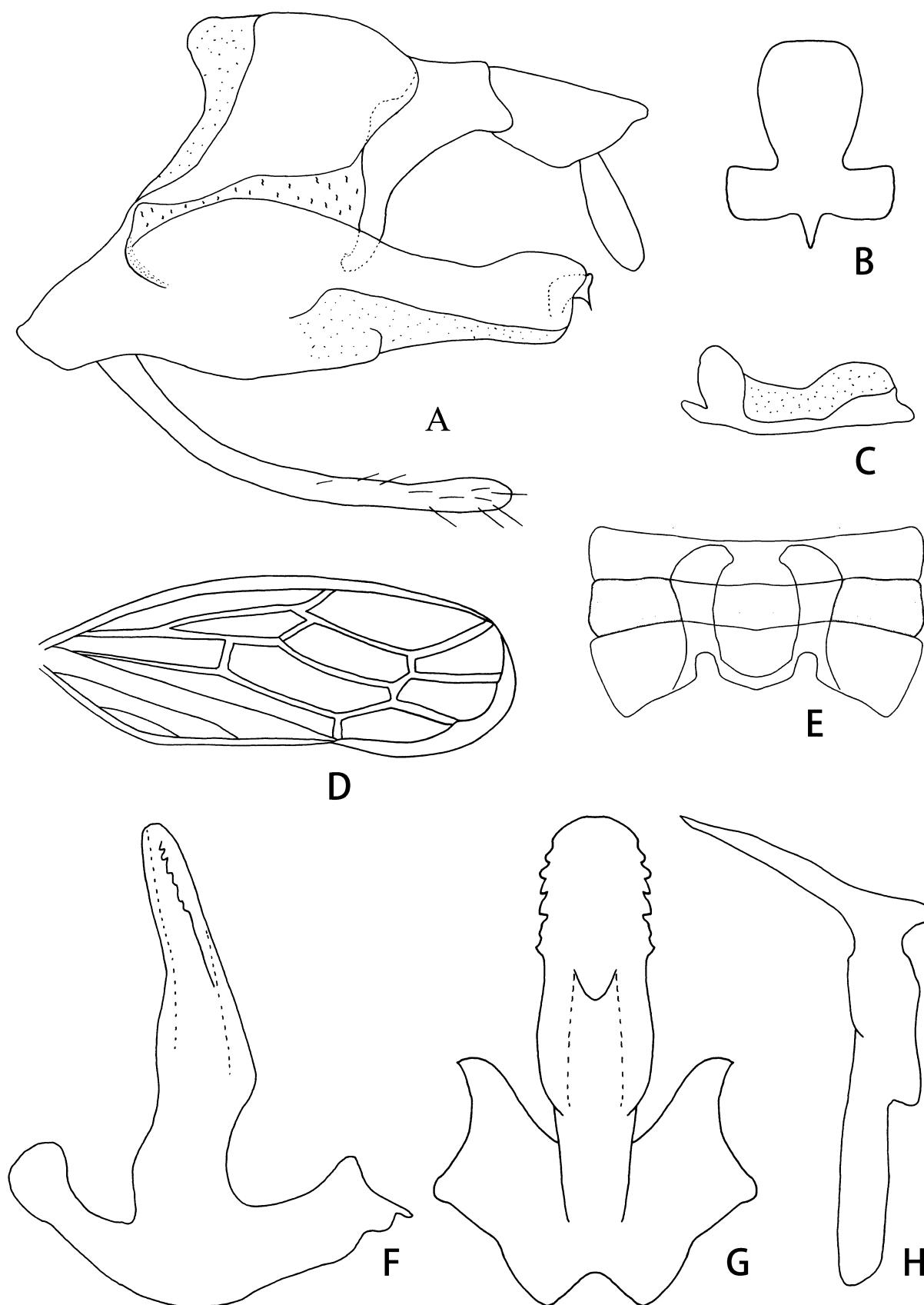


**FIGURE 14.** *Namiocerus cephalotes* (Walker) A, male pygofer, anal tube and subgenital plate, lateral view; B, connective, ventral view; C, connective, lateral view; D, aedeagus, lateral view; E, aedeagus, ventral view; F, style, lateral view.



**FIGURE 15.** *Philipposcopus maquilingensis* (Baker) A, male pygofer, anal tube and subgenital plate, lateral view; B, connective, ventral view; C, connective, lateral view; D, aedeagus, lateral view; E, aedeagus, ventral view; F, style, lateral view.





**FIGURE 16.** *Serridiocerus membranaceus* sp. nov. A, male pygofer, anal tube and subgenital plate, lateral view; B, connective, ventral view; C, connective, lateral view; D, Forewing; E, abdominal apodemes; F, aedeagus, lateral view; G, aedeagus, ventral view; H, style, lateral view.

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