



<https://doi.org/10.11646/megataxa.17.1.2>

<http://zoobank.org/urn:lsid:zoobank.org:pub:3CB9D84E-94DE-4E91-BD46-9B1B2522EBF2>

Thirteen new cicada species (Hemiptera: Cicadidae) from Thailand with the resurrection of Pomponiini Kato, 1932, a new combination, and a new tribal assignment for *Muda* Distant, 1897

ALLEN F. SANBORN

10900 County Road 352, Blanket, TX 76432, USA

asanborn@barry.edu; <https://orcid.org/0000-0001-5729-7106>

Abstract

The species *Chremistica doiluangensis* sp. nov., *Chremistica kalasinensis* sp. nov., *Pomponia bimaculosalaria* sp. nov., *Aetanna lannensis* sp. nov., *Vietanna oresbia* sp. nov., *Metapurana phuruensis* sp. nov., *Minipomponia doiinthanonensis* sp. nov., *Megapomponia isanensis* sp. nov., *Meimuna Chiangmaiensis* sp. nov., *Meimuna maehongsonensis* sp. nov., *Muda songkhlenensis* sp. nov., *Muda phetchabunensis* sp. nov., and *Muda chanthaburensis* sp. nov. are described as new clarifying the taxonomy of undescribed species in a previous publication on Thailand cicadas. In addition, Pomponiini Kato, 1932 rev. stat. is resurrected from junior synonymy of Psithyristriini Distant, 1905, *Pomponia adusta* (Walker, 1850) is reassigned to become *Megapomponia adusta* (Walker, 1850) comb. nov., and *Muda* Distant, 1897 is reassigned from Chlorocystini Distant, 1905 to Katoini Moulds & Marshall, 2018 (in Marshall *et al.*, 2018).

Key words: Taxonomy, Cicadinae, Tacuini, Dundubiini, Cicadettinae, Chlorocystini, Katoini

Introduction

The cicada fauna of Thailand has received considerable attention over the past couple of decades. We provided the first list of species inhabiting Thailand, along with 11 new records and reference to 15 undescribed species (Sanborn *et al.* 2007). Since that time, additional cicada faunal lists, genera, and species have been described (Boulard 2006a, b, c, d, e, f, g, h, 2007a, b, c, d, e, 2008a, b, c, d, e, 2009a, b, c, d, e, f, 2010, 2012, 2013a, b, 2014, 2018; Lee & Sanborn 2009), increasing the known diversity of the Thai cicada fauna.

Several taxa were identified as undescribed in Sanborn *et al.* (2007), with complete species descriptions intended to be provided at a later date. This work provides descriptions for the majority of these species. Two taxa have been described officially in other works (Boulard 2008a; Lee & Sanborn 2009) since their introduction, but the majority of taxa have yet to be named officially.

It was hoped that additional examples of some of the new species would become available but the funding to support the collection of further specimens has expired, so the samples in hand are the only examples available for the new species descriptions. Therefore, I take this opportunity to describe formally those taxa introduced in our original Thai cicada paper (Sanborn *et al.* 2007) in order to clarify the literature and the information pertaining to these taxa. In addition, the resurrection of a tribe, a new combination, and the reassignment of a genus to a new tribe are proposed to help clarify taxonomic positions and address some conflicting genetic analyses regarding the composition of what appears to be a polyphyletic tribe.

Materials and Methods

The morphological terminology used to describe the new species follows Moulds (2005, 2012). The higher taxonomy presented is based on Sanborn (2013), with updates from more recent literature (Lee & Emery 2013, 2014; Marshall *et al.* 2018; Hill *et al.* 2021) and the World Auchenorrhyncha Database (<https://hoppers.speciesfile.org/otus/5973/overview>) (Dmitriev *et al.* 2022). Specimens of the new species were provided to the author from the Wilbur R. Enns Entomology Museum, University of Missouri, Columbia (UMRM), the Prince of Songkla University Collection, Hat Yai, Thailand (PSUC), and a single specimen sent to the author by Len Worthington (Chonburi, Thailand). Specimens are deposited in the UMRM or the Florida State Collection of Arthropods, Gainesville (FSCA), with vouchers found in the author's collection (AFSC) when a series was available. Although single specimens are not preferred to erect new species, the differences in genitalia exhibited by these individuals from all related taxa support the contention that these proposed species are different from the known taxa in each genus. Measurements were taken using with Vernier calipers accurate to ± 0.05 mm or a hand-held microscale (accuracy ± 0.01 mm) under a dissecting microscope.

Systematics

Family CICADIDAE Batsch, 1789

Subfamily CICADINAE Batsch, 1789

Tribe TACUINI Distant, 1904a

REMARKS.—Cryptotympanini Handlirsch, 1925 was shown to be a junior synonym of Tacuini Distant, 1904a (Dmitriev & Sanborn 2023) after the two tribes were shown to represent the same clade in a combined genetic and morphological analysis (Marshall *et al.* 2018). Tacuini is used in replacement of Cryptotympanini used in our original work (Sanborn *et al.* 2007).

Subtribe TACUINA Distant, 1904a

Genus *Chremistica* Stål, 1870

Cicada (*Chremistica*) Stål 1870: 714.

Rihana Distant 1904: 425.

TYPE SPECIES.—*Tettigonia viridis* Fabricius 1803: 39 (South America) (error).

REMARKS.—The type locality provided in Fabricius (1803) is an error. The species is distributed across Southeast Asia (Sanborn 2013).

Species of the genus have been distributed among five species groups: the *Chremistica bimaculata* group (Yaakop *et al.* 2005), the *Chremistica coronata* group (Bregman 1985), the *Chremistica martini* group (Bregman 1985), the *Chremistica pontianaka* group (Bregman 1985), and the *Chremistica tridentigera* group (Bregman 1985). All species of what was the *Chremistica martini* group are restricted to Madagascar and the Republic of Seychelles and have been reassigned to a new genus based on molecular and morphological differences (Marshall *et al.* 2018; Sanborn 2021). Similarly, all species of the *Chremistica coronata* group are restricted to the Lesser Sunda Islands and are not represented in the Thai cicada fauna. Species of *Chremistica* inhabiting Thailand can be classified into the *Chremistica bimaculata* group (Yaakop *et al.* 2005; Boulard 2012, 2013a), the *Chremistica pontianaka* group (Bregman 1985; Yaakop *et al.* 2005), or the *Chremistica tridentigera* group (Bregman 1985). The three species reported here are all part of the *Chremistica bimaculata* group.

The *Chremistica bimaculata* group was characterized by two possible synapomorphies, a conspicuous, broad, piceous fascia along the anterior margin of the postclypeus and the unmarked ventral postclypeus (Yaakop *et al.* 2005). Originally included in the group were *C. bimaculata* (Olivier, 1790), *C. brooksi* Yaakop & Duffels, 2005 (in Yaakop *et al.* 2005), *C. echinaria* Yaakop & Duffels, 2005 (in Yaakop *et al.* 2005), *C. kecil* Salmah & Zaidi, 2002, *C. malayensis* Yaakop & Duffels, 2005 (in Yaakop *et al.* 2005), *C. nesiotis* Breddin, 1905, and *C. sumatrana* Yaakop & Duffels, 2005 (in Yaakop *et al.* 2005) (Yaakop

et al. 2005). Since that time, *C. inthanonensis* Boulard, 2002, *C. moultoni* Boulard, 2002, *C. siamensis* Bregman, 1985, (Boulard 2012), and *C. sueuri* Pham & Constant, 2013 have been added to the species group (Pham & Constant 2013).

Chremistica inthanonensis Boulard, 2008a

Chremistica viridis (non Fabricius, 1803) Boulard 2000: 256.

Chremistica bimaculata (non Olivier, 1790) Boulard 2002: 55–58.

Chremistica bimaculata inthanonensis Boulard 2006b: 138.

Chremistica sp. nr. *bimaculata* Sanborn *et al.* 2007: 3.

Chremistica undescribed species A Sanborn *et al.* 2007: 7.

Chremistica bimaculata inthanonensis Boulard 2007e: xi, n° 10.

Chremistica bimaculata (non Olivier, 1790) Boulard 2007e: 40, Fig. 24, Plate 5, Fig. b.

Chremistica bimaculata inthanonensis Boulard 2007e: viii, 64, Fig. 45.

Chremistica inthanonensis Boulard 2008a: 9.

REMARKS.—This species is the first of the undescribed species from Sanborn *et al.* (2007) to have been described officially since it was introduced in the literature. Yaakop *et al.* (2005) recognized that the genitalia illustrated in Boulard (2002) were not the same as true specimens of *Chremistica bimaculata* (Olivier, 1790) and the Thai specimens represented a new species. Boulard (2006b) first reassigned the Thai specimens as a subspecies but then elevated the Thai population to full species rank (Boulard 2008a) while simultaneously synonymizing *Chremistica* undescribed species A from Sanborn *et al.* (2007).

MATERIAL EXAMINED.—“THAILAND, Loei Province / Phu Rua National Park / 10 June 1998, L-178 / Sites, Simpson, Vitheepradit / piceous light at Park HQ” one male (AFSC); “THAILAND, Loei Province / Phu Rua National Park / 11 June 1998, L-184 / Sites, Simpson, Vitheepradit / piceous light at Park HQ” one female (AFSC).

DISTRIBUTION.—The species has been recorded from Chiang Mai, Lampang, and Loei Provinces in northern Thailand (Boulard 2002, 2012, 2013a; Sanborn *et al.* 2007).

Chremistica doiluangensis sp. nov.

(Fig. 1)

Chremistica undescribed species B Sanborn *et al.* 2007: 8.

Chremistica undescribed species B Sanborn 2013: 116.

TYPE MATERIAL.—Holotype. “THAILAND: Chiang Rai Prov. / Doi Luang National Park / NamTok Poo Kaeng; 540 m / 19° 26'N 99° 42'E; 26 V 2002 / coll: CMU Team” male (UMRM).

ETYMOLOGY.—The name is a combination of *doiluang-* (for the type locality in Doi Luang National Park) and *-ensis* (L., suffix denoting place, locality) in reference to the site where the holotype originated.

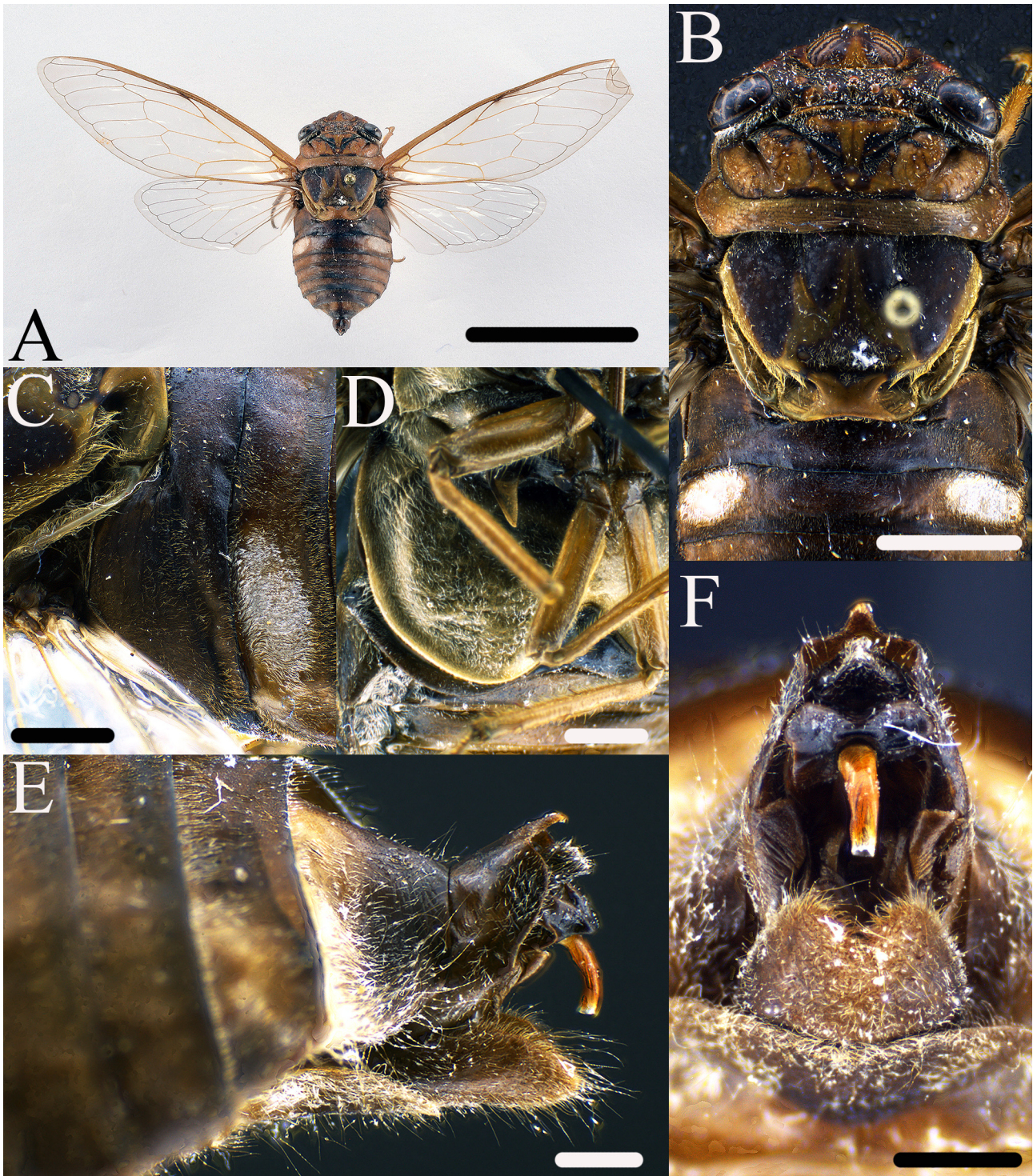


FIGURE 1. *Chremistica doiluangensis* sp. nov.: A, holotype male habitus; B, holotype male dorsum; C, holotype male timbal cover; D, holotype male operculum; E, holotype male lateral view of genitalia; F, holotype male posterior view of genitalia. Scale bar: A, 2 cm; B, 5 mm; C–D, 2 mm; E–F, 1 mm.

DIAGNOSIS.—There are size differences between the various species of the *Chremistica bimaculata* group that can distinguish many of the species but the structure of the male genitalia is the most distinctive feature to determine which species is being studied. *Chremistica brooksi* Yaakop & Duffels, 2005 (in Yaakop *et al.* 2005), *C. echinaria* Yaakop & Duffels, 2005 (in Yaakop *et al.* 2005), *C. inthanonensis* Boulard, 2002, *C. malayensis* Yaakop &

Duffels, 2005 (in Yaakop *et al.* 2005), *Chremistica sueuri* Pham & Constant, 2013, and *C. sumatrana* Yaakop & Duffels, 2005 (in Yaakop *et al.* 2005) (Yaakop *et al.* 2005) all have body lengths and fore wing lengths greater than this new species (body length 25.65 mm, fore wing length 32.50 mm). Similarly, the body length (23.9–25.3 mm) and fore wing length (29.3–31.6 mm) of *C. kecil* Salmah & Zaidi, 2002 is less than the new species. The wingspan

of *C. moultoni* Boulard, 2002 (73–74 mm) is less than and *C. siamensis* Bregman, 1985 (77 mm) is greater than this new species (74.60 mm). There is overlap in these measurements in the new species with *C. bimaculata* (Olivier, 1790) and *C. nesiotetes* Breddin, 1905. Although the name *C. bimaculata* and its synonyms have been misapplied to what are now several species, *C. bimaculata* is thought to be endemic to Java (Yaakop *et al.* 2005). In addition, *C. bimaculata* can be distinguished from this new species by the larger transverse piceous band across the postclypeus apex, the tooth-like appendages on the median uncal lobes supporting the aedeagus, and the pair of white pubescent, waxy ovals on the anterior four fifths of the lateral abdominal tergite 3 found in *C. bimaculata*. *Chremistica nesiotetes* can be distinguished by the longer male wingspan (76.1–82.6 mm) and longer male (33.2–35.8 mm) but shorter female fore wing length (29.9–30.6 mm) and wingspan (69.0–71.8 mm) vs. 32.50 mm fore wing length and 74.6 mm wingspan in this new species. Finally, this new species can be quickly distinguished from *Chremistica kalasinensis* **sp. nov.** by the longer fore wing length (35.20 mm) and wingspan (79.25–80.00 mm) vs. 32.50 mm and 74.6 mm, respectively, in this new species.

The structure of the male genitalia, primarily the shape of the uncus, is the most reliable manner to determine species identity. *Chremistica moultoni*, *C. sueuri*, and *C. kalasinensis* **sp. nov.** can be distinguished by the elongate, acuminate lateral uncus lobes. *Chremistica inthanonensis*, *C. siamensis*, can be distinguished by the enlarged distal median uncus lobe that is not knob-like as found in the new species. The lateral uncus lobes are short and curved posteriorly in *C. sumatrana* and anteriorly in *C. nesiotetes* and *C. echinaria* and the median uncus lobe is covered with dense bristles in *C. echinaria*. The lateral uncus lobes terminate in two recurved points in *C. kecil*. The lateral uncus lobes curve under the median uncus lobe and terminate in a transversely oriented margin with or without three small tooth-like extensions in *C. brooksi*. Similarly, the lateral uncus lobes curve under the median uncus lobe but are divergent, shorter, narrower, and have 3–5 tooth-like extensions in *C. malayensis*. Finally, *C. bimaculata* can be distinguished by the lateral uncus lobes curving under the median uncus lobe terminating in a rectangular extension with a variable number of tooth-like extensions.

DESCRIPTION

Ground color of head and thorax greenish tawny marked with piceous, abdomen dark castaneous marked with piceous.

Head

Head wider than mesonotum, transverse castaneous fascia surrounding ocelli and including anterior cranial depression, expanding anteriorly to cover frons, anterolateral extension along supra-antennal plate suture, expanding posteriorly from lateral ocelli and along

epicranial suture to posterior head, laterally expanding to broad mark along medioanterior eye, posterior portion of this mark expanding into medially oriented C-shape with anterior branch connecting to transverse fascia lateral to anterior cranial depression, mark forms a dark ground color circular spot lateral to anterior cranial fissure, ground color on dorsolateral posterior including posterior cranial depression, on posterolateral corner of vertex anterior to eye, eye margined with piceous, piceous posterior to eye. Supra-antennal plate castaneous with ground color posteromedial corner. Covered with short silvery pile dorsally, longer silvery pile posterior to eye. Ocelli ochraceous margined with rosaceous, eyes castaneous. Gena piceous with ground color anterior, medial, and posterior margins. Lorum piceous with castaneous anteromedial corner surrounded by ground color margins. Short silvery pile, and long white pile on lorum and gena. Postclypeus not centrally sulcate, ground color triangular mark on posteromedial dorsum, along midline, and on transverse ridges, dark castaneous on dorsum, on either side of midline extending into transverse ridges connecting across midline at third transverse ridge. Postclypeus with 12 transverse grooves, short silvery pile on dorsum and withing transverse grooves, long white pile radiating on lateral postclypeus. Anteclypeus piceous with ground color anterior margin and anterior carina, carina becoming dark castaneous posteriorly, covered with short and long white pile. Mentum ground color, labium ground color proximally with medial castaneous fascia expanding to piceous tip reaching to posterior of hind coxae with sparse short and long silvery pile. Scape and proximal pedicel ground color, distal pedicel dark castaneous, remaining antennal segments absent.

Thorax

Dorsal thorax ground color. Pronotum with dark castaneous fascia across anterodorsal midline, anterior lateral disc, connecting piceous marks in posterior paramedian fissures transversely and posteromedially meeting on midline posterior ambient fissure, piceous mark in paramedian fissure posteromedially and anteriorly onto disc forming triangular mark with short posterior extension to posteromedial triangular mark producing a short ground color fascia surrounded by piceous, anterior central disc, medial mark and short fascia along anteromedial region of disc piceous, piceous within anterior lateral fissure, piceous mark in posterior ambient fissure expanding slightly between midline and posterior lateral fissure. Pronotal collar greenish with transverse dark castaneous fascia on posterior of lateral part of pronotal collar. Pronotum covered with short silvery pile, denser in fissures. Mesonotum ground color, dark castaneous submedian and lateral sigillae, central dark castaneous fascia beginning between posterior submedian sigillae, obliquely angled to dark castaneous scutal depressions and continuing medially across anterior cruciform elevation forming large dark castaneous triangular mark on central cruciform elevation, transverse piceous fascia across anterior of anterior arms of cruciform elevation continuing across anterolateral

margin of cruciform elevation and posterior mesonotum to posterolateral mesonotum, wing groove ground color with anterior dark castaneous spot and dark castaneous posteromedial margin with lateral cruciform elevation. Metanotum dark castaneous. Dorsum with short silvery pile, denser along anterior, anterolaterally, and on disc between anterior arms of cruciform elevation, longer silvery pile laterally, posteriorly, in wing groove, and on posterior metanotum. Ventral thoracic segments ground color except dark castaneous within basisternum 2 and 3, dark castaneous meron 2, and trochantin 3. Covered with short silvery and dense white pile.

Wings

Fore wings and hind wings hyaline with eight and six apical cells respectively. Venation ground color except dark castaneous at base of radius & subcostal vein, distal median vein and proximal radius posterior at node, and posterior margin of anal vein 2 + 3. Basal cell clouded except along proximal cubitus anterior vein. Pterostigma to distal junction of subcostal vein and radius anterior 1. Basal membrane of fore wing white at base becoming dark gray distally. Venation of hind wing ground color, castaneous and piceous spots on base. Anal cell 3 except ovoid region near distal terminus and anal cell 2 along anal vein 3 gray, anal cell 1 and 2 along anal vein 2 gray as is anterior cubital cell 2 along proximal half of cubitus posterior vein. Small infuscation on proximal cubital cell 2.

Legs

Legs ground color, dark castaneous spot on proximal fore coxae, middle and hind coxae with dark castaneous laterally and on anterolateral proximal corner, femora with castaneous marks distally, tibiae, and tarsi ground color, pretarsal claws with piceous tips. Fore femora with proximal spine finger-like, obliquely oriented to femoral axis, secondary spine triangular, upright, about as long as primary spine, and small upright triangular tertiary spine, all ground color, primary and secondary spines with castaneous tips, primary and secondary spines connected by a dark castaneous fascia. Tibial spurs and comb castaneous with darker tips. Meracanthus pointed slightly curving mediad distally, ground color with dark castaneous base, reaching to middle of sternite I.

Operculum

Male operculum large, with posterolaterally angled lateral margin at base, posteromedially curved posterolateral margin, semi-circular posterior margin, longitudinal medial margins overlapping along midline, and curved anteromedial margin, reaching to anterior of sternite II, castaneous with darker castaneous mark lateral and posterior to meracanthus and large dark castaneous area on anterolateral base, covered with short silvery pile.

Abdomen

Abdomen greenish tawny anterolaterally on tergites 3–8, castaneous medially, darker castaneous posteriorly, with piceous posterior margin, covered with short silvery pile,

long silvery pile radiating from tergite 8. Large spot of white pubescence on lateral tergite 3. Timbal cover complete, anteriorly reaching posterior metanotum with rounded anterior apex, ventral margin straight and angled dorsally to long body axis. Sternites and epipleurites castaneous, sternite II very dark, sternites V–VII and epipleurites 6 and 7 tawny, sternite VII with dark castaneous posterior, sternite VIII castaneous, lighter along posterior midline, dorsal margin slightly curved, forming a V-shaped notch when viewed from the posterior. Spiracles white. Sternites and epipleurites with short and radiating long silvery pile, denser laterally.

Genitalia

Male pygofer castaneous, darker dorsally, posteriorly and ventrally, castaneous between pygofer basal lobes, with rounded distal shoulder, piceous dorsal beak, the tip curved toward anal styles, with short silvery pile. Pygofer basal lobe adpressed to lateral pygofer, terminus curving, radiating short silvery pile medially, pygofer upper lobes extend about half distance to pygofer base, with obtusely angled apex rolled medially distally. Anal styles very dark castaneous, anal tube piceous, radiating long silvery pile. Median uncus lobe dark castaneous, short with curved apex, lateral uncus lobes extend to meet above posterior median uncus lobe, extend to form short, square posterior extension above theca, basal lateral uncus lobes separated, straight medial margin forming short apophyses to support theca, short silvery pile radiating ventrally. Aedeagus tubular, white proximally, castaneous distally.

MEASUREMENTS (MM).—N = one male. Length of body: 25.65; length of fore wing: 32.50; width of fore wing: 10.55; length of head: 4.95; width of head including eyes: 9.85; width of pronotum including suprahumeral plates: 10.85; width of mesonotum: 9.60.

DISTRIBUTION.—The species is known only from the holotype specimen collected in Doi Luang National Park, Chiang Rai Province, Thailand.

Chremistica kalasinensis sp. nov.

(Fig. 2)

Chremistica undescribed species C Sanborn *et al.* 2007: 8.

Chremistica undescribed species C Sanborn 2013: 116.

TYPE MATERIAL.—Holotype. “THAILAND: Kalasin Prov. / Phu Pan National Park / guest house; porch light / 23 April 2004 / coll: A. Vitheepradit” male (UMRM). Paratype. “THAILAND: Kalasin Prov. / Phu Pan National Park / guest house; porch light / 22 April 2004 / coll: A. Vitheepradit” female (AFSC).

ETYMOLOGY.—The name is a combination of *kalasin-* (for the type locality in Kalasin province) and *-ensis* (L., suffix denoting place, locality) in reference to the site where the type series originated.

DIAGNOSIS.—The size differences between the various species of the *Chremistica bimaculata* group can separate many described species from the new species but the structure of the male genitalia is the most

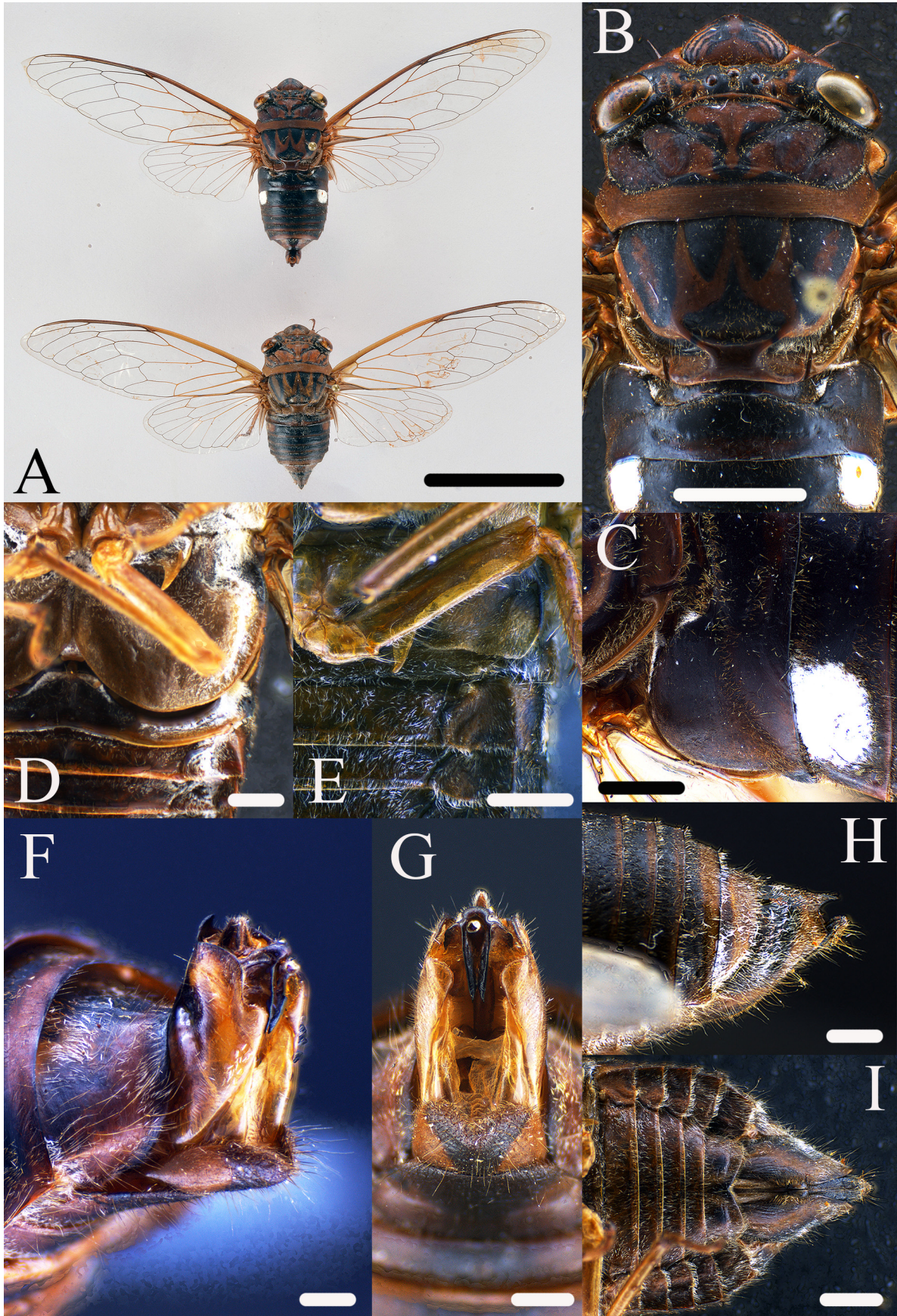


FIGURE 2. *Chremistica kalasinensis* sp. nov.: A, holotype male and paratype female habitus; B, holotype male dorsum; C, holotype male operculum; D, paratype female operculum; E, holotype male timbal cover; F, holotype male lateral view of genitalia; G, holotype male posterior view of genitalia; H, paratype female lateral view of genitalia; I, paratype female ventral view of genitalia. Scale bar: A, 2 cm; B, 5 mm; C–E, 2 mm; F–G, 1 mm; H–I, 2 mm.

distinctive feature to determine which species is being studied. *Chremistica brooksi* Yaakop & Duffels, 2005 (in Yaakop *et al.* 2005), *C. echinaria* Yaakop & Duffels, 2005 (in Yaakop *et al.* 2005), *C. inthanonensis* Boulard, 2002, *C. malayensis* Yaakop & Duffels, 2005 (in Yaakop *et al.* 2005), and *C. sueuri* Pham & Constant, 2013, all have body lengths and fore wing lengths greater than this new species (body length 23.75–25.10 mm, fore wing length 35.20 mm). Similarly, the fore wing length of *C. kecil* Salmah & Zaidi, 2002 (29.3–31.6 mm) is less than this new species and the ventral postclypeus lacks piceous markings in the transverse grooves in *C. kecil*. The wingspan of *C. moultoni* Boulard, 2002 (73–74 mm) and *C. siamensis* Bregman, 1985 (77 mm) is less than this new species (80.65–80.95 mm) as well. There is overlap in these measurements determined for the new species with those reported for *C. bimaculata* (Olivier, 1790), *C. nesiotes* Breddin, 1905, and the female measurements of *C. sumatrana* Yaakop & Duffels, 2005 (in Yaakop *et al.* 2005). *Chremistica bimaculata* can be distinguished from this new species by the larger transverse piceous band across the postclypeus apex, the reduced piceous markings on the ventral head and dorsal pronotum, the tooth-like appendages on the median uncal lobes supporting the aedeagus, although the new species shares the pair of white pubescent, waxy ovals on the anterior four fifths of the lateral abdominal tergite 3 found in *C. bimaculata*, *C. bimaculata* is thought to be endemic to Java (Yaakop *et al.* 2005). *Chremistica nesiotes* can be distinguished by the narrowing piceous bands on abdominal tergites 4–6 that are unique to that species (Yaakop *et al.* 2005). *Chremistica sumatrana* can be distinguished by the unique character of the piceous band on abdominal tergite 2 reaching the posterior margin of the segment in that species (Yaakop *et al.* 2005). Finally, this new species can be quickly distinguished from *Chremistica doiluangensis* **sp. nov.** by the shorter fore wing length (32.50 mm) and wingspan (74.60 mm) vs. 35.20 mm and 79.25–80.00 mm, respectively, in this new species.

The structure of the male genitalia, primarily the shape of the uncus, is, again, the most reliable manner to determine species identity. There are only a few species of the *C. bimaculata* species group that possess lateral uncus lobes that are elongated and acuminate. The extensions are short, laterally broad, and diverge from the base in *C. moultoni*. Although this new species is similar in general appearance and size to *C. sueuri*, it can be distinguished by the elongate, apically acute male uncus that diverge distally from the base in *C. sueuri* but are proportionately longer and remain parallel along the midline until diverging just before the distal terminus in this new species. All other species, including *C. doiluangensis* **sp. nov.**, lack the extensions on the lateral uncus lobes, or they terminate in a complex structure that is not acuminate.

DESCRIPTION

Ground color of head and thorax castaneous marked

with piceous, abdomen piceous marked with castaneous. Greenish hue to thorax in paratype.

Head

Head wider than mesonotum, transverse piceous fascia surrounding ocelli and including anterior cranial depression, expanding anteriorly to cover all but anterolateral corners of frons, slight anterolateral extension posterior to medial supra-antennal plate, expanding posteriorly from lateral ocelli and along epicranial suture to posterior head, laterally expanding to broad mark along medioanterior eye, posterior portion of this mark expands into medially oriented C-shape in paratype, eye margined with piceous, posterior cranial depression piceous, piceous posterior to eye. Supra-antennal plate ground color. Covered with short golden pile dorsally, additional short silvery pile in paratype, longer silvery pile posterior to eye. Ocelli rosaceous, eyes castaneous. Gena piceous with ground color anterior, medial, and posterior margins. Lorum piceous with castaneous anteromedial corner surrounded by ground color margins. Thick white pubescence, short silvery pile, and long white pile on lorum and gena. Postclypeus not centrally sulcate, ground color posteroventrally and laterally on ventral transverse ridges, castaneous on dorsum, ovoid inflation posteroventral to apex, and remaining transverse ridges, piceous within transverse grooves. Postclypeus with 13 transverse grooves, short golden pile on dorsum, additional short silvery pile in paratypes, thick white pubescence, short silvery pile, and long white pile on lateral postclypeus, pubescence within ventral transverse grooves. Anteclypeus piceous with ground color anterior margin and carina, covered with thick white pubescence and long white pile. Mentum ground color, labium ground color proximally with medial piceous fascia expanding to piceous tip reaching to middle of hind coxae with sparse short and long silvery pile. Scape and proximal pedicel ground color, distal pedicel dark castaneous, remaining antennal segments absent.

Thorax

Dorsal thorax castaneous. Pronotum with piceous fissures except anterodorsal midline, mark in paramedian fissure extends medially anterior to fissure before bending posteriorly to fuse with distal fissure producing a short castaneous fascia surrounded by piceous, mark curves laterad then posteromedial to fuse on posterior ambient fissure midline, piceous within lateral fissure, castaneous in paratype, curving castaneous mark extending posteriorly onto middle disc posterior of anterior paramedian fissure, piceous mark on anterior of lateral disc, along central portion of disc in paratype, piceous mark in posterior ambient fissure expanding slightly between midline and posterior lateral fissure. Pronotal collar castaneous with transverse piceous fascia on posterior of lateral part of pronotal collar, reduced to medial spot in paratype. Pronotum covered with short silvery pile, denser in fissures. Mesonotum castaneous, piceous submedian sigillae, outer margins of lateral sigillae producing a central castaneous fascia, central piceous fascia beginning

between posterior submedian sigillae, obliquely angled to piceous scutal depressions and continuing medially across anterior cruciform elevation forming large piceous mark, small castaneous spot on either side of midline anterior to cruciform elevation within larger piceous mark, transverse piceous fascia across anterior of anterior arms of cruciform elevation continuing across anterolateral margin of cruciform elevation and posterior mesonotum to posterolateral mesonotum, wing groove ground color with anterior dark castaneous spot and dark castaneous posteromedial margin with lateral cruciform elevation. Metanotum dark castaneous. Dorsum with short silvery pile, short golden pile anterior to cruciform elevation, longer silvery pile laterally, posteriorly, in wing groove, and on posterior metanotum. Ventral thoracic segments ground color except piceous within basisternum 2 and 3, posterior katepisternum 2, dark castaneous anterior katepimeron 2, trochantin 2, meron 2, and trochantin 3. Ventral thoracic segments covered with thick white pubescence and dense white pile.

Wings

Fore wings and hind wings hyaline with eight and six apical cells respectively. Venation castaneous becoming piceous distally, except dark castaneous radius & subcostal vein, cubitus anterior, radius posterior, and radius anterior, anal vein 2 + 3 with piceous posterior margin. Anterior three quarters and proximal margin of basal cell clouded. Pterostigma to half the length of apical cell 1. Basal membrane of fore wing white with red speckles at base becoming dark gray distally. Venation of hind wing light castaneous proximally, greenish ochraceous in paratype, becoming piceous distally, except darker castaneous anal veins 2 and 3, and piceous medial margin of anal cell 3. Anal cell 3 except ovoid region near distal terminus and anal cell 2 along anal vein 3 gray, anal cell 1 and 2 along anal vein 2 gray as is anterior cubital cell 2 along proximal half of cubitus posterior vein. Small infuscation on proximal cubital cell 2.

Legs

Legs light castaneous, dark castaneous spot on proximal fore coxae, dark castaneous mark forming triangular area on anterior middle and hind coxae, middle and hind coxae piceous laterally, femora lightly striped with darker castaneous, tibiae, and tarsi light castaneous, pretarsal claws with piceous tips. Fore femora with proximal spine longest, finger-like, obliquely oriented to femoral axis, secondary spine triangular, upright, and small upright tertiary spine, all castaneous with piceous tips, primary and secondary spines connected by a castaneous fascia. Tibial spurs and comb castaneous with darker tips. Meracanthus pointed curving mediad distally, ground color with piceous spot on base and dark castaneous margin, reaching to middle of sternite I. Female meracanthus similarly colored reaching to anterior of abdominal sternite III.

Operculum

Male operculum large, with longitudinal lateral margin at

base, posteromedially angled posterolateral margin, semi-circular posterior margin, longitudinal medial margins adjoining along midline, and curved anteromedial margin, reaching to anterior of sternite II, castaneous with darker castaneous mark lateral and posterior to meracanthus and large piceous area on anterolateral base, covered with white pubescence and short silvery pile. Female operculum with curved lateral margin, sinuate posterior margin, terminating medially at lateral meracanthus reaching to anterior of sternite II, similarly colored to male operculum with greenish ochraceous posterolateral corner, white pubescence at base.

Abdomen

Abdomen piceous and castaneous covered with short golden pile, long golden pile radiating from tergites 7 and 8 in male holotype and tergites 8 and 9 in female paratype, dense white pile on anterolateral tergite 2 in female paratype. Tergites with medial transverse piceous mark on anterior tergites, posterior and lateral margins castaneous, male tergite 8 with greenish region on dorsolateral anterior within transverse piceous fascia, large spot of white pubescence on lateral tergite 3, pubescence absent but tawny spot remains in female paratype. Timbal cover complete, anteriorly curving under posterior metanotum with rounded anterior apex, ventral margin straight and angled dorsally to long body axis. Female abdominal segment 9 with similar coloration to other tergites except dark castaneous along ventral midline, stigma within piceous region, dorsal beak piceous, with radiating long, golden pile. Posterior margin of abdominal segment 9 sinuate, piceous on dorsomedial curve. Sternites and epipleurites castaneous with very dark transverse castaneous fascia across midline, larger in sternites II and VII, only in sternites II and VII in female paratype, male sternite VIII light castaneous anterolaterally, very dark castaneous along midline expanding laterally along posterior sternite, dorsal margin slightly curved, forming a shallow V-shaped notch when viewed from the posterior. Female sternite VII with open V-shaped medial notch, posterior margin straight to posterolateral curve, dark castaneous spot laterally. Sternites and epipleurites with white pubescence, denser laterally, and short and radiating long silvery pile.

Genitalia

Male pygofer light castaneous, piceous along midline extending laterally anterior to posterior terminus, and on posterior margin, ochraceous between pygofer basal lobes, with rounded distal shoulder, piceous dorsal beak curved toward anal styles, with short silvery pile, longer silvery pile radiating posteriorly. Pygofer basal lobe adpressed to lateral pygofer, laterally flattened to bulb-like terminus, radiating short golden pile medially, pygofer upper lobes short, rolled medially with obtusely angled apex. Anal styles piceous with castaneous margins, anal tube reddish tawny, radiating long silvery pile. Median uncus lobe castaneous, short with curved apex, lateral uncus lobes extend to meet above posterior median uncus lobe, extend to form a pair of thin, laterally curved, diverging distally

to acuminate tips that surround theca at their base, basal lateral uncus lobes separated smoothly curving medially to form apophyses to support theca, short silvery pile radiating ventrally. Aedeagus tubular, dark castaneous.

Female gonapophysis VIII castaneous, gonapophysis IX piceous extending slightly beyond dorsal beak with radiating golden pile. Gonocoxite IX light castaneous. Anal styles dark castaneous.

MEASUREMENTS (MM).—N = one male or one female. Length of body: male 25.10, female 23.75; length of fore wing: male 35.20, female 35.20; width of fore wing: male 11.25, female 11.15; length of head: male 5.55, female 5.25; width of head including eyes: male 10.60, female 10.30; width of pronotum including suprahumeral plates: male 10.55, female 10.25; width of mesonotum: male 9.60, female 8.85.

DISTRIBUTION.—The species is known only from the type series collected in Phu Pan National Park, Kalasin Province, Thailand.

Tribe POMPONIINI Kato, 1932 rev. stat.

Pomponiaria Kato 1932: 145, 313.

TYPE GENUS.—*Pomponia* Stål 1866: 6.

GENUS INCLUDED.—*Pomponia* Stål, 1866. Historically the genus has included a diverse group of what have since been shown to be phylogenetically unrelated species. I was able to find species currently assigned to 21 genera from eight tribes that were at one time classified as a species of *Pomponia*. These generic reassignments are supported by genetic analyses so that the clades containing the current species of *Pomponia* appear to represent a distinct phylogeny. Resurrecting Pomponiini rev. stat. addresses the basal divergence of the species of *Pomponia* that separates *Pomponia* from the remaining genera of Psithyristriini in polyphyletic, mixed tribal clades. If new genera are supported within the *Pomponia* clade, they will be positioned to remain within Pomponiini rev. stat. and not require reassignment to different tribes since all *Pomponia* branches separate from the remaining Psithyristriini genera in these clades (Hill *et al.* 2021; Wang *et al.* 2025).

DIAGNOSIS.—The diagnostic characters are currently based on the single genus assigned to the tribe. Some of the variability may be the result of the current concept of *Pomponia* being represented by several genera. Head generally not as wide as mesonotum, supra-antennal plate reaching about half distance to eye; postclypeus with well developed transverse grooves and ridges; pronotal collar laterally dentate; wings hyaline but generally highly infuscated on wing veins; well developed, scale-like timbal cover forming small opening on dorsomedial timbal cavity; timbal extending below wing base; male opercula short, apices well separated, generally not meeting medially; male abdomen longer than the distance between the anterior postclypeus and the posterior cruciform elevation, male abdominal sternites thin and translucent, lacking tubercle-like projections; pygofer distal shoulder

well-developed, often acuminate, dorsal beak absent, upper pygofer lobe present, basal lobe of pygofer well developed; uncus bifurcate, may be fused proximally with bifurcation along distal midline or with well-developed lateral branches; aedeagus thin without distal spines.

DISTINGUISHING FEATURES.—Species of the tribe can be distinguished from the other eight Cicadinae tribes in the same clade (Hill *et al.* 2021) by the following set of characters: supra-antennal plate reaching about half distance to eye; well developed transverse grooves and ridges on postclypeus; pronotal collar laterally dentate, lateral pronotum not convex; wings not opaque but hyaline; scale-like timbal cover forming small opening on dorsomedial timbal cavity, timbal cover not globose; male opercula short, reaching only to anterior of abdominal sternite II, not globose and not wider than the abdominal margin; male abdomen longer than the distance between the anterior postclypeus and the posterior cruciform elevation, male abdominal sternites translucent, lacking tubercle-like projections; pygofer distal shoulder well-developed but not forming extended lateral processes, dorsal beak absent, upper pygofer lobe present, basal lobe of pygofer well developed; uncus bifurcate; aedeagus thin without distal spines.

REMARKS.—The higher taxonomic position of the genus *Pomponia* has changed many times since it was formed. In the time since our original paper was published, the genus has been reassigned from Pomponiini Kato, 1932 (Sanborn *et al.* 2007) to a subtribe within the Cicadini Batsch, 1789 (Lee & Hill 2010) to its current position in Psithyristriini Distant, 1905b (Lee 2014; Hill *et al.* 2021).

Genetic analyses support grouping most of the Psithyristriini genera. However, the Psithyristriini genera form three distinct clades that are separated by non-Psithyristriini genera and tribes (Hill *et al.* 2021; Wang *et al.* 2025) with an additional clade of Psithyrstriini genera in the second main clade of the larger analysis of Hill *et al.* (2021), suggesting Psithyrstriini is currently polyphyletic. In both sets of analyses using multiple species of *Pomponia* in the data set, the *Pomponia* clade diverges to a different clade from the remaining Psithyristriini genera at a deeply rooted branch point (Lee & Hill 2010; Hill *et al.* 2021; Wang *et al.* 2025). There also appear to be several different lineages within *Pomponia* that may represent new genera (Hill *et al.* 2021; Wang *et al.* 2025), suggesting the phylogeny of *Pomponia* requires significant additional study. For example, even though the original species of *Megapomponia* Boulard, 2005b were transferred from *Pomponia*, these species have been reassigned to a *Megapomponiina* Lee, 2014 (in Lee & Emery, 2014) of the Dundubiini Distant, 1905a (Lee & Emery 2014), a position well supported by the genetic analyses (Hill *et al.* 2021; Wang *et al.* 2025).

Kato (1932) erected Pomponiaria as a taxonomic division (now considered a subtribe) for *Pomponia* and *Oncotympana* Stål, 1870 separating the genera based on the length and shape of the abdomen. *Oncotympana* is currently assigned to Oncotympanini Ishihara, 1961 (redefined by Lee (2011) as being distinguished by the

globose male timbal covers) and related to *Psithyristria* Stål, 1870 (Marshall *et al.* 2018; Hill *et al.* 2021; Wang *et al.* 2025). Metcalf (1963) and Duffels & van der Laan (1985) treated the taxon as a subtribe of the Psithyristriini Distant, 1905b although the placement in Psithyristriini was immediately questioned by China (1964). Sanborn (2013) included Pomponiini as a tribe following Chou *et al.* (1997). Lee & Hill (2010) reassigned Psithyristriini as a subtribe of Cicadini including the genus *Pomponia* and, finally, Lee (2014) then elevated the Psithyristriina back to tribal level without comment. There has also been an unsupported grouping of genera published since *Pomponia* was moved to the Psithyristriini. Boulard (2014) considered Pomponiina as a subtribe of Dundubiini including *Pomponia*, *Megapomponia* Boulard, 2005b and *Minipomponia* Boulard, 2008a, that are currently assigned with genetic support to three different tribes.

Lee & Hill (2010) reassigned *Pomponia* to the Cicadini based on two conflicting analyses, one showing *Pomponia* as a distant sister group to *Psithyristria* Stål, 1870 and one as a sister group to genera currently assigned to Leptopsaltriini Moulton, 1923. They also synonymized Pomponiini into Psithyristriina of the Cicadini. Lee & Hill (2010) defined Psithyristriina as having the following morphological features: wings hyaline; male opercula small, scale-like, wide and short; male abdomen longer than the distance from the head to the cruciform elevation; uncus of male genitalia bifurcate; distal shoulder of pygofer well extended distally and acutely pointed. These features, with the exception of the well extended and acutely pointed distal pygofer shoulder, generally match currently assigned species of *Pomponia* and are not as diagnostic as is necessary as illustrated by the genetic studies showing the tribe to be polyphyletic.

Hill *et al.* (2021) provide significant evidence that Psithyristriini is polyphyletic with some examples of *Terpnosia* Distant, 1892 being found in each of the two main branches of the complete cladogram. In addition, all species of *Pomponia* included in their analysis form a separate clade from other Psithyristriini genera. The relatedness of *Psithyristria* and *Oncotympanini* is supported where the taxa form a joint clade but other genera (e.g. *Semia* Matsumura, 1917 and *Terpnosia*) currently assigned to Psithyristriini form distinct clades from the type genus. Species of *Pomponia* did not form a single monophyletic clade suggesting that all species may not be congeneric with the type species of the genus, but all branches representing *Pomponia* species did separate from all other Psithyristriini genera before the other Psithyristriini genera began to diverge.

The most recent genetic analysis included 13 species of *Pomponia* (Wang *et al.* 2025) and supports the polyphyletic composition of Psithyristriini with currently assigned genera being distributed in three separate clades. More importantly, they also show that all the species of *Pomponia* form their own clade separated from the remaining Psithyristriini and *Oncotympanini* (Wang *et al.* 2025) while supporting the relatedness of *Psithyristria* and *Oncotympanini* which form a joint clade separated from other Psithyristriini genera (e.g. *Semia* and *Terpnosia*).

As a result of these analyses, Pomponiini Kato, 1932 **rev. stat.** is removed from junior synonymy and the currently assigned species of *Pomponia* are reassigned here to Pomponiini Kato, 1932 **rev. stat.** This reassignment addresses the deep origins of the divergence of the genus in the genetic analyses (Łukasik *et al.* 2019; Hill *et al.* 2021; Wang *et al.* 2025) from the remaining, but apparently, still polyphyletic group of genera comprising the Psithyristriini. It has been suggested that *Pomponia* may represent several genera based on the early divergence of some taxa in the *Pomponia* clade (Hill *et al.* 2021; Wang *et al.* 2025). These new genera will be positioned to remain within Pomponiini **rev. stat.** if there is evidence to support the introduction of new genera for some *Pomponia* species to address the early diverging clades.

Genus *Pomponia* Stål, 1866

Pomponia Stål 1866: 6.

TYPE SPECIES.—*Cicada fusca* Olivier 1790: 749 (= *Dundubia picta* Walker, 1868) (Sumatra).

REMARKS.—The genus is currently in need of revision. It has been suggested that *Pomponia* as it is currently defined may be a polyphyletic grouping with many of the species being representatives of one or more genera distinct from the type species (Hill *et al.* 2021; Wang *et al.* 2025).

Pomponia bimaculosalaria sp. nov.

(Fig. 3)

Pomponia undescribed species A Sanborn *et al.* 2007: 30.

Pomponia undescribed species A Sanborn 2013: 349.

TYPE MATERIAL.—Holotype. “THAILAND: Chiang Mai Prov. / Doi Inthanon N.P., Thai Royal / Agricultural Res. Stn. at Khun / Wang; 18° 37'N 98° 30'E, BLT / 1,431 m; 8 May 2002; L-400 / colls: UMC and CMU teams” male (UMRM). Paratypes. Same data as holotype, one male (UMRM), one male (AFSC).

ETYMOLOGY.—The name is a combination of *bi-* (L., *bi-*, two), *-maculos-* (L., *maculosus*, spotted), and *-alaria* (L., *alarius*, of wings) in reference to the two spots of infuscation on the radial and radiomedial crossveins of the fore wing.

DIAGNOSIS.—*Pomponia* is a heterogeneous genus with three main species groups (Wang *et al.* 2025). The majority of species are characterized by distinct infuscation along the fore wing crossveins and distal veins between apical cells. There is a short list of species of species that have a similar body length (24–25 mm) to the new species and infuscation only on the radial and radiomedial crossveins. *Pomponia matijai* Boulard, 2018, from central Thailand, has similar fore wing infuscation but is significantly larger (body length 33 mm) with more expansive piceous markings on the abdominal tergites.

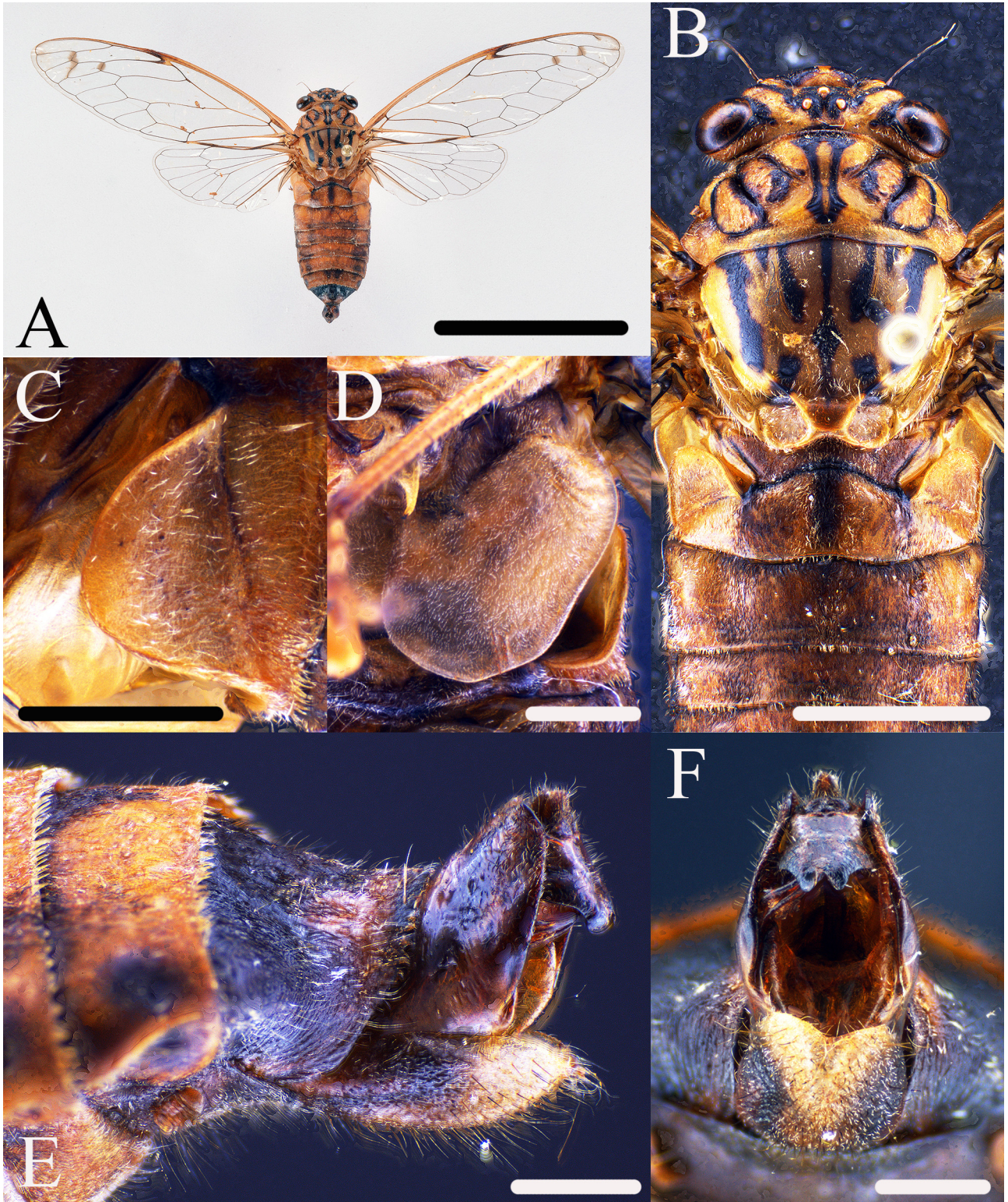


FIGURE 3. *Pomponia bimaculosalaria* sp. nov.: A, holotype male habitus; B, holotype male dorsum; C, holotype male timbal cover; D, holotype male operculum; E, holotype male lateral view of genitalia; F, holotype male posterior view of genitalia. Scale bar: A, 2 cm; B, 5 mm; C–D, 2 mm; E–F, 1 mm.

Pomponia promiscua Distant, 1887 is found in Sumatra and Java and lacks the piceous frons and anterior vertex, piceous markings are restricted to within the pronotal fissures and do not expand onto the disc, the mesonotum lacks the five long and two short fasciae and piceous spots on scutal depressions, and the male opercula do not extend to the second abdominal sternite. *Pomponia solitaria* Distant, 1888a from the Andaman Islands is slightly larger (body length 28 mm) but also has linear infuscation in the fore wing apical cells. *Pomponia surya* Distant, 1904b is found in India and can be distinguished by the almost completely piceous head and mesonotum, the pronotal collar is mainly piceous between the lateral angles, the lack of a median fascia on the ventral postclypeus, and the male opercula almost meet along the midline and do not reach the second abdominal sternite. Similarly, the Nepalese *P. secreta* Hayashi, 1978 is described as being similar to *P. surya* but differing in the widely separated opercula which also distinguishes it from the new species along with the slightly larger body size (28.5 mm).

DESCRIPTION

Ground color of head and thorax dark tawny marked with piceous, abdomen castaneous marked with piceous.

Head

Head wider than mesonotum, ground color, dorsomedial area piceous surrounding ocelli except for posterolateral quadrant of lateral ocelli including the anterior cranial depression, anterior cranial depression separated from larger mark but piceous in one paratype, marks extend medially to touch in ground color epicranial suture, mark extending anteriorly to frontoclypeal suture where it widens covering all but anterolateral corners of frons, curved piceous fascia from lateral anterior cranial depression to anterolateral vertex margin, longitudinal extension of anterior mark to medial supra-antennal plate, dorsal eye margined with piceous, mark extending posteromedially from medial angle of eye, posterior cranial depression with small piceous spot, short transverse fascia across dorsal midline on posterior head. Supra-antennal plate piceous except for ground color anterior margin and along suture with vertex. Covered with short silvery pile dorsally, longer silvery pile posterior to eye. Ocelli ochraceous mottled with rosaceous, rosaceous in one paratype, eyes castaneous. Ventral head ground color, transverse piceous fascia extending from lateral postclypeus posterior to antenna to eye, forming piceous border to ventral eye. Lorum ground color along anterior, lateral, and posteromedial margins, remaining lorum piceous. Short and radiating long silvery pile on lorum and gena. Postclypeus not centrally sulcate, with 11 transverse grooves, ground color with longitudinal piceous fascia extending from posterior midline, expanding laterally to medial transverse ridges, expanding into medial transverse grooves 4–6, bifurcating around apex at fifth transverse groove, reaching lateral margin covering both transverse grooves and ridges by third transverse groove leaving ground color triangular

mark on dorsum. Postclypeus with short silvery pile on dorsum and ventrolateral margin, ventral postclypeus radiating long silvery pile. Anteclypeus ground color with longitudinal piceous fascia posterior to anterior margin and posterior margin on either side, expanding to lateral margin in paratypes, covered with short and radiating long silvery pile. Mentum ground color, labium ground color proximally, darkening to piceous tip reaching to hind trochanters with sparse short silvery pile. Antennal segments castaneous.

Thorax

Dorsal thorax ground color. Pronotum with piceous mark on either side of midline diverging posterolaterally from anterior margin adjoining to curving fascia on either side of midline adjoining to posteromedially angled fascia at level of posterior lateral fissure and fusing on midline ambient fissure, piceous mark in anterior paramedian fissure extending onto medial central disc, short fascia in anterior portion of medial paramedian fissure, piceous fascia surrounding lateral disc in lateral and ambient fissures, mark expands onto anterior pronotal collar medial to lateral angle of pronotal collar and on lateral pronotal collar, extending to lateral margin and expanding along lateral margin in paratypes, pronotal markings are fused to large single mark in one paratype. Pronotal collar ground color with piceous posterior margin, piceous not reaching pronotal collar lateral angle, piceous spot anterior to anterior pronotal collar lateral angle. Pronotum covered with short silvery pile. Mesonotum ground color, piceous fascia along dorsal midline expanding posteriorly between posterior submedian sigillae and anterior arms of cruciform elevation terminating posteriorly on central cruciform elevation, piceous fasciae medial to parapsidal sutures terminating across posterior parapsidal sutures, expanding in the middle in paratypes, short triangular fascia on anterior margin between submedian and lateral sigillae, piceous fascia along medial lateral sigillae, lateral margin with piceous fascia, scutal depressions piceous, transverse piceous mark across anterior anterior arms of cruciform elevation that extends laterally to posterior mesonotum and anterior margin of lateral cruciform elevation, small piceous spot on anteromedial wing groove margin. Metanotum ground color with piceous spot on posterior margin near wing groove and piceous spot on anterolateral margin. Dorsum with short silvery pile, longer and denser on lateral margin, posteriorly, in wing groove, and on posterior metanotum. Ventral thoracic segments with short silvery pile, ground color except piceous basisternum 2, piceous spot on posterior anemisternum 2, anteromedial katapisternum 2, and castaneous medial, anterolateral and posterolateral basisternum 3, meron 2 castaneous in paratypes.

Wings

Fore wings and hind wings hyaline with eight and six apical cells respectively, infuscation on fore wing radial and radiomedial crossveins. Venation ground color at base, costa and radius & subcostal vein becoming castaneous distally, cubitus anterior and anal vein 2 + 3

castaneous, remaining veins becoming piceous distally, piceous spot on arculus and cubitus anterior 2, posterior anal vein 2 + 3 piceous, ochraceous spot on node. Basal cell hyaline. Pterostigma to distal junction of subcostal vein and radius anterior 1. Basal membrane of fore wing gray at base becoming darker posteriorly. Venation of hind wing piceous except green cubitus anterior almost to divergence of cubitus anterior 1 and cubitus anterior 2 and proximal quarter of anal vein 1, and anal vein 2 castaneous. Anal cell 3 and anal cell 2 along anal vein 3 dark gray, anal cell 1 and 2 along anal vein 2 gray, gray margined with infuscation in anal cell 2, cubital cell 2 along proximal cubitus posterior margined with gray, small infuscation on proximal cubital cell 2.

Legs

Legs ground color, piceous fascia on proximolateral coxae, trochanters with light castaneous mark anteriorly, femora striped with castaneous, lighter in hind femora. Fore femora with proximal spine largest, finger-like, slightly oblique, secondary spine more triangular, upright and small tertiary spine angled more than primary spine, primary and tertiary spines ground color, secondary spine piceous, tertiary spine with piceous tip, primary and secondary spine connected by piceous ridge. Tibiae ground color with castaneous mark proximally and annular castaneous distal terminus. Tarsi light castaneous except piceous distal pretarsus and distal pretarsal claws, tibial spurs and comb ground color with castaneous tips. Meracanthus pointed, curved medially distally, ground color with castaneous base not reaching to middle of abdominal sternite I. Short silvery pile on proximal segments, longer radiating golden on distal segments, stout piceous pile on tibiae.

Operculum

Male operculum, short, approximating an angled rectangle, with smoothly curved distal end angled posteromedial, with curved lateral, posterolateral and posteromedial angles, reaching to middle of sternite II, not covering tympanal cavity laterally or medially, tawny with castaneous base, covered with short silvery pile. Medial margin extending almost to medial meracanthus, opercula well separated medially.

Abdomen

Abdomen longer than distance from postclypeus apex to posterior cruciform elevation, castaneous marked with piceous and darker castaneous, greenish tawny laterally on tergites 3 and 4, covered with short silvery pile, piceous pile on dorsolaterally giving the appearance of longitudinal fascia, anterolaterally on tergites 3–7, and transversely across the dorsal midline of anterior and posterior tergite 3 and posterior tergite 4, longer pile radiating from lateral tergites 6–8. Tergite 1 with piceous posterior margin adjoining piceous anterior margin of tergite 2, tergites 3–7 with lateral castaneous spot, becoming darker and rounder in posterior tergites, tergite 8 with anterior three-fourths piceous, posterior tergite 8 dark castaneous. Timbal cover incomplete exposing

timbal posterodorsally, anteriorly, and ventrally, scale-like with rounded anterior apex, ventral margin straight angled anterodorsally to long body axis. Timbal with six long ribs. Sternites and epipleurites castaneous except greenish ochraceous sternite I with central castaneous spot, piceous posteromedial margin of sternite II, piceous auditory capsule, transverse piceous fascia across anterior midline of sternite III, sternite VII dark castaneous, sternite VIII with straight dorsal margin, dark castaneous anteriorly, greenish tawny posteriorly, open U-shaped notched when viewed from posterior, male sternites III–VI translucent. Sternites and epipleurites with with short golden pile, longer pile radiating from sternites. White pubescence on sternites I and II in paratypes.

Genitalia

Male pygofer dark castaneous with piceous lateral and dorsal fascia, posteroventral and posterior margins, with rounded distal shoulder, dorsal beak absent, with short silvery pile posterolaterally. Pygofer basal lobe developed, obtusely angled ventral margin, adpressed to pygofer, radiating short golden pile medially. Anal styles and anal tube piceous with golden pile. Median uncus lobes dark castaneous, short with curved distal margin surrounded by lateral lobes of uncus, lateral uncus lobe with basolateral extension, sinuate lateral margin when viewed from dorsal side, ventral side obtusely curved medially forming triangular posterior extension, posterior termini separated forming a U-shaped exit for aedeagus, medial extension of lateral uncus lobes form adjoining apophyses supporting theca to posterior exit. Aedeagus tubular, dark castaneous.

MEASUREMENTS (MM).—N = 3 males, mean (range). Length of body: 24.30 (24.15–24.55); length of fore wing: 29.05 (28.60–29.55); width of fore wing: 9.28 (9.05–9.40); length of head: 3.53 (3.40–3.60); width of head including eyes: 6.68 (6.65–6.70); width of pronotum including suprahumeral plates: 7.25 (7.20–7.30); width of mesonotum: 6.32 (6.20–6.40).

DISTRIBUTION.—The species is known only from the type series collected in Doi Inthanon National Park, Chiang Mai Province, Thailand.

Tribe LEPTOPSALTRIINI Moulton, 1923

Subtribe LEPTOPSALTRIINA Moulton, 1923

Genus *Aetanna* Lee, 2014

Aetanna Lee 2014: 67.

TYPE SPECIES.—*Aetanna pallidula* Lee 2014: 68 (Luang Namtha, Laos).

REMARKS.—*Aetanna* was erected for species related to *Tanna* Distant, 1905a that differed in the shape of the male opercula and uncus. Lee (2014) described two species and transferred seven species to the new genus. An additional species was reassigned to the genus in Lee & Emery (2020).

Aetanna lannensis sp. nov.
(Fig. 4)

Tanna undescribed species A Sanborn *et al.* 2007: 14.
Tanna undescribed species A Sanborn 2013: 370.

REMARKS.—This species was originally classified as a species near *Tanna ventriroseus* Boulard, 2003 and *Tanna yanni* Boulard, 2003 but differed in the genitalia, opercula, and wing cell shape resulting in its original designation as an undescribed species of *Tanna* Distant, 1905a (Sanborn *et al.* 2007). The species exhibits the distinguishing features of *Aetanna* so it is described here as a member of *Aetanna* along with the two Boulard species which were reassigned to the genus (Lee 2014).

TYPE MATERIAL.—Holotype. “THAILAND: Nan Province / Mae Charim Natl. Pk.: 285 m / 18° 36'N 100° 59'E; L-477 / pan UV lt. trap; 22 April 2003 / colls: AV, Prommi, Setaphan” male (UMRM). Paratypes. “THAILAND: Mae Hong Son Prov. / Amphur Pang Mapha; Soppong / River behind resort; UV pan trap / 648 m; 19° 31.159'N 98° 14.844'E / 18 April 2009; L-1047 / Sites, Vitheepradit, Prommi” one male (UMRM), one male (AFSC); “THAILAND: Chiang Mai Prov. / Doi Inthanon N.P., Thai Royal / Agricultural Res. Stn. at Khun / Wang; 18° 37'N 98° 30'E, pan / UV lt. trap; 1,431 m; 2 May 2003 / colls: UMC and CMU teams; L-496” one male (AFSC).

ETYMOLOGY.—The name is a combination of *lann-* (for Lanna, the name for the northern region of Thailand including the provinces where the specimens originated) and *-ensis* (L., suffix denoting place, locality) in reference to the site where the type series originated.

DIAGNOSIS.—*Aetanna shensiensis* (Sanborn, 2006) can be distinguished quickly from the new species by its larger body size (greater than 32 mm vs. 21.30–23.45 for the new species). Similarly, *A. minor* (Hayashi, 1978) can be distinguished by the smaller body size (less than 20 mm). *Aetanna condyla* (Chou & Lei, 1997), *A. curta* Lee, 2014, *A. pallidula* Lee, 2014, *A. thalia* (Walker, 1850), *A. tigroides* (Walker, 1858), and *A. yunnanensis* (Lei & Chou, 1997) overlap the size range of the new species.

The lack of infuscation on the all fore wing crossveins distinguishes *A. minor*, *A. thalia*, and *A. tigroides* from the new species. *Aetanna curta* has linear marks of infuscation within the fore wing apical cells not found in the new species. *Aetanna pallidula* can be distinguished by the radial and radiomedial crossveins being parallel, the curved rather than angulate posterior margin of the male operculum and the narrower distolateral uncus. Similarly, *A. condyla* can be distinguished by the radial and radiomedial crossveins being parallel, the transverse posterior margin of the male operculum and the narrower distolateral uncus with a distinctive hook. Finally, *A. yunnanensis* can be distinguished by the radial and radiomedial crossveins being parallel, the curved rather than obtusely angled lateral margin of the male operculum, and the square lateral view of the distal uncus lacking a triangular extension found in the new species.

Both of the Thai species, *A. ventriroseus* (Boulard, 2003) and *A. yanni* (Boulard, 2003), have body lengths

less than or equal to 21 mm. In addition, the rostrum of *A. ventriroseus* reaches the hind trochanters but extends slightly beyond the hind trochanters in the new species, the distal fore wing radius posterior and median veins 1 + 2 are not curved, the wing margins lack infuscation, the abdominal sternites are pinkish in coloration rather than only the posterior margins of the sternites being colored, and the square lateral view of the distal uncus lacking a triangular extension found in the new species. Similarly, the rostrum of *A. yanni* reaches the hind coxae but extends slightly beyond the hind trochanters in the new species, the primary and secondary fore leg femoral spines are parallel, fore wings are about 3.00 times longer than wide rather than the approximate 3.23 found in the new species, the distal fore wing radius posterior and median veins 1 + 2 are not curved, abdominal sternites are pickish-green rather than only the posterior margins of the sternites being colored, and the uncus is narrower at the terminus when viewed from the posterior and has a distinct hook on the terminus when viewed from the side.

DESCRIPTION

Ground color of head and thorax dark tawny marked with piceous, abdomen light castaneous marked with piceous.

Head

Head wider than mesonotum, ground color, dorsomedial area piceous surrounding ocelli except for posterolateral quadrant of lateral ocelli, marks extend medially to fuse in epicranial suture between lateral ocelli, mark extending anteriorly to frontoclypeal suture where it widens covering all but anterolateral corners of frons and recurves laterally across epicranial suture anterior arm, curved piceous fascia from anterior to anterior cranial depression to anterolateral vertex margin widening anteriorly towards medial supra-antennal plate, reduced to thin fascia with central spot in one paratype, dorsal eye margined with piceous anterior to medial angle but not reaching anterior margin of lateral vertex, piceous at base of eye on posterior head margin. Supra-antennal plate with piceous anteromedial corner, extending along medial margin in one paratype. Covered with short silvery pile dorsally, longer silvery pile posterior to eye. Ocelli rosaceous, eyes castaneous. Ventral head ground color, angled transverse piceous fascia extending from lateral postclypeus posterior to antenna to posteromedial eye. Lorum ground color along anterior, lateral, and anteromedial margins, remaining posteroventral lorum piceous. Short and radiating long silvery pile on lorum and gena. Postclypeus not centrally sulcate, with nine transverse grooves, ground color with longitudinal piceous fascia extending from posterior midline, expanding laterally to medial transverse ridges, expanding into medial transverse groove 4, bifurcating around apex at fourth transverse groove, reaching lateral margin covering both transverse grooves and ridges of transverse grooves 1–3 leaving ground color dorsum. Postclypeus with short silvery pile on dorsum and lateral margin, ventral postclypeus radiating long silvery pile.

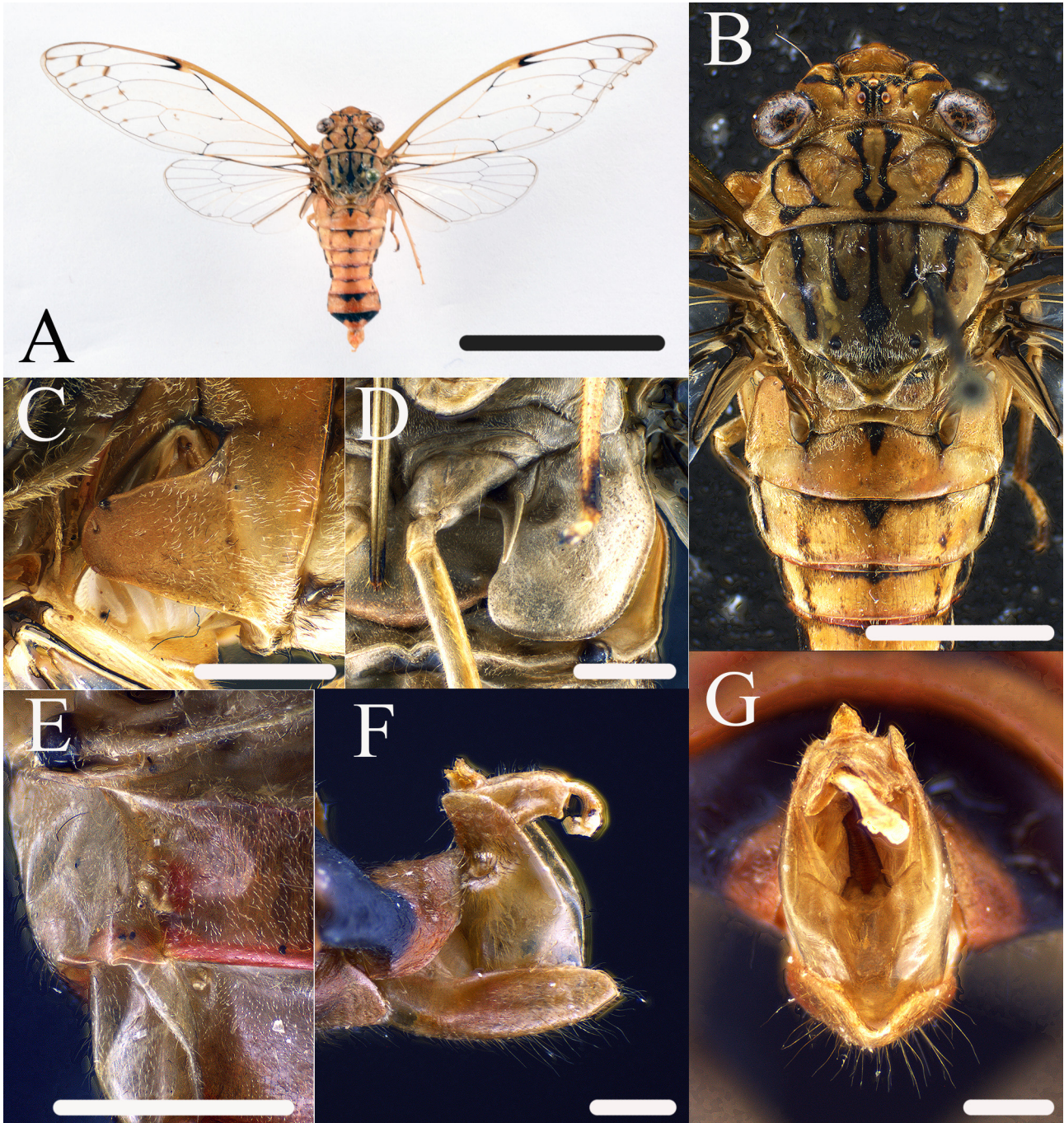


FIGURE 4. *Aetanna lannensis* sp. nov.: A, holotype male habitus; B, holotype male dorsum; C, holotype male timbal cover; D, paratype male operculum; E, holotype male abdominal tubercle; F, paratype male lateral view of genitalia; G, paratype male posterior view of genitalia. Scale bar: A, 2 cm; B, 5 mm; C–E, 2 mm; F–G, 1 mm.

Anteclypeus ground color with castaneous spot on either side of anterior carina at anterior margin, fusing to piceous mark on anterior half of carina in paratypes, anterolateral corner margined with piceous and posteroventral margin on either side, expanding to lateral margin in paratypes, covered with short and radiating long silvery pile. Mentum ground color, labium ground color proximally, darkening to piceous tip reaching to middle of abdominal sternite I, with sparse short silvery pile. Scape castaneous with ground color distal annular mark, remaining antennal segments castaneous.

Thorax

Dorsal thorax ground color. Pronotum with piceous mark on either side of midline diverging posterolaterally from anterior margin adjoining to curving fascia on either side of midline adjoining to posteromedially angled fascia at level of posterior lateral fissure and fusing on midline ambient fissure, short fascia in anterior portion of medial paramedian fissure, shorter fascia on posterior medial paramedian fissure posterior to anterior portion of mark in anterior portion of medial paramedian fissure, piceous spot on anterior of central disc, piceous fascia

surrounding lateral disc in lateral and ambient fissures, mark extends medially slightly beyond posterior lateral fissure, mark expands onto anterior pronotal collar medial to lateral angle of pronotal collar, mark extending to anteromedial corner of pronotal collar lateral angle in one paratype. Remaining pronotal collar ground color with piceous posterior margin, piceous not reaching pronotal collar lateral angle. Pronotum covered with short silvery pile. Mesonotum ground color, piceous fascia along dorsal midline expanding posteriorly between posterior submedian sigillae and anterior arms of cruciform elevation terminating between anterior arms of cruciform elevation, piceous fasciae medial to parapsidal sutures terminating across posterior parapsidal sutures, piceous fascia along medial lateral sigillae, lateral margin with piceous fascia, scutal depressions piceous, transverse piceous mark from posterior of anterior end of anterior arms of cruciform elevation that extends laterally to posterior mesonotum and anterior margin of lateral cruciform elevation, mark crosses anterior end of anterior arm of cruciform elevation in paratypes, castaneous spot on anteromedial and distal wing groove margins. Metanotum ground color. Dorsum with short silvery pile, longer and denser on lateral margin, posteriorly, between arms of cruciform elevation, in wing groove, and on posterior metanotum. Ventral thoracic segments ground color, short transverse castaneous mark on mid-lateral basisternum 3 in one paratype, with short silvery and sparse radiating long silvery pile.

Wings

Fore wings and hind wings hyaline with eight and six apical cells respectively, infuscation on fore wing radial, radiomedial and mediocubital crossveins, on distal veins between apical cells, and on fore wing margin distal to apical cells 1–6. Venation ground color at base, costa and radius & subcostal vein becoming light castaneous distally, anal vein 2 + 3 piceous, remaining veins becoming piceous distally, piceous spot on arculus, base of cubitus posterior + anal vein 1, cubitus anterior 2, nodal line intersection, median vein from divergence of median vein 1 + 2 distally almost to node, and proximal base of radius anterior and radius posterior, ochraceous spot on node. Basal cell hyaline. Pterostigma to distal junction of subcostal vein and radius anterior 1. Basal membrane of fore wing gray at base becoming darker posteriorly. Venation of hind wing piceous except ochraceous radius posterior, cubitus anterior, cubitus anterior 1, cubitus anterior 2, anal vein 1, and castaneous anal vein 2. Anal cell 3 and anal cell 2 along anal vein 3 dark gray, anal cell 1 and 2 along anal vein 2 gray, gray margined with infuscation in anal cell 2, anal cell 1 along proximal anal vein 1 in one paratype, cubital cell 2 along proximal cubitus posterior margined with gray, small infuscation on proximal cubital cell 2.

Legs

Legs ground color, castaneous fascia on proximolateral fore and middle coxae, fore trochanters with light castaneous mark anterodistally, femora striped with castaneous, lighter in hind femora, stripes fuse and form castaneous spot on anterodistal fore femora. Fore femora

with proximal spine largest, finger-like, obliquely angled, secondary spine less angled with curved tip, and small tertiary spine angled parallel to primary spine, primary spine castaneous, secondary and tertiary spines piceous. Tibiae ground color with annular castaneous mark proximally, reduced to short fascia in hind tibiae, and annular castaneous distal terminus, absent in hind tibiae. Tarsi ground color, distal pretarsus of fore and middle legs dark castaneous, distal pretarsal claws piceous, tibial spurs and comb ground color with castaneous tips. Meracathus pointed, curved medially distally, ground color with castaneous spot on base reaching to middle of abdominal sternite I. Short silvery pile on proximal segments, longer radiating golden on distal segments.

Operculum

Male operculum, short, approximate angled rectangle, with slightly curved distal end angled posteromedially, with curved lateral, posterolateral and posteromedial angles, reaching to middle of sternite II, not covering tympanal cavity laterally or medially, ochraceous with castaneous base, piceous along posterior margin, covered with short silvery pile, dense white pubescence on base. Medial margin extending to middle of hind coxa, opercula well separated medially.

Abdomen

Abdomen longer than distance from postclypeus apex to posterior cruciform elevation, castaneous marked with piceous and darker castaneous, reddish membranes between segments, greenish tawny laterally on tergites 3–6, covered with short silvery pile, longer pile radiating from lateral tergites 6–8, piceous pile across anterior midline of tergite 2, on dorsolateral tergites 3–6 giving the appearance of short longitudinal fascia, anterolaterally on tergites 3–6, and transversely across anterior tergite 7, pile reduced in some paratypes. Tergite 1 with piceous posterolateral margin along timbal cavity, tergite 2 with triangular piceous mark on anterior midline, anterior margin along posteromedial timbal cavity piceous, tergite 3 with triangular piceous mark on anterior midline, piceous dorsoanterior midline, and piceous longitudinal fascia on lateral surface extending from anterior margin about three-fourths distance to posterior margin, tergite 4 with piceous anterior margin with short posterior extension on dorsal midline, lateral piceous mark larger than on tergite 3 but not reaching anterior margin, tergite 5 with anterior midline piceous, short posterior extensions on either side of midline, lateral piceous mark larger, more dorsolateral, and reaching posterior margin, tergite 6 with piceous anterior midline margin, only slight posterior extensions on either side of midline, tergite 7 with piceous anterior midline, largest pair of posterior extensions on either side of midline and lateral castaneous spot, tergite 8 with anterior transverse piceous fascia covering half the dorsal side, posterior tergites 5–8 reddish. Timbal cover incomplete exposing timbal posteromedially, laterally and ventrally, narrowing anteriorly with rounded anterior apex, ventral margin straight angled anterodorsally to long body axis. Timbal with five long and four intercalary

ribs. Sternites and epipleurites castaneous except darker castaneous posterior sternite I, piceous auditory capsule, reddish posteriors of sternites III–VI, sternite III with short, flattened tubercle along lateral margin with epipleurite, sternite VIII with straight dorsal margin, ground color, open U-shaped notched when viewed from posterior, male sternites III–VI translucent. Epipleurites strongly reflexed. Sternites and epipleurites with with short golden pile, longer pile radiating from sternites. White pubescence on sternites in one paratype.

Genitalia

Male pygofer ground color with reddish dorsoposterior, narrow, rounded distal shoulder, short, triangular dorsal beak radiating short golden pile. Pygofer basal lobe developed, obtusely angled ventral margin with triangular distal terminus, adpressed to pygofer. Anal styles and anal tube ground color. Median uncus lobes ground color, short with roughly triangular distal margin surrounded by lateral lobes of uncus, lateral uncus lobe with basolateral extension, curved lateral margin when viewed from dorsal side, ventral side sinuate with triangular posterolateral extension, posterior termini separated forming V-shaped exit for aedeagus, medial extension of lateral uncus lobes form adjoining apophyses supporting theca to posterior exit. Aedeagus tubular, dark castaneous, with terminal membrane.

MEASUREMENTS (MM).—N = four males, mean (range). Length of body: 22.20 (21.30–23.45); length of fore wing: 28.73 (28.40–29.05); width of fore wing: 8.89 (8.80–8.95); length of head: 3.63 (3.45–3.80); width of head including eyes: 6.58 (6.45–6.75); width of pronotum including suprahumeral plates: 7.41 (7.20–7.60); width of mesonotum: 5.98 (5.90–6.05).

DISTRIBUTION.—The species is known only from the type series collected in Chang Mai, Mae Hong Son, and Nan Provinces, Thailand.

Genus *Vietanna* Lee & Pham, 2021 (in Pham & Lee, 2021a)

Vietanna Lee & Pham (in Pham & Lee 2021a): 1203.

Duffelsa Wang, Jiang & Wei 2023: 397.

TYPE SPECIES.—*Vietanna hanoiensis* Pham & Lee 2021a: 1203 (Hanoi, Vietnam).

REMARKS.—*Vietanna* was erected for a single Vietnamese species. Wang *et al.* (2023) described a new genus, *Duffelsa* Wang *et al.*, 2023, and several new species. *Duffelsa* was later shown to be a junior synonym of *Vietanna* (Lee 2023). As a result, the four species from *Duffelsa* were reassigned to *Vietanna* increasing the diversity of the once monospecific genus (Lee 2023). In addition, Wang *et al.* (2024) described two new species bringing the total species diversity of the genus to eight with the new species described here.

Vietanna oresbia sp. nov.

(Fig. 5)

Pomponia undescribed species C Sanborn *et al.* 2007: 30.

Pomponia undescribed species C Sanborn 2013: 349.

TYPE MATERIAL.—Holotype. “THAILAND: Nan Province / Amphur Bo Kluea, Tumbon Phufa / Doi Phuka Park Ranger Station 6 / 19° 01'N 101° 11'E; 538 m; L-473 / pan UV light trap; 21 April 2003 / Vitheepradit, Prommi, Setaphan” male (UMRM). Paratypes. Same data as holotype, one male (AFSC); “THAILAND: Phitsanulok Pr. / Phu Hin Rongkla Natl. Pk. / vapor light at guest house / 11 March 2002; L-288.5 / Sites, Vithprdt., Kirawanich” one male (UMRM); “THAILAND: Mae Hong Son Prov. / Namtok Mae Surin NP, Mae Nam / Pai; 19° 21'N 97° 59'E; 310 m / pan UV lt. trap, 31 March 2003 / UMC and CMU teams; L-431” one male (UMRM), two males (AFSC); “THAILAND: Mae Hong Son Prov. / Amphur Pang Mapha; Soppong / River behind resort; UV pan trap / 648 m; 19° 31.159'N 98° 14.844'E / 18 April 2009; L-1047 / Sites, Vitheepradit, Prommi” one male (UMRM), one male (AFSC).

ETYMOLOGY.—The name *oresbia* (Gr., *oresbios*, living in or on mountains) is in reference to the distribution of the type series in the mountains of several provinces in northern and north central Thailand.

REMARKS.—This species was originally classified as a species near *Pomponia noualhierii* Boulard, 2005a (now a junior synonym of *Vietanna orientalis* (Distant, 1912)) but differed in the genitalia and opercula resulting in its original designation as an undescribed species of *Pomponia* (Sanborn *et al.* 2007). The species possesses all the distinguishing features of *Vietanna* so it is described here as a member of the genus *Vietanna*.

DIAGNOSIS.—The new species can be distinguished from *Vietanna grandia* (Wang *et al.*, 2023) and *Vietanna rubia* (Wang *et al.*, 2023) by the larger body size of these species (greater than 46 mm). Similarly, *Vietanna longiloba* Wang *et al.* 2024 has a body length of 38.9 mm or greater, a pronotum width greater than 13.1 mm, and a mesonotum width greater than 11.5 mm, all values longer and wider than all individuals of the new species. *Vietanna orientalis* has infuscation on the fore wing radial and radiomedial crossveins but lacks infuscation on the median crossvein. *Vietanna hanoiensis* Pham & Lee, 2021 is the only other species to have infuscation on the fore wing mediocubital crossvein but the body length is greater than 41 mm, the fore wing length about 2.92 times longer than wide (about 3.05 in the new species), the male opercula lack the concave portion of the lateroposterior margin, and the terminus of the uncus is broad curving laterally to an approximate right angle on the posterolateral corner. *Vietanna parvula* (Wang *et al.*, 2023) is similar in size but it has a fore wing length about 3.50 times longer than wide (about 3.05 in the new species), the fore wing lacks infuscation on the fore wing mediocubital crossvein, the apex of the male operculum is along the lateral abdominal margin rather than at the junction of the abdominal sternites and epipleurites as in the new species, the concave portion of the posterolateral

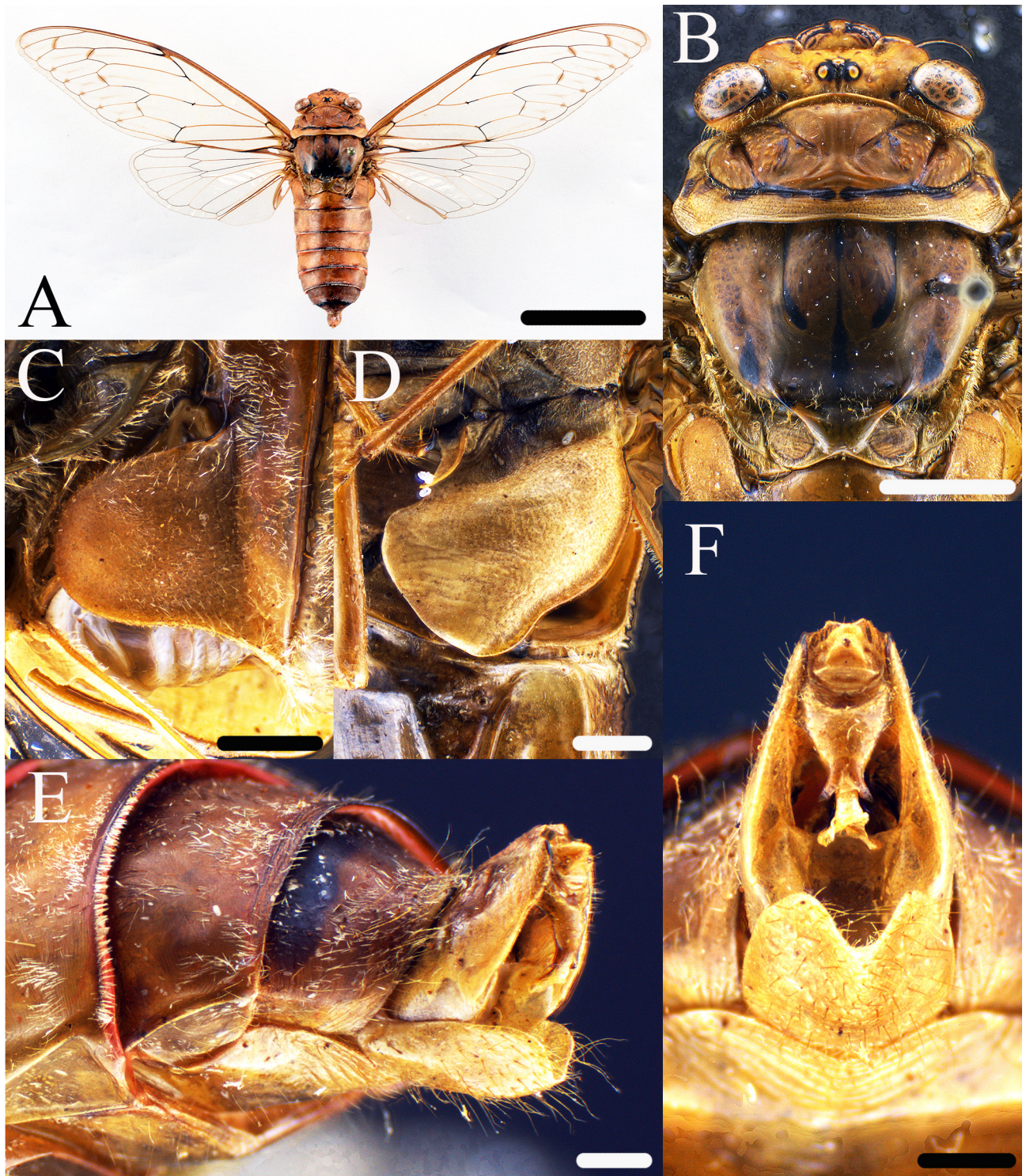


FIGURE 5. *Vietanna oresbia* sp. nov.: A, holotype male habitus; B, holotype male dorsum; C, holotype male timbal cover; D, holotype male operculum; E, holotype male lateral view of genitalia; F, holotype male posterior view of genitalia. Scale bar: A, 2 cm; B, 5 mm; C–D, 2 mm; E–F, 1 mm.

operculum is found in the distal third rather than the distal half of the operculum, the posterior operular margin is curved rather than being triangular as found in the new species, the timbal cover concealing almost the entire timbal rather than the dorsal half as in the new species, and although the uncus tapers to the terminus, the terminus is not angled to the degree found in the new

species. Similarly, *Vietanna perparva* Wang *et al.* 2024 is similar in size but this species has a denser infuscation on the fore wing mediocubital crossvein, the timbal is mostly concealed by the timbal cover, the male operculum lacks the concavity on the posterolateral surface found in the new species, and the curvature and terminal angles of the lateral branches of the uncus differ in the new species.

DESCRIPTION

Ground color of head and thorax dark tawny marked with piceous, abdomen castaneous marked with piceous.

Head

Head almost as wide as mesonotum, medial area piceous surrounding ocelli, short castaneous fascia in anterior arms of epicranial suture, larger and piceous in paratypes some extending anteriorly toward frontoclypeal suture, some with posterior longitudinal extension onto vertex, some paratypes with C-shaped piceous mark on lateral vertex, posterior cranial depression piceous, piceous medial margin of eye, mark in posterior cranial depression connected to medial eye margin in some paratypes, some paratypes with piceous marks on either side of posterior epicranial suture continuous with marks on anterior pronotum. Supra-antennal plate piceous with transverse triangular piceous mark centrally, darker and expanding over greater proportion of supra-antennal plate in some paratypes. Covered with short silvery pile dorsally, longer silvery pile posterior to eye, short piceous pile on anterior cranial depression, medial to eye, and/or on anterolateral vertex in some paratypes. Ocelli ochraceous, rosaceous in most paratypes, eyes castaneous. Ventral head ground color, transverse piceous mark between postclypeus ventral to antenna and ventromedial eye, reduced to medial and lateral spots only in holotype, mark extending along medial eye margin anterodorsally and laterally to posteroventral eye margin. Lorum ground color along anterior, lateral, and anteromedial margins, remaining posteroventral lorum piceous. Short and radiating long silvery pile on lorum and gena. Postclypeus not centrally sulcate, with 12 transverse grooves, ground color with longitudinal piceous fascia on either side of midline extending laterally into first 11 medial transverse grooves, extending laterally towards apex grooves completely filling dorsal three grooves, small castaneous V-shaped mark on posterior midline in some paratypes, ground color dorsum with two partial grooves piceous and castaneous. Postclypeus with short golden pile on dorsum, short silvery pile on lateral margin, ventral postclypeus radiating long silvery pile. Anteclypeus ground color with castaneous fascia on either side of anterior carina, piceous and/or conneted across anterior in some paratypes, posterolateral corner margined with piceous, covered with short and radiating long silvery pile. Mentum ground color, labium ground color proximally, darkening to piceous tip reaching to middle of abdominal sternite I, with sparse short silvery pile. Scape and proximal pedicel ground color, distal pedicel and remaining antennal segments castaneous.

Thorax

Dorsal thorax castaneous. Pronotum with posterolaterally angled piceous mark on either side of anterior midline in some paratypes, piceous mark in anterior, posterior side of middle, and anterior side of posterior paramedian fissure, mark in middle extends posterolaterally onto disc, curved piceous fascia on lateral central disc, piceous within ambient fissure from anterolateral central disc

around lateral pronotum, expanding into spot on dorsal ambient fissure midline, mark extends toward posterior lateral fissure, posteriorly onto anterior pronotal collar just lateral to lateral fissure posterior end, and laterally onto pronotal collar lateral angle forming castaneous lateral spot, small piceous mark on medial portion of lateral disc. Pronotal collar ground color with piceous posterior margin extending to middle of lateral part of pronotal collar, transverse castaneous fascia anterior to lateral castaneous spot curving posterolaterad and expanding posteriorly. Pronotum covered with short silvery pile, short golden pile in some paratypes. Mesonotum castaneous, piceous medial longitudinal fascia, thinning in middle in holotype, extending from anterior margin to between anterior arms of cruciform elevation, piceous fascia along medial parapsidal suture, thinning in middle in holotype, piceous spots on anteromedial corner and posterior of lateral sigillae, scutal depressions piceous, transverse piceous fascia across anterior end of anterior arms of cruciform elevation extending onto posterodorsal corner, cruciform elevation with greenish hue, wing groove ground color with anterior castaneous spot. Metanotum ground color. Short and long silvery pile on mesonotum laterally and between arms of cruciform elevation, longer and denser posteriorly, in wing groove, and on posterior metanotum, short golden pile on anterior half of mesonotum surrounded by silvery pile, especially posteriorly, in some paratypes. Ventral thoracic segments ground color except piceous spot on anterolateral and posterolateral basisternum 2, posterior katepisternum 2, castaneous anepisternum 2, trochantin 2, meron 2, and piceous spot on central and lateral basisternum 3. Sternal segments covered with short silvery pile.

Wings

Fore wings and hind wings hyaline with eight and six apical cells respectively, infuscation on fore wing radial, radiomedial, medial, and mediocubital crossveins, on distal veins between apical cells, longitudinal infuscation within fore wing apical cells and distal medial cell, and distal ulnar cells 2 and 3. Venation ground color proximally, becoming piceous distally, piceous marks on veins along claval fold, crossveins, arculus, and posterior anal vein 2 + 3 piceous, cubitus anterior 2, proximal cubitus anterior 1, median vein 3 + 4 just distal to nodal line, median vein distal to divergence of median vein 1 + 2, proximal radius posterior, and proximal median vein 4 piceous. Basal cell slightly clouded in anterior half, completely clouded or completely hyaline in paratypes. Pterostigma extends to convergence distal radius anterior 1 and subcostal vein. Basal membrane of fore wing gray at base becoming darker distally. Venation of hind wing ground color, darker distally, except piceous central radius posterior, all but base of median vein, radius anterior in region of radial crossvein divergence, proximal median vein 2, mediocubital crossvein, distal cubitus posterior, and castaneous anal vein. Anal cell 3 except distal end, anal cell 2 along anal vein 3 dark gray, anal cell 1 and 2 along anal vein 2 gray as is anterior cubital cell 2 along proximal half of cubitus posterior vein. Small infuscation

marginating gray in anal cells 2 and 3, castaneous spot on base of anal cell 1 and cubital cell 2.

Legs

Legs light castaneous, with piceous spot on proximolateral fore coxa, piceous margin on middle and hind coxae, castaneous, piceous in some paratypes, anterodistal margin, trochanters with castaneous ventral spot, femora striped with dark castaneous. Fore femora with proximal spine acutely angled to axis, longest, finger-like, secondary spine triangular, slightly angled, and small, upright tertiary spine, all dark castaneous and connected by dark castaneous fascia. Tibiae with short longitudinal fascia at proximal base, pretarsi with small piceous spot on either side of ventral end, pretarsal claws with piceous tips. Tibial spurs and comb castaneous with piceous tips. Meracanthus pointed, curving mediad distally, ground color with a piceous spot on base and piceous posterior margin, reaching to middle of abdominal sternite I.

Operculum

Male operculum approximately triangular with sinuate lateral margin, smoothly rounded posterior and medial margins, reaching to anterior of sternite III, tawny with ochraceous anteromedial and medial regions and piceous spots on anteromedial and anterolateral base, silvery pile at base. Medial margin not extending to mediad meracanthus, tympanal cavity exposed medially and posterolaterally.

Abdomen

Abdomen longer than distance from postclypeus apex to posterior cruciform elevation, castaneous marked with piceous on either side of anterodorsal midline, dorsoposterior margins, darker castaneous mark on posterolateral margin, reddish membranes between segments 3–6, covered with short silvery pile, longer pile radiating from lateral tergites 6–8, dense long pile on posterior timbal cavity ventral to timbal cover, piceous pile anterolateral tergites 3–6, and transversely across anterior tergite 2 in some paratypes, pile reduced in other paratypes. Tergite 1 with piceous one posterolateral margin along posterior timbal cavity, tergite 2 with piceous anterior margin along posteromedial timbal cavity, tergite 8 with anterior transverse piceous fascia covering half the dorsal side, posterior tergites 2–8 reddish, greater in proportion and intensity in posterior tergites. Timbal cover incomplete exposing timbal posteromedially, laterally and ventrally, scale-like with rounded anterior apex, ventral margin straight angled parallel to long body axis. Timbal with six long ribs. Sternites and epipleurites castaneous except piceous spots on either side of anterior midline of sternites II and III, piceous auditory capsule, reddish posteriors of sternites III–VI, spiracle white, sternite VIII with straight dorsal margin, transverse posterior margin, ground color, open V-shaped notched when viewed from posterior, male sternites III–VII translucent. Sternites and epipleurites with with short silvery pile, longer pile radiating from sternites, sternite VIII radiating long golden pile.

Genitalia

Male pygofer greenish ochraceous with anterolateral and posterodorsal castaneous spots and piceous posterior margin, with rounded distal shoulder, dorsal beak shorter than anal styles, triangular, with short silvery pile posteriorly, additional lateral pile in some paratypes. Pygofer basal lobe wide, flat with triangular terminus, extending about one-third the length of the pygofer, short golden pile radiating medially. Anal styles castaneous surrounded by ground color margin, anal tube ground color. Median uncus lobes light castaneous with rounded apex, lateral uncus lobe ventral side straight as angled extension folded under posterior median uncus lobe to support theca, lateral uncus lobes ground color with mid-lateral castaneous margins and castaneous terminim basal lateral uncus lobes rounded and separated, lateral margin angled posteromedially, lateral uncus lobes meet posterior to median uncus lobe forming posteromedial extension that bifurcates distally at an obtuse angle forming a pair of small, pointed triangular termini, short golden pile radiating proximolaterally. Aedeagus tubular, dark castaneous, with large terminal membrane.

MEASUREMENTS (MM).—N = eight males, mean (range). Length of body: 35.91 (34.30–37.85); length of fore wing: 44.55 (41.75–48.35); width of fore wing: 14.63 (13.45–15.50); length of head: 4.98 (4.60–5.30); width of head including eyes: 10.12 (9.55–10.80); width of pronotum including suprahumeral plates: 11.93 (11.05–12.90); width of mesonotum: 10.19 (9.30–11.10).

DISTRIBUTION.—The species is known only from the type series collected in Mae Hong Son, Nan, and Phitsanulok Provinces, Thailand.

Subtribe PURANINA Lee, 2013 (in Lee & Emery 2013)

REMARKS.—The Puranina was formed by Lee in Lee & Emery (2013) with four additional new subtribes.

Genus *Purana* Distant, 1905a

Purana Distant 1905a: 60.

TYPE SPECIES.—*Dundubia tigrina* Walker 1850: 69 (Malay Peninsula).

REMARKS.—The genus *Purana* has been divided into five species groups (Kos & Gogala 2000; Schouten & Duffels 2002; Duffels *et al.* 2007; Lee 2009). Species from Thailand have been classified in the *Purana carmente* group (now *Purapurana* Lee, 2024), *Purana nebulina* group (now *Metapurana* Lee, 2024) and *Purana tigrina* group (Lee 2009) (the true *Purana* species (Lee 2024)) with several species (*P. khuniensis* Boulard, 2005c, *P. gemella* Boulard, 2007f, *P. johanae* Boulard, 2005a, *P. doiluangensis* Boulard, 2005a, *P. jdmoorrei* Boulard, 2005a) unassigned to species groups.

***Purana metallica* Duffels & Schouten, 2007 (in Duffels *et al.* 2007)**

Purana aff. *tigrina* Gogala 1995: 101–102, 104, 108–112, 114–115, Figs. 5–8.

Purana aff. *tigrina* Kos & Gogala 2000: 8.

Purana aff. *tigrina* Gerhardt & Huber 2002: 13, Fig. 2.1A.

Purana aff. *tigrina* Trilar & Gogala 2002a: 47.

Purana aff. *tigrina* Trilar & Gogala 2002b: 41.

Purana aff. *tigrina* Gogala *et al.* 2004: 13.

Purana aff. *tigrina* Trilar 2006: 344.

Purana aff. *tigrina* Sanborn *et al.* 2007: 12.

Purana metallica Duffels *et al.* 2007: 367, 369, 373–377, Figs. 7–12.

Purana langkawi Duffels *et al.* 2007: 368 *nomen nudum*.

REMARKS.—References in Sanborn *et al.* (2007) for this species were for an undescribed species that had been mentioned several times in the literature. The species was officially described later in 2007 (Duffels *et al.* 2007).

DISTRIBUTION.—The species has been recorded from mainland and insular southern Thailand and the Malay Peninsula (Gogala 1995; Trilar & Gogala 2002a, 2002b; Gogala *et al.* 2004; Trilar 2006; Sanborn *et al.* 2007; Duffels *et al.* 2007).

Genus *Metapurana* Lee, 2024

Metapurana Lee 2024: 577.

TYPE SPECIES.—*Dundubia nebulilinea* Walker 1868: 46 (North Thailand).

***Metapurana phuruensis* sp. nov.**

(Fig. 6)

Purana undescribed species A Sanborn *et al.* 2007: 13.

Purana undescribed species A Sanborn 2013: 384.

TYPE MATERIAL.—Holotype. “THAILAND: Loei Province / Phu Rua National Park / 9 June 1998; L-173 / Sites, Simpson, Vitheepredit / piceous light at Park HQ” male (UMRM).

ETYMOLOGY.—The name is a combination of *phuru-* (for the type locality in Phu Rua National Park) and *-ensis* (L., suffix denoting place, locality) in reference to the site where the holotype originated.

REMARKS.—This new species was determined to be similar to *Purana vesperalba* Boulard, 2009b (now a junior synonym of *Metapurana parvituberculata* (Kos & Gogala, 2000) (Lee 2024)) but is a larger species with different genitalia prior to *Metapurana* being formed. The new species possesses all characteristics of the genus as described by Lee (2024) for what was the *Purana nebulilinea* species group of Kos & Gogala (2000). As a result, this new species is being described in *Metapurana* along with the synonymized Boulard species which was also reassigned to the genus (Lee 2024) rather than

Purana as in the original publication referencing the species (Sanborn *et al.* 2007).

DIAGNOSIS.—The new species is larger than *Metapurana niasica* (Kos & Gogala, 2000), *M. nebulilinea* (Walker, 1868), *M. parvituberculata* (Kos & Gogala, 2000), and *M. pryeri* (Distant, 1881) all of which have body lengths of less than 30 mm. Large examples of *M. capricornis* (Kos & Gogala, 2000) approach and specimens of *M. montana* (Kos & Gogala, 2000) overlap the body length of the new species. Both species can be distinguished quickly from the new species by the piceous margins of their opercula. In addition, *M. capricornis* males can be easily distinguished by the large recurving termini of the uncus and *M. montana* males by the distal uncus lobes not bending laterad.

DESCRIPTION

Ground color of head and thorax tawny marked with piceous, abdomen castaneous marked with tawny and piceous.

Head

Head not as wide as mesonotum, ground color with piceous medial area surrounding ocelli, reduced anteriorly on median ocellus and laterally on lateral ocelli, light castaneous mark extending from anterolateral frons to posteromedial supra-antennal plate and onto anterolateral vertex not reaching lateral vertex margin, small piceous mark on medial angle of eye. Supra-antennal plate ground color with transverse castaneous triangular fascia on central plate. Dorsally covered with short golden pile anteriorly and short silvery pile posteriorly, longer silvery pile posterior to eye. Ocelli rosaceous, eyes castaneous. Ventral head ground color, gena with small castaneous mark on medial corner. Lorum ground color with curved castaneous fascia around anterior corner of junction with anteclypeus. White pubescence, short silvery pile, and radiating long golden pile on lorum and gena. Postclypeus centrally sulcate along middle of ventral surface with slightly inflated ovoid mark on anteroventral midline, ground color with castaneous fasciae on dorsolateral margins curving mediad toward apex, fusing on apex, diverging around ovoid mark and extending to ninth transverse groove on either side of sulcus, mark extends laterally into transverse grooves 2–9, reaching lateral margin in transverse grooves 2–5 then shortening in subsequent grooves to transverse groove 9. Postclypeus short golden pile on dorsum, white pubescence and long golden pile on lateral postclypeus. Anteclypeus ground color short longitudinal castaneous fascia on either side of carina between anterior margin and central carina, covered with white pubescence and long golden pile. Mentum ground color, labium ground color with piceous tip reaching to posterior of hind trochanters with sparse short and long golden pile. Antennal segments castaneous with annular piceous mark on distal first flagellomere, proximal, middle, and distal second flagellomere, and distal half of third flagellomere.

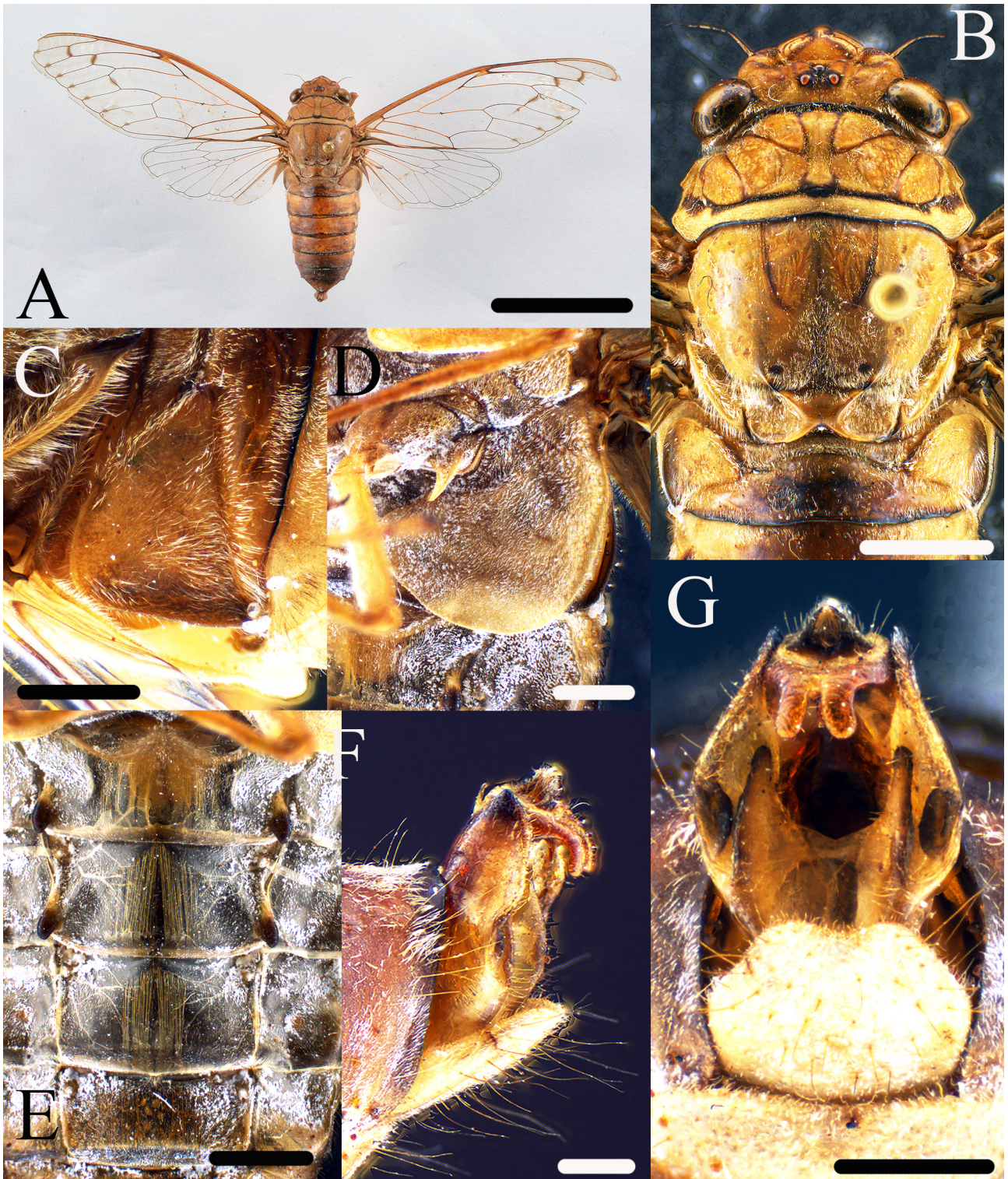


FIGURE 6. *Metapurana phuruensis* sp. nov.: A, holotype male habitus; B, holotype male dorsum; C, holotype male timbal cover; D, holotype male operculum; E, holotype male abdominal tubercle; F, holotype male lateral view of genitalia; G, holotype male posterior view of genitalia. Scale bar: A, 2 cm; B, 5 mm; C–E, 2 mm; F–G, 1 mm.

Thorax

Dorsal thorax ground color. Pronotum with transverse piceous mark on anterior margin between anterior lateral fissures, light castaneous mark on either side of midline between transverse piceous fascia and medial end of paramedian fissure, curved castaneous mark on each side of posterior central disc expanding and fusing posteriorly

on midline of ambient fissure, light castaneous mark extending from posterior lateral fissure to ambient fissure, curved castaneous fascia on lateral margin of lateral disc fusing posteriorly with piceous ambient fissure, mark in ambient fissure extends onto anterior pronotal collar posterior to lateral disc and transversely across anterior of pronotal collar lateral angle. Pronotal collar greenish

tawny with piceous posterior margin, triangular lateral tooth with broad base. Pronotum covered with short silvery pile. Mesonotum ground color, castaneous fascia along parapsidal suture, scutal depressions dark castaneous, transverse piceous fascia across anterior of anterior arms of cruciform elevation, lateral and posterolateral cruciform elevation margins piceous. Metanotum castaneous with ground color posterior margin. Short silvery pile on mesonotum, longer and denser on lateral and posterior margins, in wing groove, and on posterior metanotum. Ventral thoracic segments with white pubescence, short white pile and radiating long golden pile, ground color with castaneous central basisternum 2 and 3 and piceous katapisternum 2.

Wings

Fore wings and hind wings hyaline with eight and six apical cells respectively, infuscation on radial, radiomedial and medial crossveins, and distally on veins between apical cells. Venation ground color at base becoming castaneous distally, costa ground color to node, radius & subcostal vein, arculus, all but proximal cubitus anterior, mediocubital crossvein, and distal node dark castaneous, ochraceous spot on proximal node, posterior anal vein 2 + 3 piceous. Basal cell slightly clouded on proximal and distal ends. Pterostigma to distal junction of subcostal vein and radius anterior 1. Basal membrane of fore wing white at base becoming dark gray posteriorly. Venation of hind wing castaneous except tawny cubitus anterior, proximal cubitus posterior, proximal anal veins 1 and 2, and anal vein 3. Anal cell 3 and anal cell 2 along anal vein 3 dark gray with dark castaneous spot on base, anal cell 1 and 2 along anal vein 2 gray, infuscation margining gray in anal cell 2 and small spot of infuscation on proximal cubital cell 2.

Legs

Legs light castaneous, becoming darker distally, dark castaneous fascia on lateral middle and hind coxae base, femora striped with castaneous. Fore femora with proximal spine longest, oblique, finger-like with tip slightly bent, secondary spine almost as large as primary spine, wider base, more erect and with greater distal curvature than primary spine, and small, obliquely oriented tertiary spine, all castaneous, primary and secondary spines with piceous tips. Tibiae darkening distally, tarsi castaneous, darker distal pretarsus and middle mesotarsus. Tibial spurs and comb castaneous with piceous tips. Meracathus pointed, curved mediad distally, tawny with a castaneous base reaching to middle of abdominal sternite I. Legs with white pubescence and radiating long golden pile.

Operculum

Male operculum broadly triangular with smoothly rounded posterolateral margin, reaching to anterior of sternite III, greenish tawny with light castaneous base, covered with white pubescence. Medial margin extending to middle of proximal trochanters, well separated medially, covering tympanal cavity ventrally. Opercula with short silvery pile.

Abdomen

Abdomen castaneous. Tergites 2–8 with piceous posterior margin, tergites 3–6 with lateral region green with castaneous spot, proportion of green and size of spot decreasing in posterior segments, mark on anterior tergites, tergites covered with silvery pile, dense golden pile forming spot on anterolateral tergites 3–5, long golden pile radiating from lateral tergites 5–8. Timbal cover incomplete exposing timbal dorsally, anteriorly, and ventrally, approximately triangular with rounded anterior apex, ventral margin straight and parallel to long body axis, separated from operculum forming a gap making timbal visible. Timbal with six long and five intercalary ribs. Sternites and epipleurites light castaneous except dark castaneous transverse fascia across anterior midline of sternite I, dark castaneous medioposterior margin of sternite II and midline of sternite III, dark castaneous tubercles on posterolateral sternites III and IV, and ochraceous posterior sternite VII, male sternites III–VII translucent, sternite VIII ochraceous with transverse posterior margin, open U-shape when viewed from posterior. Sternites and epipleurites with white pubescence and radiating long golden pile.

Genitalia

Male pygofer castaneous, expanding laterally in middle, angled distal shoulder piceous, dorsal beak absent, with long silvery pile posteriorly. Pygofer basal lobe indistinct, elongated, finger-like, separated from pygofer margin, ground color with dark castaneous margin radiating golden pile medially, upper lobes absent. Anal styles and anal tube castaneous. Median uncus lobe castaneous, small, surrounded by lateral uncus lobes, lateral uncus lobes meeting posterior to median uncus lobe, bifurcating distally with terminus bending laterad forming a parallel-sided U-shaped notch for aedeagus, bifurcated region bent at approximate right angle from base when viewed from the side, apophyses support theca from base of uncus to bifurcation. Aedeagus tubular, dark castaneous.

MEASUREMENTS (MM).—N = one male. Length of body: 31.40; length of fore wing: 38.35; width of fore wing: 13.10; length of head: 5.25; width of head including eyes: 8.75; width of pronotum including suprahumeral plates: 10.15; width of mesonotum: 9.00.

DISTRIBUTION.—The species is known only from the holotype specimen collected in Phu Rua National Park, Loei Province, Thailand.

Subtribe LEPTOSEMIINI Lee, 2013 (in Lee & Emery, 2013)

Genus *Minipomponia* Boulard, 2008a

Minipomponia Boulard 2008a: 59.

TYPE SPECIES.—*Pomponia littldollae* Boulard 2002: 46 (North Thailand).

***Minipomponia doiinthanonensis* sp. nov.**
(Fig. 7)

Pomponia undescribed species B Sanborn *et al.* 2007: 30.

Pomponia undescribed species B Sanborn 2013: 349.

TYPE MATERIAL.—Holotype. “THAILAND: Chiang Mai Prov. / Doi Inthanon N.P., Thai Royal / Agricultural Res. Stn. at Khun / Wang; 18° 37'N 98° 30'E, BLT / 1,431 m; 8 May 2002; L-400 / colls: UMC and CMU teams” male (UMRM).

ETYMOLOGY.—The name is a combination of *doiinthanon*- (for the type locality in Doi Inthanon National Park) and *-ensis* (L., suffix denoting place, locality) in reference to the site where the holotype originated.

REMARKS.—This is a small to medium sized cicada that showed affinities to *Minipomponia littldollae* (Boulard, 2002) and *Minipomponia fuscaminis* (Boulard, 2005a) with different genitalia when those species were classified in *Pomponia* resulting in its original designation as an undescribed species of *Pomponia* (Sanborn *et al.* 2007). The new species possesses all definitive characteristics of *Minipomponia* as described by Boulard (2008a, 2012, 2013a). As a result, this new species is being classified in *Minipomponia* rather than *Pomponia* as in the original publication referencing the species (Sanborn *et al.* 2007). Lee & Emery (2013) reassigned the genus to the Leptosemiini.

DIAGNOSIS.—The new species can be distinguished from *Minipomponia littldollae* by the fore wings being 2.87 times longer than broad (3.17 in the new species) with infuscation on the radial, radiomedial and medial crossveins (only the radial crossvein infuscated in the new species), the lack of linear infuscation within the fore wing apical cells, male abdominal sternite VIII extends laterally from the base (lateral surfaces parallel to long body axis in the new species), the male uncus extends laterally curving from base (lateral surfaces straight in the new species) and the uncus is distinctly hooked in lateral view (semi-circular distal half of uncus in lateral view of new species). *Minipomponia fuscacuminis* (Boulard, 2005a) is a more similar species in general appearance to the new species but it can be distinguished by the fore wings being 3.05–3.13 times longer than broad (3.17 in the new species), dark infuscation is absent along the distal radius anterior 2 and radius posterior with the junction of the ambient vein (dark infuscation present in the new species), the fore femur primary spine is adjacent to the femur for most of its length (elevated to about 60° in the new species), the secondary spine is angled with a wider proximal side (upright with equal side sides in the new species), the tertiary spine is more upright than secondary spine (parallel in the new species), male opercula are semi-circular (posterior margin distinctly angled in the new species), the male uncus extends laterally curving from base (lateral surfaces straight in the new species), the uncus is curved distally in lateral view (semi-circular distal half of uncus in lateral view of new species), and the distal terminus extends about the same length as the distance between the two lobes at the base (distal terminus

extends about twice the length of the distance between the two lobes at the base in the new species).

DESCRIPTION

Ground color of head and thorax greenish tawny marked with piceous, abdomen light castaneous marked with piceous.

Head

Head wider than mesonotum, dorsomedial area piceous surrounding ocelli except for anterolateral quadrant of lateral ocelli, mark extending anteriorly to frontoclypeal suture where it widens slightly, piceous spot on dorsal vertex lateral to lateral ocelli, posteromedially connecting to piceous anterior cranial depression, transverse piceous fascia on anterolateral vertex between medial supra-antennal plate and curvature anterior to eye, posterior cranial depression, small spot along posterior head just lateral to anterior cranial depression and small, transverse piceous fascia on posterior head margin between this spot and posterior epicranial suture. Supra-antennal plate ground color with central piceous spot. Covered with short silvery pile dorsally, longer silvery pile posterior to eye. Ocelli rosaceous, eyes castaneous. Ventral head ground color, short transverse piceous mark extending from lateral postclypeus posterior to antenna. Lorum ground color along anterior, lateral, and posteromedial margins, remaining lorum piceous. White pubescence medially, long white pile on lorum and gena. Postclypeus not centrally sulcate, with 11 transverse grooves, ground color with curved piceous marks on dorsal surface, medial piceous fascia posteroventally, diverging and expanding laterally into medial transverse groove beginning at the sixth groove, forming an elongated ovoid ground color mark to ventral apex, lateral extensions increasing in length to third transverse groove when mark extends to lateral margin in first, second and third transverse groove. Postclypeus with short silvery pile on dorsum, white pubescence and sparse silvery pile on lateral postclypeus. Anteclypeus ground color with longitudinal piceous fascia between anterior margin and central carina, piceous posterior margin on either side of midline, covered with thick white pubescence laterally and short silvery pile. Mentum ground color, labium ground color proximally, darkening to piceous tip reaching to hind trochanters with sparse short silvery pile. Antennal segments castaneous.

Thorax

Dorsal thorax castaneous. Pronotum with piceous mark on either side of midline expanding laterally anteriorly into triangular form, a branch extending into posterior paramedian fissure, curving laterad around posteromedial middle disc, finally curving mediad almost meeting just anterior to medial ambient fissure, piceous mark in anterior paramedian fissure extending onto anterior central disc as wide, square mark and as longitudinal fascia extending posteriorly towards but not reaching posterior lateral fissure, posterior three-fourths of lateral

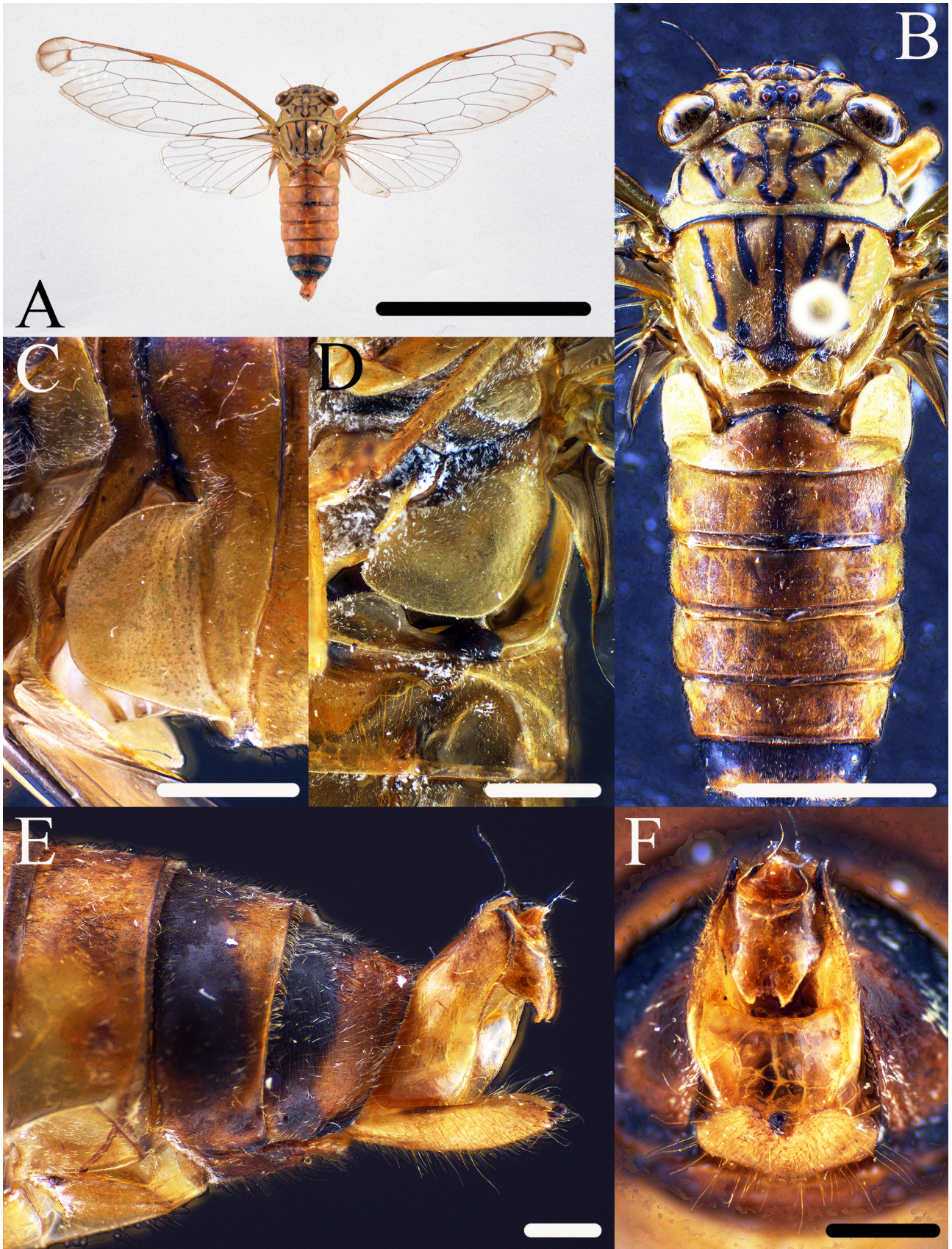


FIGURE 7. *Minipomponia doiinthanonensis* sp. nov.: A, holotype male habitus; B, holotype male dorsum; C, holotype male timbal cover; D, holotype male operculum; E, holotype male lateral view of genitalia; F, holotype male posterior view of genitalia. Scale bar: A, 2 cm; B, 5 mm; C–D, 2 mm; E–F, 1 mm.

fissure piceous, curved piceous mark on lateral margin of lateral disc. Pronotal collar ground color with piceous posterior margin to anterior pronotal collar lateral angle, piceous spot anterior to anterior pronotal collar lateral angle. Pronotum covered with short silvery pile. Mesonotum ground color, piceous fascia along dorsal midline expanding posteriorly between anterior arms of cruciform elevation, piceous fasciae medial to parapsidal sutures, piceous fascia along medial lateral sigillae not reaching anterior margin and recurving laterally on posterior, scutal depressions piceous, transverse piceous mark across anterior anterior arms of cruciform elevation that extends laterally to posterior mesonotum and anterior margin of lateral cruciform elevation, small piceous spot on anteromedial wing groove margin. Metanotum ground color with short transverse piceous fascia on either side of midline. Dorsum with short silvery pile, longer and denser on lateral margin, posteriorly, in wing groove, and on posterior metanotum. Ventral thoracic segments with white pubescence and white pile, ground color except piceous with castaneous lateral margin basisternum 2 and 3, piceous katapisternum 2, piceous medial spot on anepisternum 2, and castaneous anterior katepimeron 2, trochantin 2, meron 2, and trochantin 3.

Wings

Fore wings and hind wings hyaline with eight and six apical cells respectively, infuscation on fore wing radial crossvein, distal radius anterior 2, distal radius posterior and ambient vein between distal radius anterior 1 and radius posterior extending onto wing margin, longitudinal infuscation in apical cells 3–7. Venation ground color at base, costa and radius & subcostal vein becoming castaneous, cubitus posterior + anal vein 1 green, remaining veins becoming piceous distally, piceous spot on arculus, posterior anal vein 2 + 3 piceous. Basal cell hyaline. Pterostigma to distal junction of subcostal vein and radius anterior 1. Basal membrane of fore wing white at base becoming dark gray distally with ochraceous posterior margin. Venation of hind wing piceous except green cubitus anterior almost to divergence of cubitus anterior 1 and cubitus anterior 2 and proximal half of anal vein 1, anal vein 3 and proximal anal vein 2 castaneous. Anal cell 3 and anal cell 2 along anal vein 3 dark gray, anal cell 1 and 2 along proximal anal vein 2 gray, gray margined with infuscation in anal cell 2, small infuscation on distal corner of anal cell 2 at junction with wing margin.

Legs

Legs ground color, light castaneous distally, piceous fascia on proximolateral coxae, fore trochanters with short longitudinal fascia anteriorly, fore and middle femora striped with castaneous. Fore femora with proximal spine finger-like, slightly oblique, secondary spine largest, triangular, upright and small upright tertiary spine, all ground color, secondary and tertiary spine margined with dark castaneous. Tibiae proximally ground color becoming light castaneous distally. Tarsi light castaneous except dark castaneous distal pretarsus and pretarsal claws, tibial spurs and comb castaneous. Meracanthus pointed, curved

medially distally, ground color with piceous base reaching to middle of abdominal sternite I. White pubescence on proximal segments, golden pile radiating from distal segments.

Operculum

Male operculum, short, with squared distal end angled mediad, with smoothly rounded posterolateral and posteromedial margins, barely reaching to anterior extension of anterior of sternite II, not covering tympanal cavity laterally, posteriorly or medially, greenish tawny with castaneous base, darker anteromedially, and castaneous mark on middle of lateral margin, covered with white pubescence at base and medially. Medial margin extending to medial meracanthus, opercula well deparated medially.

Abdomen

Abdomen longer than distance from postclypeus apex to posterior cruciform elevation, castaneous dorsally and ventrally, greenish tawny laterally on tergites 2–6, covered with short silvery pile, piceous pile on anterolateral tergites 3–6, longer pile radiating from lateral tergites 7 and 8. Tergite 1 with castaneous posterior margin adjoining piceous anterior margin of tergite 2, tergite 6 with lateral castaneous spot, tergite 7 with anterior three-fourths with castaneous dorsum and piceous lateral surfaces, anterior half of tergite 8 similarly colored to tergite 7 and piceous posterior margin. Timbal cover incomplete exposing timbal posterodorsally, anteriorly, and ventrally, scale-like with rounded anterior apex, ventral margin straight angled anterodorsally to long body axis. Timbal with six long and five intercalary ribs. Sternites and epipleurites castaneous except ochraceous posteromedial sternite I and anterior extension of sternite II on either side of midline, auditory capsule piceous, transverse piceous fascia across anterior midline of sternite III, anterior sternite VII darker castaneous, sternite VIII with straight dorsal margin, small V-shaped notched when viewed from posterior, male sternites III–VI translucent. Sternites and epipleurites with white pubescence, dense on medial sternites I and II and laterally on sternites III–VI surrounding spiracles, sternites with short golden pile, longer pile radiating from sternite VIII.

Genitalia

Male pygofer castaneous with piceous posteroventral and posterior margins, with rounded distal shoulder, dorsal beak short, with short silvery pile posterolaterally. Pygofer basal lobe indistinct, adpressed to pygofer. Anal styles and anal tube castaneous. Median uncus lobes castaneous, short with curved distal margin surrounded by lateral lobes of uncus, lateral uncus lobe with basolateral extension, sinuate ventral side angled mediad forming tooth-like posterior extension, posterior termini separated forming a U-shaped exit for aedeagus, medial extension of lateral uncus lobes form adjoining apophyses supporting theca to posterior exit. Aedeagus tubular, dark castaneous.

MEASUREMENTS (MM).—N = one male. Length of body: 19.05; length of fore wing: 24.10; width of fore

wing: 7.60; length of head: 3.20; width of head including eyes: 5.95; width of pronotum including suprahumeral plates: 6.20; width of mesonotum: 5.20.

DISTRIBUTION.—The species is known only from the holotype specimen collected in Doi Inthanon National Park, Chiang Mai Province, Thailand.

Tribe DUNDUBIINI Distant, 1905a

REMARKS.—Marshall *et al.* (2018) demonstrate how Distant (1905a) is the authority of the tribe over Atkinson (1886).

Subtribe MEGAPOMPONIINA Lee, 2014 (in Lee & Emery, 2014)

REMARKS.—Although Megapomponiina was first proposed by Boulard (2008), he did not provide the required information to validate the name under the *Code* (ICZN 1999). Lee provided the required information to make the taxon available and is thus the authority for the taxon (Lee & Emery 2014). Genetic analyses support the composition and placement of the subtribe within Dundubiini (Hill *et al.* 2021; Wang *et al.* 2025) even though the species were originally classified in *Pomponia*.

Genus Megapomponia Boulard, 2005b

Megapomponia Boulard 2005b: 100.

TYPE SPECIES.—*Cicada imperatoria* Westwood 1842: 118 (East Indies).

REMARKS.—Lee & Sanborn (2010) provided a detailed description of the genus that was erected based only on a large body size and stocky phallicophore (= urite X = uncus) (Boulard 2005b). Three additional species have been described since that review was published (Boulard 2010; Lee 2012; Pham & Constant 2020).

Megapomponia adusta (Walker, 1850) **comb. nov.**

Cicada adusta Walker 1850: 102 (Java).

Cicada buddha Kirkaldy 1909: 391.

REMARKS.—The status of this species as a member of *Pomponia* was recently questioned again suggesting that it appeared more closely related to species of *Megapomponia* (Wang *et al.* 2025). Boulard (2001b, 2005b) addressed the history of the species and its relationships to the large *Pomponia* species, but did not reassign it to *Megapomponia* when the genus was formed (Boulard 2005b) preferring to wait until new specimens could be collected and recorded prior to making a decision on its status. No specimens were available to Lee & Sanborn (2010) in their revision of the genus. However, the image (Fig. S1, also provided to the author by C. Wei) and description in Wang *et al.*

(2025) provide the opportunity to re-evaluate the generic assignment of the species.

Walker (1850) lists the body length as 23 lines (48.7 mm) and the wingspan as 68 lines (143.9 mm). Walker's (1850) description identifies the dentate anterolateral pronotal collar, the cylindrical male abdomen that is longer than the distance from the apex of the head to the posterior cruciform elevation, infuscation on the fore wing radial, radiomedial, medial, and mediocubital crossveins, a series of spots on the distal veins separating the apical cells, and a smoky area along the hind margin of the fore wing. These are all structures listed in the generic diagnosis in Lee & Sanborn (2010). In addition, Wang *et al.* (2025) report the additional characters found in the generic diagnosis of a triangular opercula extending slightly beyond the posterior margin of sternite II, fore wings with distinct spots on the radial, radiomedial, medial, and mediocubital crossveins and a series of spots on the apex of longitudinal veins of the fore wing apical cells, the fore wing radial cell is shorter than ulnar cell 3, and a lack of claspers and illustrate that the timbal is concealed by the timbal cover when viewed from the dorsal side. Only the shape of the uncal lobes and the absence of upper and basal pygofer lobes could not be verified from the images. Therefore, *Pomponia adusta* (Walker, 1850) is reassigned to *Megapomponia* to become *Megapomponia adusta* (Walker, 1850) **comb. nov.**

The taxon has been misapplied to specimens of *M. pendleburyi* (Boulard, 2001) historically (Boulard 2001, 2005b, 2014). The reported size of *M. pendleburyi* (body length 61–64 mm, wingspan 162–170 mm (Boulard 2013a)) is significantly greater than reported by Walker (1850) (body length 48.6 mm, wingspan 143.9 mm). Walker (1850) reports two broad ferruginous fasciae on the ventral ventral head, the rostrum reaching the hind coxae, no large markings on the lateral pronotal collar, and the opercula are dark tawny without a lateral piceous border, structures that contrast with the description in Boulard (2001) for *M. pendleburyi*. The marking on the dorsal ambient fissure of the pronotum is almost transverse in *M. adusta* **comb. nov.** but forms a distinct V-shape in *M. pendleburyi*. In addition, the fore wing length to width ratio is 3.0 measured from the image of *M. adusta* **comb. nov.** but is reported as 2.71 for *M. pendleburyi* (Boulard 2001).

DISTRIBUTION.—The species has been confused with *M. pendleburyi* (Boulard, 2001) historically and has been reported from peninsular Malaysia and southern Thailand (Siam) but these records have been attributed to *M. pendleburyi* (Boulard 2005b, 2014). The species appears to be restricted to Java with the range potentially extending to Sumatra.

Megapomponia sitesi Sanborn & Lee, 2010 (in Lee & Sanborn, 2010)

Megapomponia undescribed species A Sanborn *et al.* 2007: 31.

Megapomponia sitesi Lee & Sanborn 2010: 37.

MATERIAL EXAMINED.—“THAILAND: Phang Nga Prov. / Sri Phang Nga National Park; near Tam Nang / Waterfall, 68 m, BLT / 08° 58'N 98° 27'E; 8-X-2004 / coll. T. Prommi”, holotype male (UMRM); “THAILAND: Nakhon Si Thammarat Province / Nopphitam Klong Yod Leung / 78 m, 08°38'N 99°44'E / 26-V-2005, L-800 / Sites, Vitheepradit & Prommi”, paratype male (AFSC).

REMARKS.—This species is the second of the previously undescribed species from Sanborn *et al.* (2007) that has been described officially.

DISTRIBUTION.—The species is known only from the type series collected in Phang Nga and Nakhon Si Thammarat Provinces, Thailand.

Megapomponia isanensis sp. nov.

(Fig. 8)

Megapomponia undescribed species B Sanborn *et al.* 2007: 31.

Megapomponia undescribed species B Sanborn 2013: 243.

TYPE MATERIAL.—Holotype. “THAILAND: Kalasin Prov. / Phu Pan National Park / guest house: porch light / 23 April 2004 / coll. A. Vitheepradit” male (UMRM). Paratype. “Surin Prov. / NE Thailand // L. (in Thai) / D. 11/4/39 19 / F. Cicadidae / O. Homoptera / Coll. (in Thai) / THAILAND (vertical orientation on right of label)” female (AFSC).

ETYMOLOGY.—The name is a combination of *isan-* (for Isan, the name for the northeast region of Thailand including both provinces where specimens originated) and *-ensis* (L., suffix denoting place, locality) in reference to the site where the type series originated.

DIAGNOSIS.—The new species is smaller than *M. atrotunicata* Lee & Sanborn, 2010, *M. bourgoini* Pham & Constant, 2020, *M. clamorigravis* Boulard, 2005, *M. foksodi* Boulard, 2010, *M. imperatoria* (Westwood, 1842), *M. intermedia* (Distant, 1905), *M. merula* (Distant, 1905), *M. pendleburyi* (Boulard, 2001), and *M. sitesi* Sanborn & Lee, 2010 which have wingspans greater than 160 mm, male body lengths greater than 60 mm, and female body lengths greater than 56 mm. Only *M. castanea* Lee & Sanborn, 2010, *M. macilenta* Lee, 2012 and *M. adusta* **comb. nov.** overlap or are close to the same size as *M. isanensis* sp. nov.

Walker (1850) reports the type specimen of *M. adusta* **comb. nov.** as a male which would make the body length (48.6 mm) much shorter than reported for the male of *M. isanensis* sp. nov. (57.75 mm), the dorsal head is marked with piceous around the ocelli but does not have a complete or almost complete transverse fascia across the vertex, the rostrum reaches the hind coxae rather than the distal posterior trochanters as it does in the new species, there are no large markings found on the lateral pronotal collar or no longitudinal fascia on the lateral mesonotum as found in the new species but there is a piceous spot on the anteromedial corner of the submedian sigilla not found in the new species, and the opercula are dark tawny without the anterolateral piceous border found in the new species.

Megapomponia castanea can be distinguished from *M. isanensis* sp. nov. by the fore wing length of 72.7 mm in males and 72.2 mm in females (65.15 mm for male and 62.20 mm for female of the new species), a fore wing which is 3.14 times longer than broad in males (3.04 in male of new species), mesonotum width of 18.1 mm for males and 17.3 mm for females (15.10 mm for the male and 14.85 mm for the female of the new species), the lateral margin of the male operculum conceals the timbal cavity when viewed from the ventral side (dorsal half of the timbal cavity exposed by operculum in the new species), the semicircular female operculum (triangular in the new species), the distal uncus lobes are parallel along the midline (distal uncus lobes angled laterad in the new species), and the ovipositor sheath extending to the end of the dorsal beak (ovipositor sheath extending beyond the end of the dorsal beak in the new species).

Finally, *M. macilenta* is the most similar in general appearance to *M. isanensis* sp. nov. but can be distinguished by the narrower body with the width of head including eyes in the male of 15.90 mm (16.80 mm in the male of the new species), the width of pronotum including suprahumeral plates in the male 17.50 mm (18.15 mm in the male of the new species), and the width of the mesonotum in the male 14.90 mm (15.10 mm in the male of the new species), the abdomen is about 1.39 times the length of the head and mesothorax (1.22 times in the new species), the fore wing length fore wing which is 3.09 times longer than broad in males (3.04 in male of new species), the lack of infuscation on the wing margin distal to apical cells 1–3, transverse piceous fascia near apex of postclypeus but lacking on posteroventral end, the cruciform elevation lacks a dorsomedial fascia, the lateral and posterior margins of the male operculum form and approximate right angle on either side of the posterolateral corner (margins form an oblique angle in the new species), the lateral margin of the male operculum conceals the timbal cavity when viewed from the ventral side (dorsal half of the timbal cavity exposed by operculum in the new species), the distal uncus lobes are curved laterad when viewed from the posterior and smoothly curved when viewed from the side (distal uncus lobes with straight laterad margin in posterior view and straight margin basally with curve in distal quarter in the new species).

DESCRIPTION

Ground color castaneous marked with piceous and tawny, female ground color is lighter than male.

Head

Head wider than mesonotum, ground color with piceous dorsomedial inverted triangle on dorsal midline from posterior head to middle of anterior arms of epicranial suture, not filling posterior epicranial suture in paratype, all but anterolateral corners of frons piceous, C-shaped fascia extending from anterolateral vertex margin to region lateral to lateral ocelli recurving to eye margin

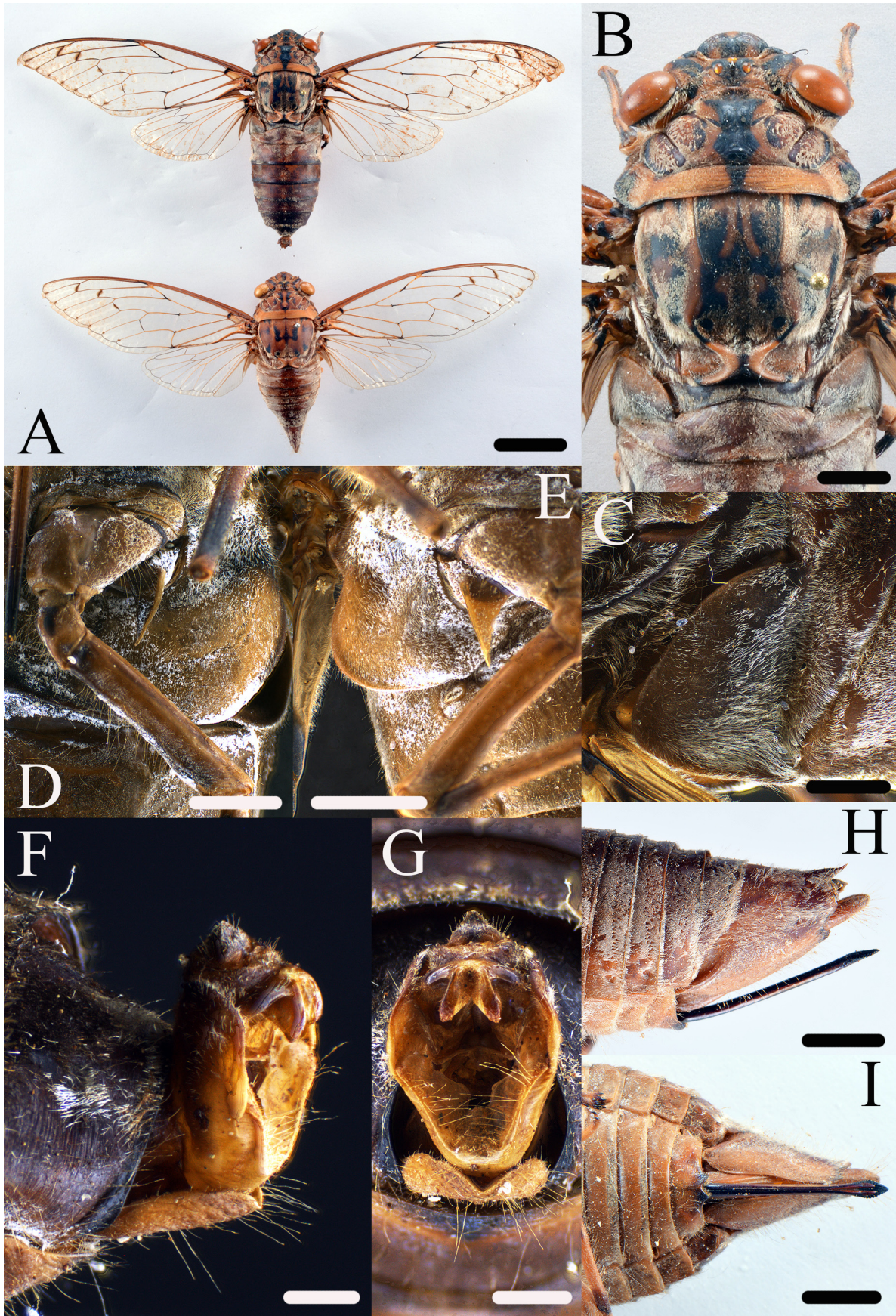


FIGURE 8. *Megapomponia isanensis* sp. nov.: A, holotype male and paratype female habitus; B, holotype male dorsum; C, holotype male operculum; D, paratype female operculum; E, holotype male timbal cover; F, holotype male lateral view of genitalia; G, holotype male posterior view of genitalia; H, paratype female lateral view of genitalia; I, paratype female ventral view of genitalia. Scale bar: A, 2 cm; B, 5 mm; C, 2 mm; D–E, 5 mm; F–G, 2 mm; H–I, 5 mm.

posterior to medial angle of eye, small posterior extension into posterior cranial depression, piceous posterior to eye, piceous surrounding ventral eye margin. Supra-antennal plate ground color with piceous central region, marking reduced in paratype. Covered with short silvery pile dorsally, longer silvery pile posterior to eye. Ocelli rosaceous, faded to ochraceous in paratype, eyes castaneous. Ventral head ground color, large piceous spot on anterior gena, anteromedial margin, posterolateral gena, and posteroventral margins ground color. Lorum ground color with elongated piceous mark expanding from middle of medial margin, lateral angle margin piceous. Thick white pubescence and long white pile on lorum and gena. Postclypeus ground color with piceous spot on medial dorsal surface, castaneous triangle in paratype, piceous withing dorsal eight transverse grooves expanding laterally onto transverse ridges and forming an oblong ground color spot on apex giving the appearance of alternating piceous and castaneous longitudinal fasciae on anteroventral postclypeus, three, two in paratype, posteroventral transverse grooves and posterior transverse ridges castaneous separated from anteroventral piceous region by transverse ground color stripe, with thin central sulcus on ventral surface, 14 transverse grooves, short silvery pile on dorsum, thick white pubescence and long white pile on lateral postclypeus. Anteclypeus with castaneous anterior margin, carina, and posterior margin, piceous laterally, covered with thick white pubescence and long white pile. Mentum ochraceous with proximal and distal lateral spots, spots absent in paratype, labium light castaneous, darkening to piceous tip reaching to abdominal sternite II with sparse short and long silvery pile. Scape and pedicel piceous, antennal flagella missing.

Thorax

Dorsal thorax castaneous. Pronotum with piceous mark on dorsal midline, either side of midline in paratype, expanding anteriorly posteriorly to ambient fissure, with curved lateral margin to medial paramedian fissure, continuing to curve laterad to level of posterior lateral fissure and angling to posterior margin of pronotal collar midline, posterior extension smaller and extending only to middle of pronotal collar in paratype, piceous fascia extends into posterior paramedian fissure, longitudinal piceous fascia on medial portion of medial disc, piceous in anterior paramedian fissure continuing to encircle scutes in ambient fissure to medial pronotal collar lateral angle, to anterior pronotal collar lateral angle in paratype, dark castaneous within lateral fissure, piceous mark on anterior lateral disc. Pronotal collar light castaneous, a greenish hue in paratype, with piceous posterior margin, incomplete in holotype, piceous mark on anterolateral pronotal collar lateral angle, lateral tooth piceous, ground color in paratype. Pronotum covered with short silvery pile, longer pile laterally. Mesonotum castaneous, trident-shaped mark on central midline not reaching anterior midline, extending along posterior three fourths of parapsidal suture, lateral branches expand in posterior submedian sigillae, greater expansion in holotype, trident more obvious in paratype, piceous marks in anterior

central, and posterior lateral sigillae, piceous fascia on lateral mesonotum, scutal depressions piceous, piceous expanding between scutal depressions on disc in holotype, cruciform elevation light castaneous with piceous midline fascia, reduced to posterior in paratype, piceous across anterior of anterior arms, and piceous posterior margin, wing groove dark castaneous. Metanotum ground color with piceous posterior margin. Short, dense silvery pile on mesonotum, short golden pile on disc anterior to cruciform elevation in holotype, silvery pile longer and denser on posterior, between arms of cruciform elevation, in wing groove, and on posterior metanotum. Ventral thoracic segments with thick white pubescence and long white pile, ground color with piceous, dark castaneous in paratype, mark on lateral basisternum 2, posterior katepisternum 2, and medial and lateral basisternum 3.

Wings

Fore wings and hind wings hyaline with eight and six apical cells respectively. Venation castaneous, becoming piceous distally, piceous marks on veins along claval fold, crossveins, arculus, and posterior anal vein 2 + 3 piceous, piceous spot on proximal cubitus posterior + anal vein 1. Basal cell clouded, piceous spots proximally and distally. Pterostigma extends beyond divergence of radius anterior 2 to about half the length of apical cell 1. Basal membrane of fore wing gray at base becoming darker distally. Venation of hind wing castaneous except ochraceous radius posterior, cubitus anterior, cubitus posterior, and anal veins 1 and 2. Anal cell 3 except distal end, anal cell 2 along anal vein 3 dark gray, anal cell 1 and 2 along anal vein 2 gray as is anterior cubital cell 2 along proximal one-fourth of cubitus posterior vein. Small infuscation margining gray in anal cell 3.

Legs

Legs light castaneous, fore coxae with proximal and distal piceous markings, only proximal markings in middle and hind coxae, fore trochanters with proximal and distal piceous marking margined with dark castaneous, middle trochanter with ventral side except proximal margin dark castaneous with central piceous spot, hind trochanter with short castaneous fascia on anterior and posterior proximal end, femora with proximal and distal piceous annular marks, striped with dark castaneous, reduced in posterior appendages, fore tibiae piceous, striped with dark castaneous with distal annular mark in paratype, middle and hind tibiae with proximal and distal annular marks reduced in hind tibiae, tarsi ground color, pretarsal claws with piceous tips, markings in paratype similar but lighter and reduced in size. Fore femora with proximal spine oblique, finger-like, secondary spine triangular, more upright, and very small tertiary spine on ridge distal to secondary spine, all spines piceous. Tibial spurs and comb piceous with castaneous base. Meracathus pointed, curving mediad distally, castaneous with darker base and medial margin, not reaching to posterior margin of abdominal sternite I. Female meracanthus as long as operculum, castaneous with ochraceous distal medial margin.

Operculum

Male operculum approximately triangular with smoothly rounded apex, reaching to anterior of sternite II, tawny with castaneous base and piceous anterolateral margin, covered with white pubescence and short silvery pile, longer and denser at base. Medial margin extending to lateral hind trochanter not covering tympanal cavity medially or posterolaterally. Female operculum with rounded posterolateral margin, straight posterior margin with short medial extension posterior to meracanthus, terminating medially at middle meracanthus reaching to posterior of sternite II, tawny with a light castaneous base, covered with thick white pubescence and short silvery pile.

Abdomen

Abdomen dark castaneous covered with short silvery pile, especially dense laterally. Tergite 1 darker than remaining tergites in holotype. Timbal cover incomplete exposing timbal dorsally and anteriorly, rounded anterior apex, ventral margin straight and parallel to long body axis expanded laterally at posterior base exposing timbal between timbal cover and operculum, timbal with six long and five intercalary ribs visible. Female abdominal segment 9 castaneous, dark tawny ventrally and piceous posteroventral margin, with dense, short, silvery pile and radiating long golden pile. Posterior margin of abdominal segment 9 sinuate, dorsal beak extending beyond anal styles. Sternites and epipleurites castaneous, very dark castaneous on sternite II midline with mark extending laterally about half the width of the sternite, mark absent in paratype, and piceous mark on posterior midline of sternite VII extending laterally on posterior margin in both specimens. Female sternite VII with single V-shaped notch extending beyond transverse posterior margin. Sternites and epipleurites with white pubescence, denser laterally, and radiating long silvery pile.

Genitalia

Male pygofer castaneous, tawny anteroventrally and ventrally to distal shoulder, and ventrally between pygofer basal lobes and uncus, with rounded distal shoulder, dorsal beak absent, with short silvery pile laterally. Pygofer basal lobe well-developed, forming open V-shape with distal end curving laterad, radiating golden pile medially, pygofer upper lobes absent. Anal styles and anal tube castaneous. Median uncus lobe castaneous short, triangular, lateral uncus lobes meeting medially posterior to median uncus lobe, ventral apophyses triangular supporting theca medially for short distance, posterolateral margin forming an approximate right angle, lateral margin recurving distally, distal medial portions diverging forming a V-shape when viewed from the posterior, medial extensions terminating in approximate triangular shape with a rounded apex. Aedeagus tubular, dark castaneous.

Female gonapophyses VIII and IX dark castaneous laterally, piceous medially and terminally, extending beyond dorsal beak with radiating golden pile. Gonocoxite IX dark tawny. Anal styles castaneous.

MEASUREMENTS (MM).—N = one male or one female.

Length of body: male 57.75, female 48.50; length of fore wing: male 65.15, female 62.20; width of fore wing: male 21.40, female 19.95; length of head: male 8.20, female 8.00; width of head including eyes: male 16.80, female 16.25; width of pronotum including suprahumeral plates: male 18.15, female 17.30; width of mesonotum: male 15.10, female 14.85.

DISTRIBUTION.—The species is known only from the type series collected in Kalasin and Surin Provinces, Thailand.

Subtribe AOLINA Boulard, 2012

Genus *Meimuna* Distant, 1905a

Meimuna Distant 1905a: 67.

TYPE SPECIES.—*Dundubia tripurasura* Distant 1881: 635 (Assam).

REMARKS.—The generic position of the new species is confirmed through the key for *Aolina* genera in Pham & Lee (2021b).

Meimuna chiangmaiensis sp. nov.

(Fig. 9)

Meimuna undescribed species A Sanborn *et al.* 2007: 20.

Meimuna undescribed species A Sanborn 2013: 288.

TYPE MATERIAL.—Holotype. “THAILAND: Chiang Mai Prov. / Doi Inthanon N.P.; Huay Sai / Lueung WF; 18° 31'N 98° 27'E / 1060 m; 3 April 2002; L-321 / colls: UMC and CMU teams” male (UMRM).

ETYMOLOGY.—The name is a combination of *chiangmai-* (for the type locality in the province of Chiang Mai) and *-ensis* (L., suffix denoting place, locality) in reference to the site where the holotype originated.

DIAGNOSIS.—There are now a total of four known species of *Meimuna* inhabiting Thailand. This new species can be distinguished quickly from *M. duffelsi* Boulard, 2005c and *M. tavoyana* (Distant, 1888a) by the lack of infuscation on the fore wing radial and radiomedial crossveins in these species. It can be distinguished from *M. maehongsonensis* sp. nov. by the smaller body size (30.35 mm vs. 32.75–34.00 mm), shorter fore wing length (41.10 mm vs. 43.55–44.50), shorter wingspan (91.70 mm vs. 97.00–99.2 mm), linear infuscation on the fore wing margin distal to the apical cells, the broader and more rounded male opercula, the lack of piceous pattern on the dorsal abdominal tergites, and the medially concave lateral uncus lobes.

The remaining species of *Meimuna* can be distinguished by a combination of structures only possessed by the new species. A body length between 30 and 32 mm, wing length between 40 and 42 mm, wingspan between 91 and 93 mm, infuscation only on the fore wing radial and radiomedial crossveins with linear infuscation within the fore wing apical cells, the pattern

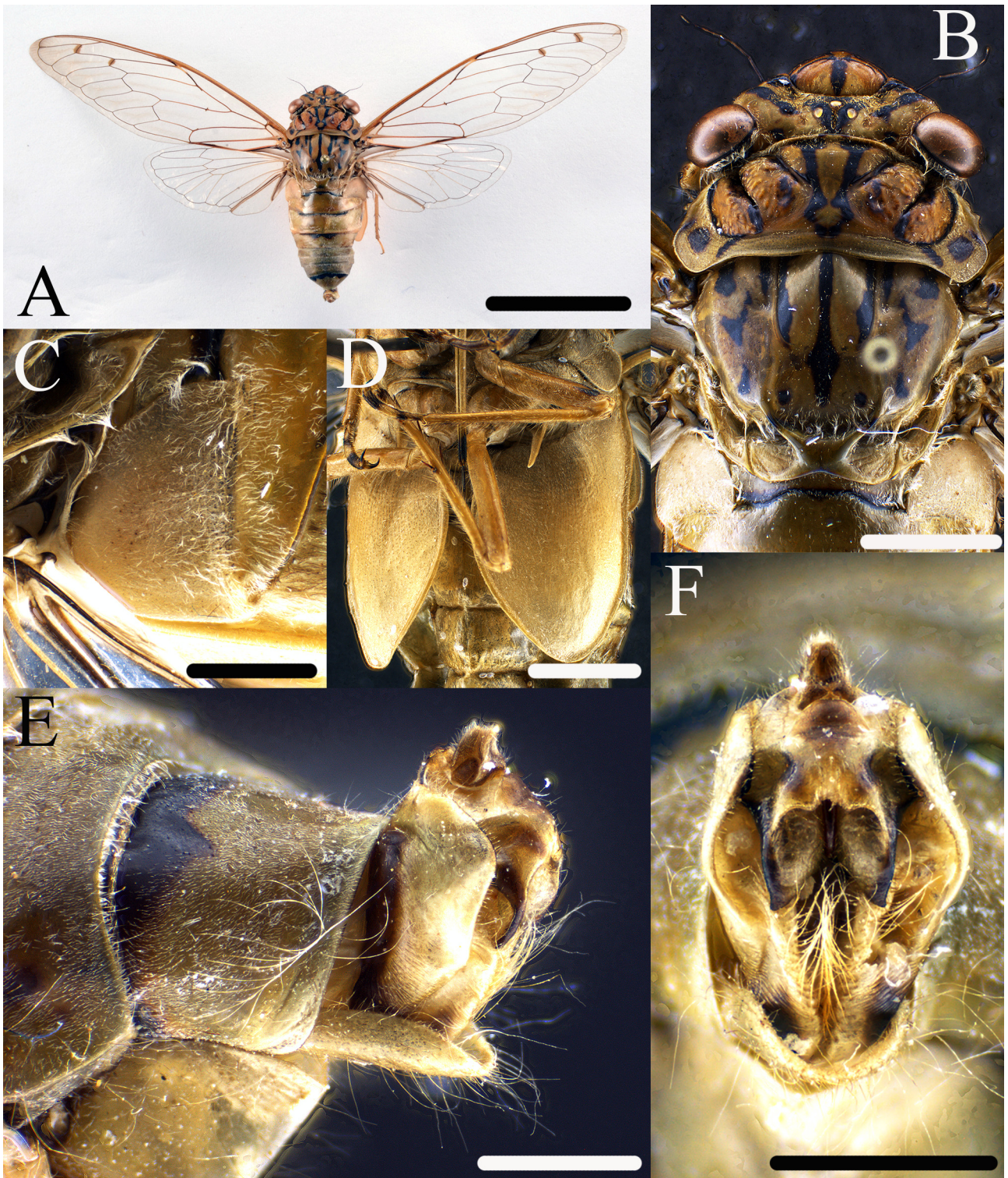


FIGURE 9. *Meimuna chiangmaiensis* sp. nov.: A, holotype male habitus; B, holotype male dorsum; C, holotype male timbal cover; D, holotype male operculum; E, holotype male lateral view of genitalia; F, holotype male posterior view of genitalia. Scale bar: A, 2 cm; B, 5 mm; C, 2 mm; D, 5 mm; E–F, 2 mm.

of transverse piceous markings across the anterodorsal margin of abdominal tergites 2–4 and 7, the broadly rounded apex of the male opercula reaching to abdominal sternite IV, and the shape of the uncus.

DESCRIPTION

Ground color of head and thorax tawny marked with piceous, abdomen greenish marked with piceous.

Head

Head wider than mesonotum, ground color with piceous

dorsomedial inverted triangle on dorsal midline from posterior head to middle of anterior arms of epicranial suture, not filling posterior epicranial suture, all but anterolateral corners of frons piceous, angled fascia on central vertex lateral to lateral ocelli extending almost to anterolateral vertex margin, small anterior extension angled toward posterolateral corner of supra-antennal plate, piceous spot in posterior cranial depression, piceous posterior to eye, eye margined with piceous except for lateral third. Supra-antennal plate ground color with piceous triangular mark extending from medial margin but not reaching anterior or posterior margins. Covered with short silvery pile dorsally, denser along sutures and anteriorly, longer silvery pile posterior to eye. Ocelli ochraceous, median ocellus speckled with rosaceous, eyes castaneous. Ventral head ground color, transverse piceous mark across gena, expanding laterally to margin medial eye to middle of lateral extension of eye. Lorum anterior third and lateral margin ground color, remaining lorum piceous. Thick short and long white pile on lorum and gena. Postclypeus not centrally sulcate, with 12 transverse grooves, ground color, piceous fascian on dorsal midline constricting to junction with frontoclypeal suture, piceous along ventral midline, diverging medially to form ovoid ground color region near apex and at the tenth transverse groove forming a ground color circle on the ventroposterior midline, piceous extends laterally into transverse grooves except base of the first (dorsally), seventh, and eighth grooves, slight lateral extension into sixth and ninth transverse groove, remaining grooves with piceous extending to lateral margin. Postclypeus with short silvery pile along frontoclypeal suture and in lateral transverse grooves, expanding across midline in posteroventral grooves, long silvery pile radiating from lateral postclypeus. Anteclypeus ground color except piceous posterior two-thirds of lateral regions, covered with short and long silvery pile. Mentum ground color, labium ground color with piceous tip reaching to anterior hind femora with sparse short and long silvery pile. Antennal segments piceous with castaneous distal flagellar segments.

Thorax

Dorsal thorax ground color. Pronotum with piceous fascia on either side of midline expanding anteriorly along anterior margin, laterally into posterior paramedian fissure, angled posterolaterally between paramedian and lateral fissures after almost meeting on midline before angling mediad from posteromedial central disc to posterior midline in ambient fissure, anterior paramedian fissure piceous, mark extending as longitudinal fascia on medial side of middle disc, lateral fissure piceous, ambient fissure piceous except for anterior dorsal midline and lateral to fusion of central fascia to posterior lateral fissure. Pronotal collar with triangular lateral tooth, ground color, posterolaterally angled piceous fascia extending from ambient fissure at lateral disc, oblong piceous spot and small piceous angled fascia on lateral angle of pronotal collar. Pronotum with short silvery pile, primarily in sutures, denser on anterior discs, lateral angle of pronotal

collar, and in lateral ambient fissure. Mesonotum ground color, a medial fascia extending from anterior margin to level of scutal depressions that expands slightly laterally posterior to submedian sigillae, piceous fascia along medial parapsidal suture terminating on posterior of suture, short fascia anteriorly between submedian and lateral sigillae, piceous fascia in lateral sigillae, piceous fascia in lateral sigilla split into three spots, small piceous spot on middle of lateral margin extending as fascia along anterolateral margin with wing groove, scutal depressions piceous, cruciform elevation ground color with transverse piceous fascia across anterior arms near anterior terminus extending laterally to posterior mesonotum, transverse piceous fascia across posterior midline, wing groove ground color with small castaneous spots anteriorly. Metanotum ground color. Short silvery pile on mesonotum, long, dense silvery pile on anterolateral margin, laterally, posteriorly, between arms of cruciform elevation, in wing groove, and on posterior metanotum. Ventral thoracic segments ground color except piceous medial basisternum 2, piceous medial katepisternum 2, piceous spot on medial anepimeron 2 and katepimeron 2, piceous posteromedial margin of meron 2, piceous spot on epimeral lobe, small piceous spot on posteromedial basisternum 3. Ventrally with long white pile.

Wings

Fore wings and hind wings hyaline with eight and six apical cells respectively, infuscation on radial and radiomedial crossveins and linear infuscation in fore wing apical cells extending onto wing marginal area, and infuscation wing margin edge. Venation ground color basally becoming piceous distally, distal median vein ochraceous, piceous spot on proximal cubitus posterior + anal vein 1, anal vein 2 + 3 with piceous posterior margin. Basal cell hyaline. Pterostigma extending beyond radial crossvein to about half the length of apical cell 1. Basal membrane of fore wing white at base becoming dark gray distally. Venation of hind wing ochraceous basally becoming piceous distally except all but basal castaneous median vein and anal vein 2, and piceous anal vein 3. All but small, elongated distal circle in anal cell 3, anal cell 2 along anal vein 3, anal cells 1 and 2 along anal vein 2, anterior cubital cell 2 along proximal half of cubitus posterior vein dark gray, infuscation surrounding gray in anal cell 2.

Legs

Legs ground color, proximolateral and distal fore coxae and proximolateral middle and hind coxae with transverse piceous mark, fore and middle trochanters with piceous proximolateral transverse mark, fore femora with piceous mark proximally, larger piceous spots on either side distally, small castaneous spot distally on dorsal surface, and piceous spot on ventral side distally surrounding tertiary spine, middle femora with C-shaped distal mark. Fore femora with proximal spine oblique, finger-like, secondary spine largest, triangular, not angled as much as primary spine, and very small, obliquely angled tertiary spine, all spines ground color. Fore tibiae striped with

castaneous, middle tibiae with small castaneous mark distally. Tarsi piceous, tibial spurs and comb castaneous with piceous tips, pretarsal claws castaneous with piceous tips. Meracathus pointed, thin, ground color with a piceous basal margin reaching to anterior of abdominal sternite II.

Operculum

Male operculum, large, triangular distally with slightly sinuate lateral margin, medial margin expanding medially from base but not reaching midline, apex curved almost reaching posterior of abdominal sternite IV, ground color, covered with short silvery pile, denser laterally. Tympanal cavity completely covered.

Abdomen

Abdominal tergite 1 ground color with piceous posterior margin between timbal covers, tergite 2 ground color, tergite 3 with transverse piceous fascia across anterodorsal midline with castaneous lateral spots, tergite 4 with dorsolateral transverse piceous fascia expanding on either side of midline, surface on either side of midline, tergite 5 with transverse piceous mark along anterodorsal margin, tergite 6 ground color, tergite 7 with piceous anterior margin, tergite 8 with piceous anterior margin with mark extending posteriorly on either side of midline and to a greater degree on the dorsolateral surface. Timbal cover incomplete forming small dorsomedial opening at posterior timbal cavity, ventral margin flared outward so timbal can be seen from ventral side, greenish, rounded anterior apex, ventral margin straight and parallel to long body axis, timbal with three long and three intercalary ribs visible. Short silvery pile on tergites, denser along junctions of tergites, on timbal cover, and lateral tergites, lateral tergites 6–8 radiating long silvery pile. Sternites and epipleurites ochraceous except transverse castaneous mark along posterior midline of sternites I and III, small castaneous fascia on lateral posterior margin of sternites III–VI, castaneous anterior margin of epipleurites 6 and 7. Sternite VIII with transverse posterior margin, open U-shape when viewed from posterior, radiating long golden pile.

Genitalia

Male pygofer ground color ventrally and posteriorly, piceous margined with castaneous dorsolaterally and anteriorly, piceous margin on ventroposterior corner to rounded distal shoulder, upper pygofer lobes absent, dorsal beak absent from piceous dorsoposterior margin, with short silvery pile laterally. Pygofer basal lobes ochraceous, diverging from base forming a V-shape, golden pile radiating medially, longer and denser at base. Anal styles castaneous, anal tube ground color. Median uncus lobe small, triangular, ground color at base light castaneous centrally, lateral uncus lobe ground color with castaneous mark with junction of median uncus lobe and piceous lateral and ventral margins, ventral side straight with approximate right angle curve to terminus, meeting medially posterior to median uncus lobe, long ventral apophyses formed from lateral uncus lobes meeting

medially to support aedeagus, distal lateral uncus lobes diverge to triangular apex with laterally bent apex, forming a V-shaped groove when viewed from posterior. Aedeagus tubular, castaneous.

MEASUREMENTS (MM).—N = one male. Length of body: 30.35; length of fore wing: 41.10; width of fore wing: 11.60; length of head: 5.50; width of head including eyes: 10.10; width of pronotum including suprahumeral plates: 10.90; width of mesonotum: 9.50.

DISTRIBUTION.—The species is known only from the holotype specimen collected in Doi Inthanon National Park, Chiang Mai Province, Thailand.

Meimuna maehongsonensis sp. nov.

(Fig. 10)

Meimuna undescribed species B Sanborn *et al.* 2007: 20.

Meimuna undescribed species B Sanborn 2013: 288.

TYPE MATERIAL.—Holotype. “THAILAND: Mae Hong Son / Prov.; Namtok Mae Surin N.P. / Mae Nam Pai; merc. Vapor lt. / 310 m; 19 March 2002; L-308 / Sites, Vithprdt, Kirawanich” male (UMRM). Paratypes. Same data as holotype, one male (UMRM), one male (AFSC). 19° 21'N 97° 59'E

ETYMOLOGY.—The name is a combination of *maehongson-* (for the type locality in the province of Mae Hong Son) and *-ensis* (L., suffix denoting place, locality) in reference to the site where the type series originated.

DIAGNOSIS.—There are now a total of four known species of *Meimuna* inhabiting Thailand. This new species can be distinguished quickly from *M. duffelsi* Boulard, 2005c and *M. tavoyana* (Distant, 1888a) by the lack of infuscation on the fore wing radial and radiomedial crossveins in these species. It can be distinguished from *M. chiangmaiensis* sp. nov. by the longer body size (32.75–34.00 mm vs. 30.35 mm), longer fore wing length (43.55–44.50 vs. 41.10 mm), longer wingspan (97.00–99.2 mm vs. 91.70 mm), the lack of linear infuscation on the fore wing margin distal to the apical cells, the acutely triangular male opercula, the piceous pattern on the dorsal abdominal tergites, and the medially convex lateral uncus lobes.

The remaining species of *Meimuna* can be distinguished by a combination of structures only possessed by the new species. A body length between 32 and 35 mm, wing length between 43 and 45 mm, wingspan between 97 and 100 mm, infuscation only on the fore wing radial and radiomedial crossveins with linear infuscation within the middle of the fore wing apical cells, the pattern of piceous markings across the dorsal abdominal tergites, the acutely angled male opercula reaching to abdominal sternite V, and the shape of the uncus.

DESCRIPTION

Ground color of head and thorax tawny marked with piceous and castaneous, abdomen tawny and ochraceous

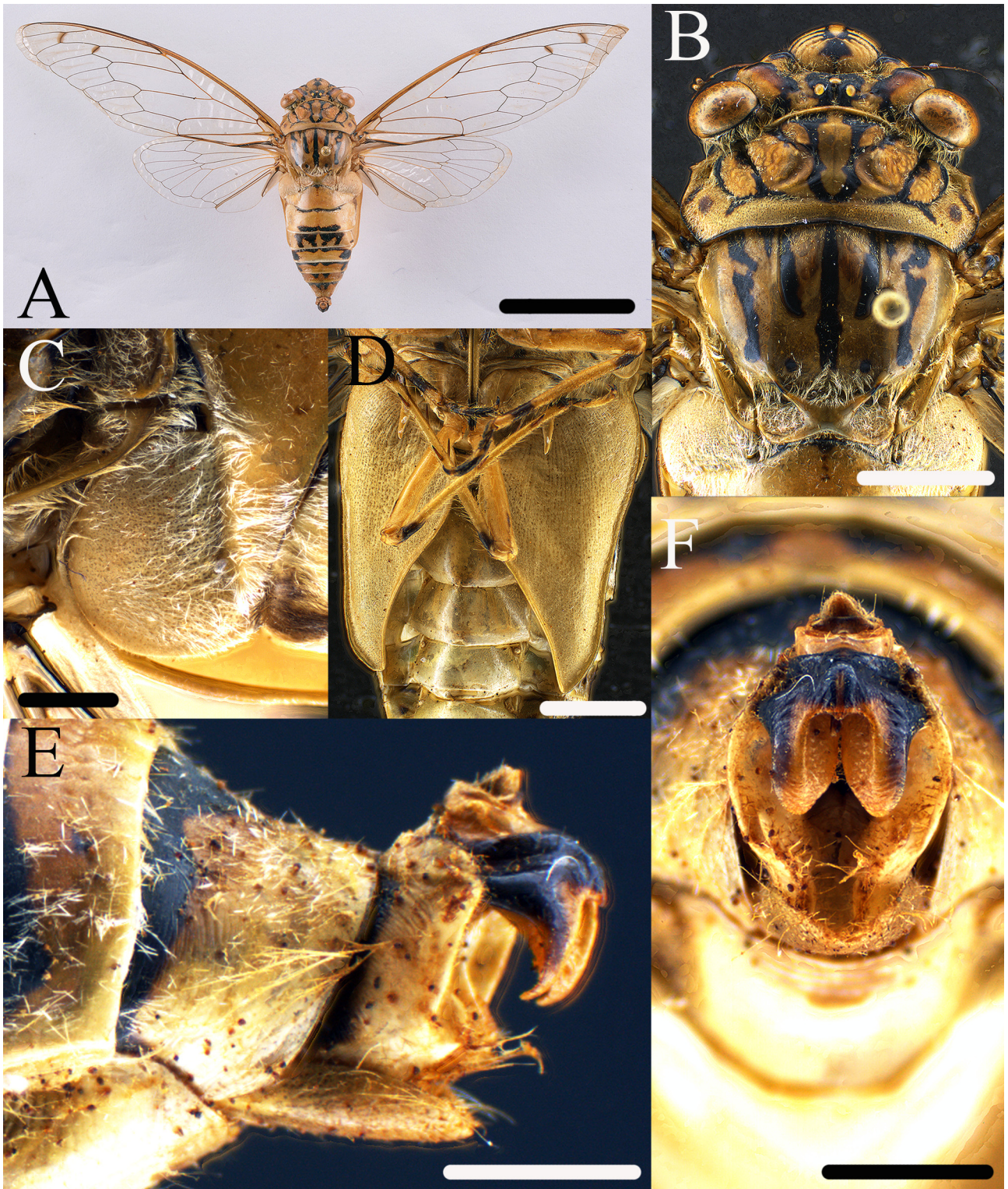


FIGURE 10. *Meimuna maehongsonensis* sp. nov.: A, holotype male habitus; B, holotype male dorsum; C, holotype male timbal cover; D, holotype male operculum; E, holotype male lateral view of genitalia; F, holotype male posterior view of genitalia. Scale bar: A, 2 cm; B, 5 mm; C, 2 mm; D, 5 mm; E–F, 2 mm.

marked with piceous. Ochraceous may be green in live specimens as there is a greenish hue to the lateral anterior tergites in one paratype.

Head

Head wider than mesonotum, ground color with piceous

medial area surrounding ocelli extending anterolaterally along posterior epicranial suture almost to lateral supra-antennal plate and posteriorly to posterior head margin, small, anteriorly curved extension from posterolateral lateral ocellus, mark reduced in one paratype, connecting to mark on lateral vertex in other paratype, C-shaped

piceous mark on vertex posterior to epicranial suture, inner portion of C-shape filled with castaneous, short anterior extension angled toward posterolateral supra-antennal plate, expanding posteriorly to form longitudinal fascia to posterior head margin, piceous posterior to eye, eye margined with piceous except for region anterior to medial angle. Supra-antennal plate ground color with piceous triangular mark extending from medial margin but not reaching anterior or posterior margins. Covered with short silvery pile dorsally, denser along sutures, longer silvery pile posterior to eye. Ocelli ochraceous, rosaceous in one paratype, eyes castaneous. Ventral head ground color, transverse piceous mark across gena, expanding laterally to surround eye. Lorum anterior third and lateral margin ground color, remaining lorum piceous. Thick short and long white pile on lorum and gena. Postclypeus not centrally sulcate, with 13 transverse grooves, ground color, rounded triangular castaneous mark with thin posterior extension on midline on dorsal surface connecting to frontoclypeal suture, piceous along midline, diverging medially to form ovoid ground color region near apex and at the eleventh transverse groove forming a ground color triangle on the ventroposterior midline, piceous extends laterally into transverse grooves except base of the first (dorsally) and ninth grooves, reaching to lateral margin in two grooves connecting near supra-antennal plate and final two posterior grooves with the marking between maximum and minimum lateral extension showing a stepwise progression. Postclypeus with short silvery pile on dorsum and lateral transverse grooves, long silvery pile radiating from lateral postclypeus. Anteclypeus ground color along anterior margin, carina, and posterior margin, lateral regions piceous, covered with long silvery pile. Mentum ground color, labium ground color with piceous tip reaching to posterior hind trochanters with sparse short and long silvery pile. Antennal segments castaneous.

Thorax

Dorsal thorax ground color, pronotal discs light castaneous in one paratype. Pronotum with piceous fascia on either side of midline expanding anteriorly into ax-like shape, laterally into posterior paramedian fissure, and angled posteriorly from posteromedial central disc to posterior midline in ambient fissure, anterior paramedian fissure piceous, lateral fissure piceous, ambient fissure piceous except for anterior dorsal midline and lateral to fusion of central fascia. Pronotal collar with triangular lateral tooth, ground color, posterior piceous margin extending to anterior of lateral angle of pronotal collar, triangular piceous mark extending from ambient fissure at posterolateral angle, castaneous spot and small castaneous angled fascia on lateral angle of pronotal collar. Pronotum with short white pile, primarily in sutures, longer pile on lateral angle of pronotal collar and in lateral ambient fissure, white pubescence in sutures of one paratype. Mesonotum ground color, a medial fascia extending from anterior margin to level of scutal depressions that expands slightly laterally posterior to submedian sigillae, piceous fascia along medial parapsidal suture terminating on posterior of suture, small triangular mark anteriorly

between submedian and lateral sigillae, piceous fascia in lateral sigillae with C-shaped area near posterior terminus of triangular mark between sigillae, piceous spot anterior to posterolateral corner, scutal depressions piceous, cruciform elevation ground color with transverse piceous fascia across anterior arms near anterior terminus extending along distal posterior anterior arms, transverse piceous fascia across posterior margin, more intense in paratypes, wing groove ground color. Metanotum ground color. Short silvery pile on mesonotum, long, dense silvery pile on anterolateral margin, laterally, posteriorly, between arms of cruciform elevation, in wing groove, and on posterior metanotum. Ventral thoracic segments ground color except piceous medial basisternum 2, piceous katapisternum 2, piceous spot on anteromedial anepimeron 2, and piceous meron 2, small piceous spot on posteromedial and posterolateral basisternum 3. Ventrally with long white pile.

Wings

Fore wings and hind wings hyaline with eight and six apical cells respectively, infuscation on radial and radiomedial crossveins and linear infuscation in fore wing apical cells 1–7. Venation ground color basally becoming piceous distally, anterior costal margin and anterior radius & subcostal vein piceous to node, becoming piceous distally, piceous spot on proximal cubitus posterior + anal vein 1, anal vein 2 + 3 with piceous posterior margin. Anterior half of basal cell clouded. Pterostigma extending beyond radial crossvein to about half the length of apical cell 1. Basal membrane of fore wing white at base becoming dark gray distally. Venation of hind wing ochraceous basally becoming piceous distally except all but basal castaneous radius posterior, median vein and anal vein 2, and piceous anal vein 3. All but small distal hyaline circle in anal cell 3, anal cell 2 along anal vein 3, anal cells 1 and 2 along anal vein 2, anterior cubital cell 2 along proximal half of cubitus posterior vein dark gray, infuscation surrounding gray in anal cell 2.

Legs

Legs ground color, proximal and distal fore coxae with transverse piceous mark, femora striped with piceous. Fore femora with proximal spine oblique, finger-like, secondary spine largest, triangular, upright and very small, obliquely angled tertiary spine, primary and secondary spines ground color, tertiary spine piceous. Fore tibiae striped with piceous, middle tibiae with annular piceous marks proximally and distally, hind tibiae with proximal annular piceous mark. Tarsi piceous, tibial spurs and comb castaneous with piceous tips, pretarsal claws ground color with piceous tips. Meracathus pointed, ground color with a castaneous basal margin not reaching to anterior margin of abdominal sternite II.

Operculum

Male operculum, large, triangular distally with sinuate lateral margin, medial margin expanding medially from base but not reaching midline, apex acutely angled reaching to middle of abdominal sternite V, ground color

with transverse piceous fascia on central base, covered with short silvery pile, white pubescence at base in one paratype. Tympanal cavity completely covered.

Abdomen

Abdominal tergite 1 piceous, tergite 2 ground color with longitudinal piceous mark on anteromedial margin, longer in paratypes, and piceous dorsoposterior margin, tergite 3 with transverse piceous fascia across anterodorsal midline and anterior to posterodorsal midline, tergite 4 with upside down U-shaped mark on dorsolateral surface on either side of midline, small transverse fascia on dorsolateral posterior margin, and piceous spot on anterolateral corner, tergite 5 with transverse piceous mark along anterodorsal margin slightly expanding on either side of midline, extending posteriorly as large spot on dorsolateral tergite and piceous spot on anterolateral corner, tergite 6 similarly colored to tergite 5 except extension on either side of midline is larger, tergite 7 similarly colored to tergite 6 except extension on either side of midline is larger and mark margined posteriorly with castaneous, tergite 8 similarly colored to tergite 7. Timbal cover incomplete forming small dorsomedial opening at posterior timbal cavity, ventral margin flared outward so timbal can be seen from ventral side, greenish, rounded anterior apex, ventral margin straight and parallel to long body axis, timbal with four long but no intercalary ribs visible. Short silvery pile along junctions of tergites, longer and denser on timbal cover and lateral tergites, anterolateral tergites 3–5 with spot of castaneous pile surrounded by silvery pile, lateral tergites 6–8 radiating long golden pile. Sternites and epipleurites ochraceous except transverse castaneous mark along posterior midline of sternite II and small castaneous spot on lateral sternite III, piceous spot on anterior margin of epipleurites 6 and 7, light castaneous spots in some epipleurites of paratypes. Sternite VIII with smoothly curved posterior margin, open U-shape when viewed from posterior, radiating long golden pile.

Genitalia

Male pygofer ground color ventrally and posteriorly, piceous dorsolaterally and anteriorly, with rounded distal shoulder, upper pygofer lobes absent, dorsal beak absent but pile giving the appearance of a dorsal beak, with short silvery pile laterally. Pygofer basal lobes ochraceous, smoothly curved, golden pile radiating medially, longer and denser at base. Anal styles castaneous, anal tube ground color. Median uncus lobe small, triangular, ground color at base castaneous distally, lateral uncus lobe piceous with ground color posterior and ventral margins, ventral side straight with approximate right angle curve to terminus, meeting medially posterior to median uncus lobe, long ventral apophyses formed from lateral uncus lobes meeting medially to support aedeagus, distal lateral uncus lobes diverge to triangular apex, more acuminate in paratype, forming a V-shaped groove when viewed from posterior. Aedeagus tubular, castaneous.

MEASUREMENTS (MM).—N = three males, mean (range). Length of body: 33.53 (32.75–34.00); length of fore wing: 43.88 (43.55–44.50); width of fore wing: 13.35

(13.00–13.60); length of head: 5.70 (5.65–5.75); width of head including eyes: 11.00 (10.75–11.20); width of pronotum including suprahumeral plates: 11.65 (11.50–11.85); width of mesonotum: 10.03 (9.90–10.20).

DISTRIBUTION.—The species is known only from the type series collected in Namtok Mae Surin National Park, Mae Hong Son Province, Thailand.

Subfamily CICADETTINAE Buckton, 1890

Tribe KATOINI Moulds & Marshall, 2018 (in Marshall *et al.*, 2018)

REMARKS.—The genus *Muda* Distant, 1897 is currently classified in the Chlorocystini Distant, 1905c. The inclusion of *Muda* in Chlorocystini was questioned by Boer (1995) in his review of the tribe. Boer (1995) suggested Chlorocystini was not monophyletic and *Muda* would need to be reassigned to a new tribe as it did not conform to the characteristics of the available related tribes at the time. Although several of the questionably placed Chlorocystini genera have been reassigned to new tribes (Marshall *et al.* 2018; Sanborn 2025), multiple other genera whose position was questioned, including *Muda*, have not been reassigned since Boer (1995) suggested that new tribes were required.

Marshall & Moulds, 2018 (in Marshall *et al.* 2018) erected a new tribe for *Katoa* Ôuchi, 1938. Katoini Moulds & Marshall, 2018 (in Marshall *et al.*, 2018) appears to be the new tribe Boer (1995) suggested was necessary for *Muda*. Duffels (2019) (initiated by communications with M. Hayashi) suggested that *Muda* is closely related to *Katoa*. Duffels (2019) may have submitted his work prior to receiving a copy of Marshall *et al.* (2018) where a new tribe was erected for *Katoa* so that a reassignment may not have been possible with the available data when Duffels submitted his work. As a result, Duffels (2019) described the relationships between *Muda* and three related tribes based on the Boer (1995) analysis. However, he also provided a detailed analysis of the similarities of *Muda* and *Katoa* (Duffels 2019). *Katoa* was the only genus to which Duffels (2019) made a comparative analysis considering it a related genus to *Muda*.

Duffels (2019) described *Muda* and *Katoa* as sharing the following characteristics: mediadorsal carina on male pygofer, the pygofer is long and parallel sided in species of both genera, the large, curved upper pygofer lobes that are articulated (movable), similarly sized claspers, C-shaped theca, more or less chitinized apical theca with long and short spines found in species of both genera, and no pseudoparameres are present. The distinguishing features of Katoini are a combination of a supra-antennal plate that meets the eye, no uncus, no dorsal beak, small claspers, no pseudoparameres, and a basal plate with the ventral rib attached only at its ends (Marshall *et al.* 2018). These features are shared by species of *Muda* and *Katoa*. In addition, species of *Muda* possess all characters listed in the diagnosis section for Katoini in Marshall *et al.* (2018).

Therefore, based on the analysis of Duffels (2019), comparison of specimens of *Muda* to the description of Katoini, comparison of specimens of *Katoa* and *Muda*, and the analysis of Boer (1995) showing that *Muda* cannot be a member of Chlorocystini, the genus *Muda* is reassigned here to Katoini Moulds & Marshall, 2018 (in Marshall *et al.*, 2018). It has been known for many years that *Muda* should not be classified in Chlorocystini. The morphological similarities of *Muda* to *Katoa* and the diagnostic features of Katoini support the reassignment of *Muda* to Katoini.

Genus *Muda* Distant, 1897

Muda Distant 1897: 384.

Iwasemia Matsumura 1927: 57.

Nahasemia Matsumura 1930: 9 *nomen nudum*.

TYPE SPECIES.—*Muda concolor* Distant 1897: 384 (Mentawai Islands).

REMARKS.—The genus was reviewed by Duffels (2019) including the introduction of several new species. Generic characters, species status, redescriptions and new species were provided in this work. Two undescribed species of the genus were reported for Thailand in Sanborn *et al.* (2007) but the genus was not included in the synopses of Boulard (2008a, 2012, 2013a). These undescribed species and another new species obtained since that time are described here.

Muda songkhlaensis sp. nov.

(Fig. 11)

Muda undescribed species A Sanborn *et al.* 2007: 33.

Muda undescribed species A Sanborn 2013: 665.

TYPE MATERIAL.—Holotype. “THAILAND: Songkhla Prov. / Ton Nga Chang Wldf. Sanc. / vapor lt. at Buddhist temple / 14 June 2002; L-409 / coll. R. W. Sites” male (UMRM). Paratypes. Same data as holotype, one male (UMRM), two males and one female (AFSC); “THAILAND: Songkhla Prov. / Ton Nga Chang Wldf. Sanc. / stream by cabin; bucket / light trap; 9 June 2001 / coll. R. W. Sites” one female (UMRM).

ETYMOLOGY.—The name is a combination of *songkhl-* (for the type locality in the province of Songkhla) and *-ensis* (L., suffix denoting place, locality) in reference to the site where the type series originated.

DIAGNOSIS.—This new species can be distinguished from the monochromatic *M. kuroiwa*e (Matsumura, 1913), *M. obtusa* (Walker, 1858), *M. virguncula* (Walker, 1856), and *M. chanthaburensis* sp. nov. by the various markings on the body segments. *Muda kinabaluana* Duffels, 2019 can be distinguished by the lack of timbals, abdominal markings that are unique to that species along with the markings of the pronotum, and the darkened submedian sigillae of the mesonotum. The eyes extend noticeably beyond the anterolateral pronotum, the dorsal

head lacks the transverse fascia between the eyes and the longitudinal fascia extending to the posterior head from the lateral ocelli, the pronotal coloration is more expansive, the abdominal tergites lack markings, the male operculum is truncated, the nine timbal ribs, and the distal pygofer upper lobes and the claspers overlap medially in *Muda tahanensis* (Moulton, 1923). The dorsal head is mottled but lacks the transverse fascia between the eyes and the longitudinal fascia extending to the posterior head from the lateral ocelli, the pronotal coloration is more expansive, the abdominal tergites lack markings, the six timbal ribs, and the distal pygofer upper lobes overlap medially in *Muda tua* Duffels, 2004 (in Schouten *et al.* 2004). *Muda phetchabunensis* sp. nov. differs in the larger body size, the reduced markings on the dorsal head, the lack of markings on the abdominal tergites, and the distal upper pygofer lobes meet medially and are inflated distally.

DESCRIPTION

Ground color testaceous, head, thorax, and abdomen marked with fuscous. The species may be green when live as one paratype has a greenish hue.

Head

Head wider than mesonotum, medial area between ocelli fuscous, mark extends anteriorly on each side of median ocellus, mark extending anterolaterally to medial angle of eye, filling most of anterolateral vertex or bifurcating and extending along medial eye forming sickle-shaped mark in some paratypes, medial mark extends posteriorly along medial lateral ocelli, extending as fascia to posterior head in some paratypes. Supra-antennal plate ground color. Covered with short silvery pile dorsally, longer silvery pile posterior to eye. Ocelli rosaceous, eyes ochraceous, castaneous in some paratypes. Ventral head ground color, transverse piceous mark on gena between eye and postclypeus in some paratypes. Short white pile and radiating longer pile on lorum and gena. Postclypeus centrally sulcate, sulcus not reaching apex, ground color with curved, triangular fuscous mark on dorsal surface, reduced to spot in some paratypes. Postclypeus with ten transverse grooves, short golden pile on dorsum, radiating long silvery pile ventrally. Anteclypeus ground color covered with short and radiating long silvery pile. Mentum ground color, labium ground color with piceous tip reaching to middle trochanters with sparse short and long silvery pile. Scape, proximal pedicel, and proximal first flagellar segment ground color, remaining segments fuscous.

Thorax

Dorsal thorax ground color. Pronotum with curved fuscous mark on disc near anterior midline, expanding to spot in some paratypes, curved fuscous mark connecting medial paramedian and lateral fissures, mark extends into posterior lateral fissure forming open U-shaped mark in some paratypes, light castaneous spot between posterior

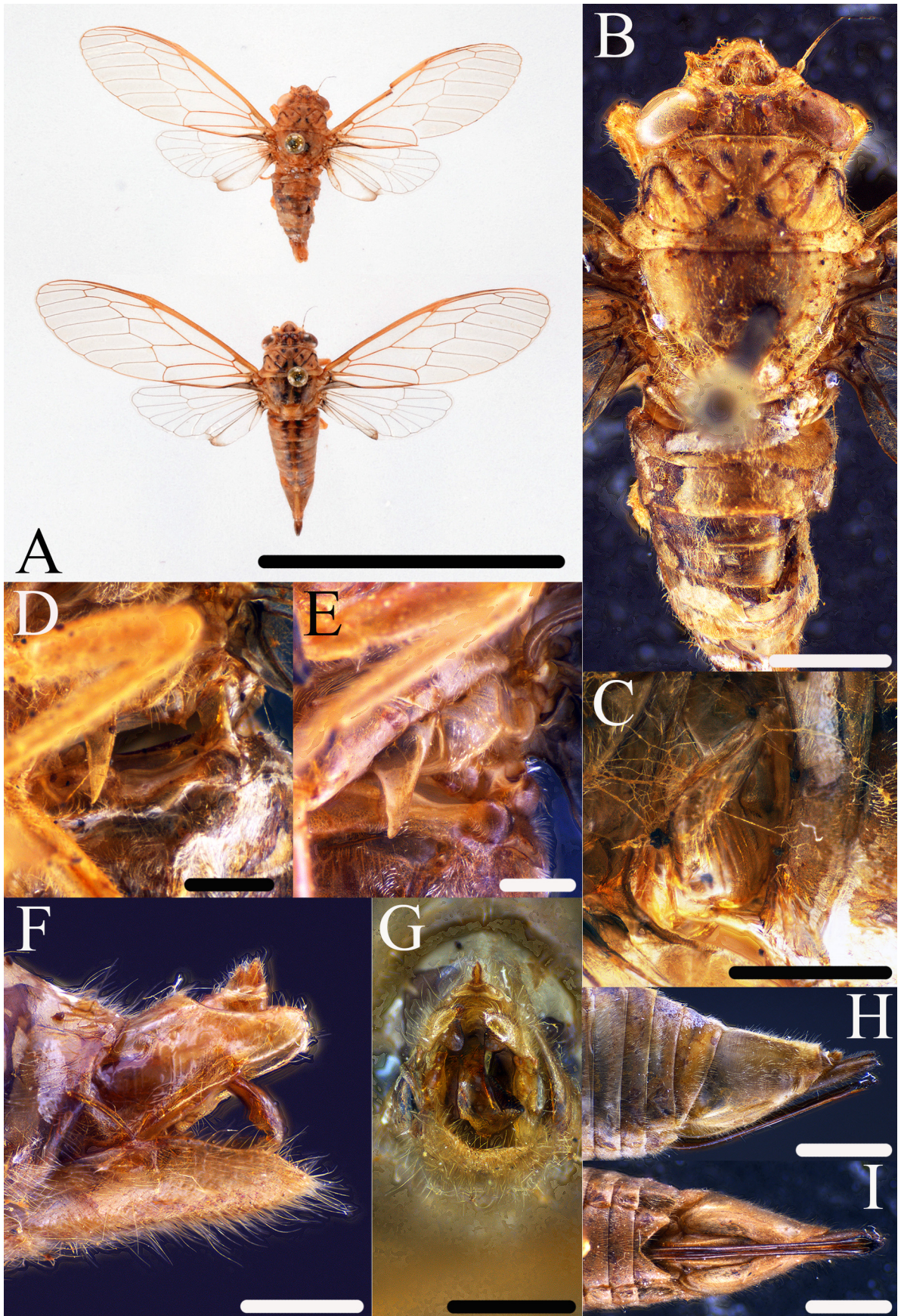


FIGURE 11. *Muda songkhensis* sp. nov.: A, holotype male and paratype female habitus; B, holotype male dorsum; C, holotype male operculum; D, paratype female operculum; E, holotype male timbal cover; F, holotype male lateral view of genitalia; G, holotype male posterior view of genitalia; H, paratype female lateral view of genitalia; I, paratype female ventral view of genitalia. Scale bar: A, 2 cm; B, 2 mm; C–G, 1 mm; H–I, 2 mm.

lateral fissure and ambient fissure, reduced or expanded into dark castaneous transverse fascia in some paratypes, longitudinal fuscous mark on disc between paramedian and lateral fissures, fuscous mark in anterior lateral fissure extending around anterior disc into lateral ambient fissure and across disc forming a ground color circle near the anterior of the lateral disc, incomplete in some paratypes, a fuscous longitudinal spot in posterior lateral disc in some paratypes. Pronotal collar ground color. Pronotum covered with short silvery pile, longer pile on lateral pronotal collar. Mesonotum ground color, light fuscous longitudinal fasciae on either side of midline varying in length in paratypes, cruciform elevation ground color with light fuscous lateral margin, wing groove ground color. Metanotum ground color, light fuscous mark on lateral posterior margin. Short silvery pile on mesonotum, denser and longer laterally, posteriorly and between arms of cruciform elevation, in wing groove, and on posterior metanotum, especially dorsomedially. Ventral thoracic segments ground color except fuscous central basisternum 2, with short and radiating long white pile.

Wings

Fore wings and hind wings hyaline with eight and six apical cells respectively, a light bronzing when viewed at an angle. Venation ground color, becoming darker distally, basal portion of internal veins with reddish hue, posterior anal vein 2 + 3 with piceous posterior margin. Basal cell hyaline. Pterostigma not reaching divergence of radius anterior 2. Basal membrane of fore wing white at base becoming dark gray distally. Venation of hind wing ground color at base becoming darker distally. Anal cell 3 at base and anal cells 2 and 3 along anal vein 3 whitish. Infuscation on distal anal cell 2 and on hindwing margin distal to anal cell 1.

Legs

Legs light ground color, greenish in several paratypes, hind femora striped with castaneous, distal pretarsus and tips of pretarsal claws castaneous. Fore femora with proximal spine obliquely angled, longest, secondary spine with wide base, upright, tertiary spine smaller than secondary spine and slightly angled, and very small, triangular apical spine, all castaneous with piceous anterior margin. Tibial spurs and comb light castaneous with ground color base. Meracanthus an elongated triangle, pointed with slight medially curved apex, ground color, reaching to middle of abdominal sternite II in male and middle of sternite III in females.

Operculum

Male operculum ground color, very short, scale-like, reaching only to distal base of meracanthus, slightly curved posterior margin from base, not reaching anterior tympanal cavity. Female opercula similarly shaped and colored. Opercula with short silvery pile and radiating long silvery pile from margin.

Abdomen

Abdomen ground color, fuscous spot on either side of

midline on dorsal tergite 2, additional spots or marks expanding in some paratypes to form fuscous fascia from tergite 2–7, fuscous spot on lateral tergite 1 in female paratype, covered with long silvery pile. Timbal cover absent, timbal exposed with eight long and eight intercalary ribs. Male sternite VIII with sinuate lateral and slightly curved posterior margin, radiating long silvery pile. Female abdominal segment 9 ground color with fuscous fasciae on either side of dorsal midline, with short and radiating long silvery pile. Posterior margin of abdominal segment 9 sinuate, dorsal beak absent. Sternites and epipleurites ground color, with short and radiating long silvery pile. Female sternite VII with single, deep, open V-shaped medial notch.

Genitalia

Male pygofer ground color, mediadorsal carina weakly developed, distal shoulder smoothly curved to upper pygofer lobe, dorsal beak absent. Pygofer upper lobes large, rectangular extension from base, flattened laterally, curving mediad distally but not meeting along midline, distal terminus with straight medial margin and curved posterior margin, radiating silvery pile, basal lobe distinct, slightly narrowing distally to junction near base of upper pygofer lobe. Anal styles and anal tube ground color. Claspers with sinuate medial margin, separated, with curving anteromedial corner forming approximate right angle, medial margins diverging distally. Aedeagus fuscous, tubular with large terminal membrane.

Female gonapophysis IX castaneous with piceous tip, gonapophysis X castaneous, both extending well beyond anal styles with radiating golden pile. Gonocoxite IX ground color. Anal styles ground color.

MEASUREMENTS (MM).—N = four males or two females, mean (range). Length of body: male 11.61 (10.75–12.50), female 14.10 (13.85–14.35); length of fore wing: male 13.99 (13.30–14.35), female 15.58 (15.50–16.65); width of fore wing: male 5.15 (4.90–5.30), female 5.55 (5.50–5.60); length of head: male 2.20 (2.00–2.30), female 2.25 (2.20–2.30); width of head including eyes: male 3.46 (3.35–3.55), female 3.75 (3.70–3.80); width of pronotum including suprahumeral plates: male 3.80 (3.80–3.80), female 4.23 (4.20–4.25); width of mesonotum: male 3.26 (3.10–3.40), female 3.50 (3.40–3.60).

DISTRIBUTION.—The species is known only from the type series collected in Ton Nga Chang Wildlife Sanctuary, Songkhla Province, Thailand.

Muda phetchabunensis sp. nov.

(Fig. 12)

Muda undescribed species B Sanborn *et al.* 2007: 34.

Muda undescribed species B Sanborn 2013: 665.

TYPE MATERIAL.—Holotype. “THAILAND: Phetchabun Prov. / Nam Noa National Park / 18 June 1998; L-191 / Vitheepredit & Sawangsak / piceouslight at camp ground 2” male (UMRM).

ETYMOLOGY.—The name is a combination of

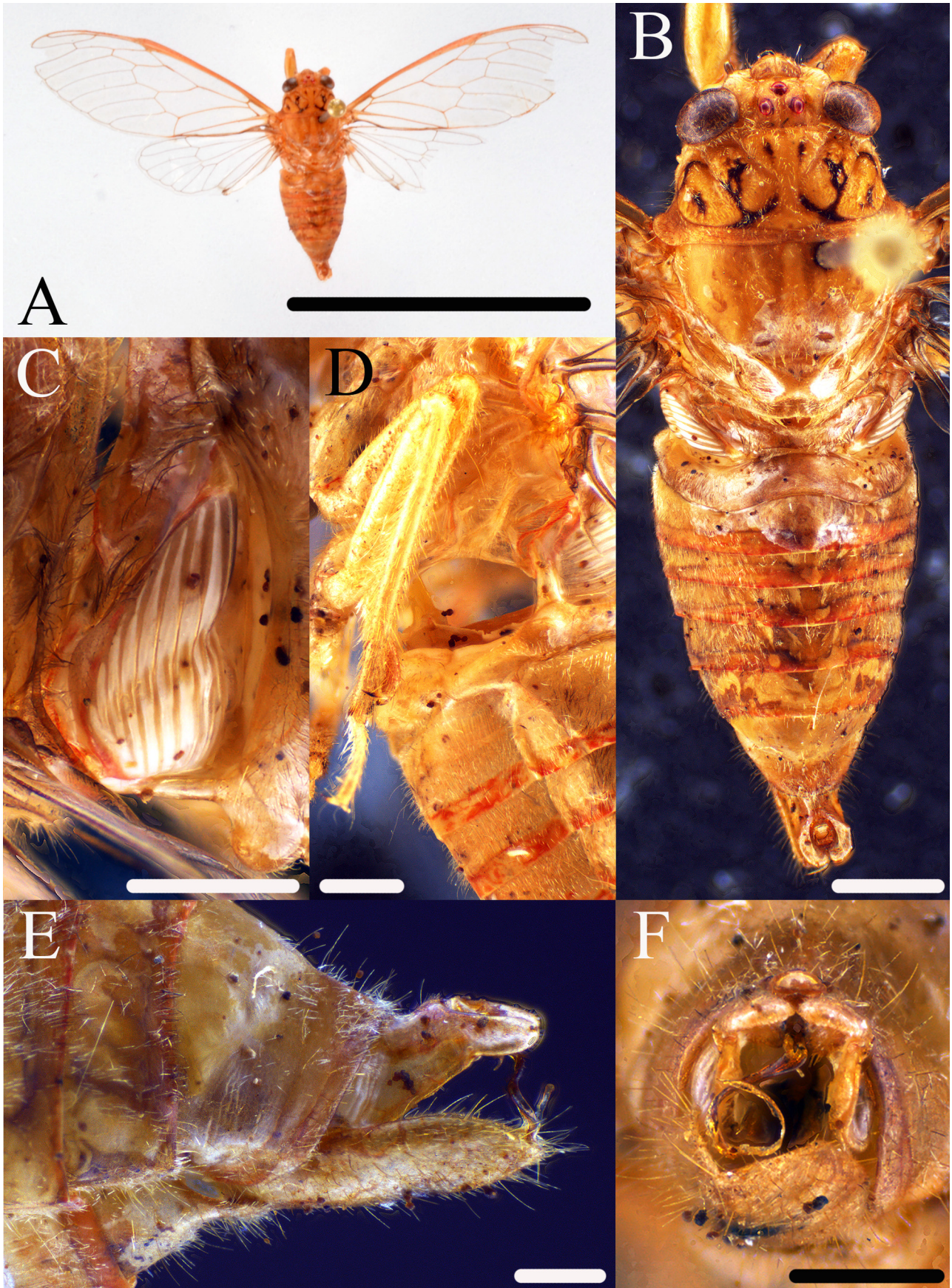


FIGURE 12. *Muda phetchabunensis* sp. nov.: A, holotype male habitus; B, holotype male dorsum; C, holotype male timbal; D, holotype male operculum; E, holotype male lateral view of genitalia; F, holotype male posterior view of genitalia. Scale bar: A, 2 cm; B, 2 mm; C–F, 1 mm.

phetchabun- (for the type locality in the province of Phetchabun) and *-ensis* (L., suffix denoting place, locality) in reference to the site where the holotype originated.

DIAGNOSIS.—This new species also can be distinguished from the monochromatic *M. kuroiwae* (Matsumura, 1913), *M. obtusa* (Walker, 1858), *M. virguncula* (Walker, 1856), and *M. chanthaburensis* **sp. nov.** by the various markings on the body segments. *Muda kinabaluana* Duffels, 2019 can be distinguished by the lack of timbals, abdominal markings that are unique to that species along with the markings of the pronotum, the darkened submedian sigillae of the mesonotum, and the fore wing radial crossvein splits the distal radius posterior vein between the apical cells into approximately equal lengths. The eyes extend noticeably beyond the anterolateral pronotum, the dorsal head with light markings, the pronotal coloration is more expansive, and the pygofer upper lobes and the claspers overlap medially in *Muda tahanensis* (Moulton, 1923). The dorsal head is mottled but lacks the transverse fascia between the eyes and the longitudinal fascia extending to the posterior head from the lateral ocelli, the pronotal coloration is more expansive, the abdominal tergites lack markings, the six timbal ribs, and the distal pygofer upper lobes overlap medially in *Muda tua* Duffels, 2004 (in Schouten *et al.* 2004). *Muda songkh lensis* **sp. nov.** differs in the smaller body size, the more expansive markings on the dorsal head, the abdominal tergite markings, and the distal upper pygofer lobes that do not meet medially.

DESCRIPTION

Head

Head not as wide as mesonotum, ground color. Anterior supra-antennal plate transverse to long body axis with anterior extension at junction of lateral postclypeus. Short silvery pile on dorsal surface, longer silvery pile posterior to eye. Ocelli rosaceous, eyes castaneous. Ventral head ground color. Short silvery and radiating long silvery pile on lorum and gena. Postclypeus ground color with testaceous anteromedial curving fascia on each side of dorsal surface midline, centrally sulcate with five transverse grooves, short silvery pile in lateral transverse grooves, radiating long silvery pile. Anteclypeus ground color with fuscus mark on anterior midline and transverse fuscous fascia anterior to posterior margin, with short and radiating long silvery pile. Mentum ground color, labium ground color proximally, fuscous distally except for tip, reaching to posterior of middle coxae, radiating long silvery pile. Scape and proximal pedicel ground color, distal pedicel testaceous, flagellar segments missing.

Thorax

Dorsal thorax ground color except for fuscous marks on prothorax. Prothoracic markings consist of short, angled fascia on either side of dorsal midline, longitudinal mark in central middle scute that encloses a small circular area continuing through posterior half of lateral fissure before diverging in ambient fissure along posterior of

middle scute and posteromedial lateral scute, lateral scute with central longitudinal fascia and curving fascia around anterior margin from anterior lateral fissure to middle distance of lateral part of pronotal collar. Covered with short silvery pile, long silvery pile radiating from lateral pronotum and pronotal collar lateral angle, on lateral mesonotum, between anterior arms of cruciform elevation, in wing groove, and on posterior metanotum. Ventral thoracic segments ground color with short silvery pile.

Wings

Fore wings and hind wings hyaline with eight and six apical cells respectively. Venation ground color except piceous posterior anal vein 2+3. Pterostigma not reaching branching of radius anterior 2. Basal membrane of fore wing grayish speckled with red. Venation of hind wing ground color, infuscation on proximal anal cell 3 and distal anal cell 2 medial to termination of anal vein 2.

Legs

Legs ground color except for longitudinal testaceous fascia along anteromedial and anterolateral margins of fore coxae, radiating long silvery pile from all segments, short silvery pile on coxae and trochanters. Fore femora with proximal spine longest, angled most from perpendicular, secondary spine almost upright, not as long as primary spine curving distally, tertiary spine, curving distally, not as long as secondary spine, almost parallel to primary spine, very small, triangular apical spine, angled closest to femoral axis, all spines testaceous margined with fuscous. Tarsi ground color with fuscous tips. Meracanthus an elongated triangle, pointed with medially curved apex, ground color at base, triangular extension ochraceous, reaching to anterior of sternite II at junction of sternite I.

Operculum

Male operculum roughly an angled rectangle with sinusoidal posterior and lateral margin, not reaching anterior tympanal cavity, pointed posteromedial extension posterior to posterolateral meracanthus extension. Opercula with long silvery pile radiating from margin.

Abdomen

Abdominal tergites ground color, reddish hue along posterior of tergites 3–7 and medioventral margin of tergite 8, covered with short silvery pile, tergite 8 radiating long silvery pile, piceous pile on lateral tergites. Timbal cover absent, timbal exposed with nine long and nine intercalary ribs. Sternites I–II ground color, sternites III–VI ground color with reddish posterior, sternites VII–VIII dark ground color, radiating long pile. Epipleurites 3–7 ground color with reddish posterior margin. Sternites and epipleurites with short silvery pile, epipleurites radiating long silvery pile.

Genitalia

Male pygofer ground color, mediiodorsal carina weakly developed, distal shoulder straight, obliquely angled to long axis, dorsal beak absent. Pygofer upper lobes large,

obtusely angled from base, transversely flattened, semi-circular distally meeting along midline, sparse silvery pile present, basal lobe narrow, not reaching junction near base of upper pygofer lobe. Anal styles and anal tube ground color. Claspers with sinusoidal medial margin, ground color with fuscous medial margin, not reaching to distal upper pygofer lobes. Aedeagus tubular, dark castaneous.

MEASUREMENTS (MM).—N = one male. Length of body: 14.45; length of fore wing: 17.05; width of fore wing: 6.35; length of head: 1.70; width of head including eyes: 3.50; width of pronotum including suprahumeral plates: 4.60; width of mesonotum: 3.80.

DISTRIBUTION.—The species is known only from the holotype specimen collected in Nam Noa National Park, Phetchabun Province, Thailand.

Muda chanthaburensis sp. nov.

(Fig. 13)

TYPE MATERIAL.—Holotype. “THAILAND, Chanthaburi / Khao Sol Dao N.P. / 4-VII-2019, at Piceouslight / L. Worthington coll.” male (FSCA).

ETYMOLOGY.—The name is a combination of *chanthaburi*- (for the type locality in the province of Chanthaburi) and *-ensis* (L., suffix denoting place, locality) in reference to the site where the holotype originated.

REMARKS.—The specimen was mailed to the author in a padded envelope. The specimen was crushed during transit and reassembled as best as possible which prevents illustrating the species to the same degree as other species in this work. Nonetheless, the unique genitalia identify the specimen as a new species.

There is a superficial resemblance to *Katoa chlorotica* Chou & Lu, 1997 (in Chou *et al.* 1997) but there are significant differences in the genitalia, opercula, timbal ribs, etc. The general similarities of *Muda* species to species of *Katoa* support the reassignment of *Muda* to *Katoini*.

DIAGNOSIS.—This new species is monochromatic like *M. kuroiwa*e (Matsumura, 1913), *M. obtusa* (Walker, 1858), and *M. virguncula* (Walker, 1856). The various body markings found in all other known species distinguish them from these two species. *Muda kuroiwa*e can be distinguished quickly from the new species by the much larger body size of this species (body length 20–21 mm, wingspan 49–52 mm (Matsumura 1913; Kato 1961) vs. 11.1 mm and 29 mm, respectively, in the new species). The six hindwing apical cells and 7–8 timbal ribs distinguish *M. obtusa* from the new species. The anterior supra-antennal plate is angled, the lateral postclypeus angles mediad from the junction of the supra-antennal plate, the lateral pronotal margin is curved, the operculum is truncated, and the upper pygor lobes are flattened near the distal end in *M. virguncula* but the anterior supra-antennal plate is transverse to the long body axis, the lateral postclypeus extends beyond the supra-antennal plate before it angles mediad, the lateral pronotal margin is straight, the operculum extends over the anterior tympanal cavity with a curved lateral margin and pointed

medial apex, and the upper pygor lobes are rectangular at the distal end in the new species.

DESCRIPTION

Ground color green, supra-antennal plates and some abdominal sternites ochraceous.

Head

Head not as wide as mesonotum, green with ochraceous supra-antennal plate. Anterior supra-antennal plate transverse to long body axis, lateral postclypeus extends anteriorly beyond supra-antennal plate before angling mediad. Longer silvery pile posterior to eye. Ocelli rosaceous and ochraceous, eyes castaneous. Ventral head ground color. Silvery pile on lorum and gena. Postclypeus centrally sulcate with six transverse grooves, short silvery pile on lateral and ventral margins. Anteclypeus ground color with long silvery pile. Mentum ground color, labium ground color proximally, tawny distally, reaching to posterior of middle trochanters, radiating long silvery pile. Scape, proximal pedicel, and first flagellar segment and proximal half of second flagellar segment ground color, remaining antennal segments castaneous.

Thorax

Dorsal thorax ground color. Long, silvery pile on lateral mesonotum, between anterior arms of cruciform elevation, in wing groove, and on posterior metanotum. Ventral thoracic segments ground color with short silvery pile.

Wings

Fore wings and hind wings hyaline with eight and five apical cells respectively. Venation ground color. Pterostigma to beyond branching of radius anterior 2. Basal membrane of fore wing ground color. Venation of hind wing ground color.

Legs

Legs ground color, radiating long silvery pile. Fore femora with proximal spine longest, angled from perpendicular, secondary spine upright, not as long as primary spine, tertiary spine, triangular, not as long as secondary spine, parallel to primary spine, very small, finger-like apical spine, angled closest to femoral axis, all spines ground color with castaneous tips. Tarsi missing. Meracanthus an elongated triangle, pointed with medially curved apex, ground color at base, triangular extension ochraceous, reaching to posterior of hind trochanters.

Operculum

Male operculum rectangular, extending over anterior tympanal cavity with smoothly curved posterolateral and mediolateral margins, not reaching lateral meracanthus extension medially. Opercula with long silvery pile radiating from margin.

Abdomen

Abdominal tergites ground color covered with short silvery

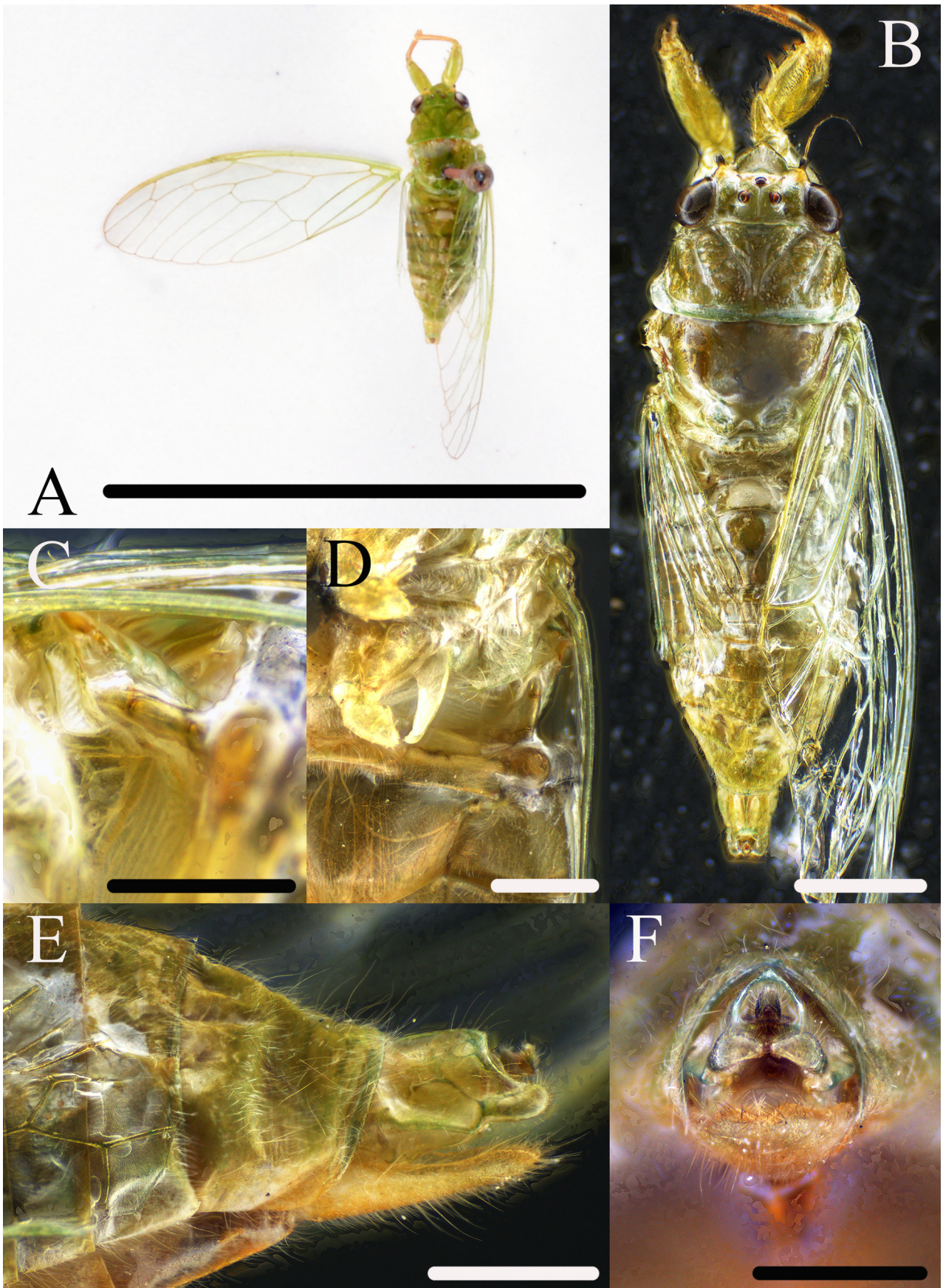


FIGURE 13. *Muda chanthaburensis* sp. nov.: A, holotype male habitus; B, holotype male dorsum; C, holotype male timbal; D, holotype male operculum; E, holotype male lateral view of genitalia; F, holotype male posterior view of genitalia. Scale bar: A, 2 cm; B, 2 mm; C–F, 1 mm.

pile. Timbal cover absent, timbal exposed with four long ribs. Sternites I–II ground color, sternites III–IV tawny, probably faded from green, with ochraceous posterior margin, sternites V–VI ochraceous, sternite VII tawny, sternite VIII faded ground color radiating long pile, male sternites III–VII translucent. Epipleurite 3 tawny with ochraceous posterior, epipleurites 4–7 and ventral portion of tergite 8 ochraceous. Sternites and epipleurites with short silvery pile, epipleurites radiating long silvery pile.

Genitalia

Male pygofer ground color, ochraceous between pygofer basal lobes, mediodorsal carina weakly developed, distal shoulder straight, perpendicular to long axis, dorsal beak absent. Pygofer upper lobes large, rectangular extension from base, flattened laterally, curving mediad distally to meet along midline, radiating silvery pile, basal lobe distinct, narrowing distally to junction near base of upper pygofer lobe. Anal styles and anal tube ground color. Claspers curving mediad to meet along midline ventral to anal tube but not reaching to distal upper pygofer lobes, medial margin curved, medial margins diverging from distal meeting of claspers forming a V-shaped notch, radiating short golden pile. Aedeagus tubular, dark castaneous.

MEASUREMENTS (MM).—N = one male. Length of body: 11.10; length of fore wing: 13.10; width of fore wing: 4.85; length of head: 1.60; width of head including eyes: 2.50; width of pronotum including suprahumeral plates: 3.20; width of mesonotum: 2.80.

DISTRIBUTION.—The species is known only from the holotype specimen collected in Khao Sol Dao National Park, Chanthaburi Province, Thailand in the far southeastern region of Thailand.

Discussion

This work provides or confirms the official names for 15 taxa previously introduced in the literature from Thailand (Sanborn *et al.* 2007) along with an additional new Thai species obtained by the author since that time. With the previous descriptions of *Chremistica inthanonensis* (Boulard 2006b), *Purana metallica* (Duffels *et al.* 2007), and *Megapomponia sitesi* (Lee & Sanborn 2009), there is now a single undescribed species listed in Sanborn *et al.* (2007) that still requires an official description. Specimens from southern Thailand identified in the literature (Moulton 1923) as *Platylomia similis* (Distant, 1888a) represent another new species (Beuk 1998) awaiting description. No examples were available for study, so the status of the Thai population could not be addressed here.

Acknowledgements

R. Sites (UMRM) and L. Worthington provided specimens. C. Wei kindly provided an image of *Pomponia adusta* from the Natural History Museum, London to facilitate

making the new combination for the species. Two anonymous reviewers provided comments to improve the manuscript.

References

- Atkinson, E.T. (1886) Notes on Indian Rhynchota, No. 6 Addenda and Index. *Journal of the Asiatic Society of Bengal*, 55, 143–223.
- Batsch, A.J.G.K. (1789) *Versuch einer Anleitung zur Kenntniss und Geschichte der Thiere und Mineralien für akademische Vorlesungen entworfen, und mit den nöthigsten Abbildungen versehen. Zweyter Theil. Besondere Geshichte der Insekten, Gewürme und Mineralien*. Akademischen Buchhandlung, Jena, 332 pp., pls. 6–7.
<https://doi.org/10.5962/bhl.title.79854>
- Beuk, P.L.Th. (1998) Revision of the *radha* group of the genus *Platylomia* Stål, 1870 (Homoptera: Cicadidae). *Tijdschrift voor Zoologie*, 140, 147–176.
- Boer, A.J.de. (1995) The phylogeny and taxonomic status of the Chlorocystini (sensu stricto) (Homoptera, Tibicinidae). *Bijdragen tot de Dierkunde*, 65, 201–231.
<https://doi.org/10.1163/26660644-06504001>
- Boulard, M. (2000) Description de deux cigales malgaches dédiées à Loïc Matile [Auchenorhyncha, Cicadidae, Cryptotympanini]. *Revue Française d'Entomologie, Nouvelle Série*, 22, 255–262.
- Boulard, M. (2001) Éthologie sonore et larvaire de *Pomponia pendleburyi* n. sp. (précédé d'un historique taxonomique concernant les grandes *Pomponia*) (Auchenorhyncha, Cicadidae, Cicadinae, Pomponiini). *Ecole Pratique des Hautes Etudes, Travaux du Laboratoire Biologie et Evolution des Insectes Hemipteroidea*, 14, 79–103.
- Boulard, M. (2002) Éthologie sonore et cartes d'identité acoustique de dix espèces de cigales thaïlandaises, dont six restées jusqu'ici inédites ou mal connues [Auchenorhyncha, Cicadoidea, Cicadidae]. *Revue française d'Entomologie, Nouvelle Série*, 24, 35–66.
- Boulard, M. (2003) Éthologie sonore et statut acoustique de quelques cigales thaïlandaises, incluant la description de deux espèces nouvelles (Hemiptera: Auchenorhyncha, Cicadoidea, Cicadidae). *Annales de la Société entomologique de France (Nouvelle Série): International Journal of Entomology*, 39, 97–119.
<https://doi.org/10.1080/00379271.2003.10697366>
- Boulard, M. (2005a) Données statutaires et éthologiques sur des cigales thaïlandaises, incluant la description de huit espèces nouvelles, ou mal connues. *Ecole Pratique des Hautes Etudes, Travaux du Laboratoire Biologie et Evolution des Insectes Hemipteroidea*, 15, 5–57.
- Boulard, M. (2005b) Création du genre *Megapomponia* et description de *Mp clamorigravis* n. sp. (Rhynchota, Cicadoidea, Cicadidae). *Ecole Pratique des Hautes Etudes, Travaux du Laboratoire Biologie et Evolution des Insectes Hemipteroidea*, 15, 93–110.
- Boulard, M. (2005c) Taxonomie et statut acoustique de huit cigales thaïlandaises, incluant cinq espèces nouvelles [Rhynchota, Cicadoidea, Cicadidae]. *Revue Française*

d'Entomologie, Nouvelle Série, 27, 117–143.

- Boulard, M. (2006a) *Cicadalna takensis*, nouvelle espèce d'un genre nouveau découverte en Thaïlande du nord (Rhynchota, Cicadidae). *Bulletin de la Société entomologique de France*, 111, 529–534. <https://doi.org/10.3406/bsef.2006.16370>
- Boulard, M. (2006b) Compléments biotaxonomiques à la cicadofaune thaïlandaise incluant la description et l'éthologie de trois nouvelles espèces [Rhynchota, Cicadoidea, Cicadidae]. *Revue Française d'Entomologie*, Nouvelle Série, 28, 131–143.
- Boulard, M. (2006c) Premières données sur l'"imagination" haute en couleurs de deux cigales asiennes, *Tosena splendida* Distant et *Huechys sanguinea* (De Geer). Mise au point conceptuelle à propos de cet événement (Insecta, Cicadidae). *Lambillionea*, CVI, 373–381.
- Boulard, M. (2006d) Une exception écologique: une Platypleur cespiticole. Description et premières données sur la biologie de cette espèce d'Asie continentale-tropicale restée jusqu'ici inédite (Rhynchota, Auchenorrhyncha, Cicadidae). *Lambillionea*, CVI, 620–630.
- Boulard, M. (2006e) Une cigale sabulicole et buveuse d'eau: un "scoop" cicadologique! *Insectes*, (142), 3–4.
- Boulard, M. (2006f) Cigales nouvelles, originaires de Thaïlande et appartenant au genre *Purana* Distant, 1905 (Rhynchota, Cicadoidea, Cicadidae). *Nouvelle Revue d'Entomologie*, Nouvelle Série, 23, 195–212.
- Boulard, M. (2006g) Une exception écologique: une platypleur cespiticole. Description et premières données sur la biologie de cette espèce d'Asie continentale-tropicale restée jusqu'ici inédite (Rhynchota, Auchenorrhyncha, Cicadidae). *Lambillionea*, CVI, 620–630.
- Boulard, M. (2006h) Facultés acoustiques, éthologie sonore des cigales, entomophonateurs par excellence. *Ecole Pratique des Hautes Etudes, Travaux du Laboratoire Biologie et Evolution des Insectes Hemipteroidea*, 16, 1–181.
- Boulard, M. (2007a) Additions biotaxonomique à la faune des cigales thaïlandaises, comprenant la description et la C.I.A. d'une espèce nouvelle et des données inédites concernant trente et une autres espèces [Rhynchota, Auchenorrhyncha, Cicadidae]. *Lambillionea*, CVII, 493–510.
- Boulard, M. (2007b) Nouvelle image de la biodiversité chez les cigales thaïlandaise (Hem., Cicadidae). *Bulletin de la Société entomologique de France*, 112, 238. <https://doi.org/10.3406/bsef.2007.16426>
- Boulard, M. (2007c) Description et éthologie sonore de sept cigales d'Asie continentale-tropicale dont six nouvelles pour la science et une jusqu'ici inédite pour la Thaïlande [Rhynchota, Cicadoidea, Cicadidae]. *Revue Française d'Entomologie*, Nouvelle Série, 29, 93–120.
- Boulard, M. (2007d) Additions biotaxonomique à la faune des cigales thaïlandaises, comprenant la description et la C.I.A. d'une espèce nouvelle et des données inédites concernant trente et une autres espèces [Rhynchota, Auchenorrhyncha, Cicadidae]. *Lambillionea*, CVII, 493–510.
- Boulard, M. (2007e) *The cicadas of Thailand: general and particular characteristics. Volume 1*. White Lotus Co., Ltd., Bangkok, 103 pp., pls. 1–48.
- Boulard, M. (2007f) Description et éthologie sonore de sept cigales d'Asie continentale-tropicale dont six nouvelles pour la science et une jusqu'ici inédite pour la Thaïlande [Rhynchota, Cicadoidea, Cicadidae]. *Revue Française d'Entomologie*, Nouvelle Série, 29, 93–120.
- Boulard, M. (2008a) Les cigales thaïes. Liste actualisée incluant la description de deux nouveaux genres, de sept espèces nouvelles et les cartes d'identité acoustique (CIA) de *Chremistica siamensis* Bregman et de *Leptopsaltria samia* (Walker). *Ecole Pratique des Hautes Etudes, Travaux du Laboratoire Biologie et Evolution des Insectes Hemipteroidea*, 18, 1–112.
- Boulard, M. (2008b) *Platylomia operculata* Distant, 1913, a cicada that takes water from hot springs and becomes victim of the people (Rhynchota: Cicadomorpha: Cicadidae). *Acta Entomologica Slovenica*, 16, 105–116.
- Boulard, M. (2008c) Sur un magasin de cigales asiennes, comprenant quatre espèces nouvelles et quelques autres captures intéressantes (Rhynchota, Cicadoidea, Cicadidae). *Nouvelle Revue d'Entomologie*, 24, 351–371.
- Boulard, M. (2008d) *Platylomia operculata* Distant, une cigale curiste devenant altruiste malgré elle (Rhynchota, Auchenorrhyncha Cicadidae). *Lambillionea*, CVIII, 345–357.
- Boulard, M. (2008e) Errata & corrigenda. Michel Boulard, *The Cicadas of Thailand. Volume 1 General and Particular Characteristics*. Bangkok, White Lotus Pub., January 2007, i–xvi + 1–103, 53 text-fig., 46 colour plates + 1 audio CD: tracks 1–40. *Nouvelle Revue d'Entomologie*, Nouvelle Série, 25, 246.
- Boulard, M. (2009a) *Pomponia mickwanae* n. sp., nouvelle espèce de cigale Thaïe [Rhynchota, Cicadoidea, Cicadidae]. *Revue Française d'Entomologie*, Nouvelle Série, 31, 39–43.
- Boulard, M. (2009b) Descriptions et éthologies singulières de deux espèces de la tribu des Leptopsaltriini (Rhynchota, Cicadoidea, Cicadidae). *Bulletin de la Société entomologique de France*, 114, 47–54. <https://doi.org/10.3406/bsef.2009.2762>
- Boulard, M. (2009c) Sur la naissance imaginable de *Formosena montivaga* (Distant), grande et somptueuse cigale asiatique. Clarification conceptuelle à propos de cet événement (Rhynchota Cicadomorpha Cicadidae). *L'Entomologiste*, 65, 175–180.
- Boulard, M. (2009d) Nouvelles cigales colligées en Thaïlande (Rhynchota, Cicadoidea, Cicadidae). *Lambillionea*, CIX, 39–58.
- Boulard, M. (2009e) Sur une nouvelle espèce de *Mogannia* (Rhynchota, Cicadoidea, Cicadidae). *Lambillionea*, CIX, 250–253.
- Boulard, M. (2009f) *Distantalna* genre nouveau pour les Tosenini. *Nouvelle Revue d'Entomologie*, Nouvelle Série, 25, 325–328.
- Boulard, M. (2010) Description de *Megapomponia foksnodi* n. sp. (Rhynchota, Cicadidae, Pomponiini). *Bulletin de*

- la Société entomologique de France*, 115, 15–16.
<https://doi.org/10.3406/bsef.2010.2820>
- Boulard, M. (2012) The cicadas of Thailand: volume 2, taxonomy and sonic ethology. *Ecole Pratique des Hautes Etudes, Travaux du Laboratoire Biologie et Evolution des Insectes Hemipteroidea*, 19, 1–410.
- Boulard, M. (2013a) *The cicadas of Thailand volume 2: taxonomy and sonic ethology*. Siri Scientific Press, Manchester, 436 pp.
- Boulard, M. (2013b) Éthologie sonore chez deux cigales nord thaïlandaises et conclusion naturelle (Rhynchota Cicadomorpha Cicadidae). *L'Entomologiste*, 69, 129–132.
- Boulard, M. (2014) Données taxonomique et éthologiques nouvelles sur quatre espèces de cigales du Sud thaïlandais (Rhynchota, Cicadoidea, Cicadidae). *Bulletin de la Société Entomologique de France*, 119, 15–26.
<https://doi.org/10.3406/bsef.2014.2555>
- Boulard, M. (2018) Sur deux cigales de la fauna intertropicale dédiées au cicadologist Matija Gogala, collègue et ami. *Acta Entomologica Slovenica*, 26, 151–166.
- Bredden, G. (1905) Versuch einer Rhynchotenfauna der Malaysischen Insel Banguay. *Mitteilungen aus dem Naturhistorischen Museum in Hamburg*, 22, 201–226.
- Bregman, R. (1985) Taxonomy, phylogeny and biogeography of the *tridentigera* group of the genus *Chremistica* Stål, 1870 (Homoptera, Cicadidae). *Beaufortia*, 35, 37–60.
- Buckton, G.B. (1890) *Mongraph of the British Cicadae, or Tettigiidae, illustrated by more than four hundred coloured drawings. Vol. I. Part III*. Macmillan and Co., London, pp. xxxiv–xlvi + 65–96, pls. xxi–xxx.
<https://doi.org/10.5962/bhl.title.9473>
- China, W.E. (1964) Tibicenidae Van Duzee, 1916 (Insecta, Cicadoidea): proposed suppression under the plenary powers in favour of Platyleuridae Schmidt, 1918. *Z.N.(S.)* 1626. *Bulletin of Zoological Nomenclature*, 21, 154–160.
<https://doi.org/10.5962/bhl.part.28480>
- Chou, I., Lei, Z., Li, L., Lu, X. & Yao, W. (1997) *The Cicadidae of China (Homoptera: Cicadoidea)*. Tianze Eldoneio, Hong Kong, 380 pp.
- Distant, W.L. (1881) Descriptions of a new species belonging to the Homopterous family Cicadidae. *Transaction of the Royal Entomological Society of London*, 1881, 627–648.
<https://doi.org/10.1111/j.1365-2311.1881.tb00885.x>
- Distant, W.L. (1887) Descriptions of a new species of Cicadidae. *Annals and Magazine of Natural History*, Series 5, 20, 226–231.
<https://doi.org/10.1080/00222938709460039>
- Distant, W.L. (1888a) Descriptions of new species of Oriental Homoptera belonging to the family Cicadidae. *Annals and Magazine of Natural History*, Series 6, 1, 291–298.
<https://doi.org/10.1080/00222938809460726>
- Distant, W.L. (1888b) Descriptions of a new species of Eastern Cicadidae in the collection of the Museo Civico of Genoa. *Annali del Museo Civico di Storia Naturale, Genova*, Series 2, 6, 519–524.
- Distant, W.L. (1892) On some undescribed Cicadidae, with synonymical notes. *Annals and Magazine of Natural History*, Series 6, 9, 313–327.
<https://doi.org/10.1080/00222939208677327>
- Distant, W.L. (1897) Description of a new genus and species of Cicadidae collected by Dr. Modigliani at Mentawai Island. *Annali del Museo di Storia Naturale di Genova*, Series 2, 17, 384.
- Distant, W.L. (1904a) Rhynchotal notes XXVIII. *Annals and Magazine of Natural History*, Series 7, 14, 425–430.
<https://doi.org/10.1080/03745480409443032>
- Distant, W.L. (1904b) Additions to a knowledge of the family Cicadidae. *Transaction of the Royal Entomological Society of London*, 1904, 667–676.
<https://doi.org/10.1111/j.1365-2311.1904.tb02757.x>
- Distant, W.L. (1905a) Rhynchotal notes XXIX. *Annals and Magazine of Natural History*, Series 7, 15, 58–70.
<https://doi.org/10.1080/03745480509443637>
- Distant, W.L. (1905b) Rhynchotal notes XXXI. *Annals and Magazine of Natural History*, Series 7, 15, 379–387.
<https://doi.org/10.1080/03745480509443064>
- Distant, W.L. (1905c) Rhynchotal notes XXXIV. *Annals and Magazine of Natural History*, Series 7, 16, 203–216.
<https://doi.org/10.1080/03745480509443671>
- Distant, W.L. (1912) New genera and species of Oriental Homoptera. *Annals and Magazine of Natural History*, Series 8, 9, 459–471.
<https://doi.org/10.1080/00222931208693156>
- Dmitriev, D.A., Anufriev, G.A., Bartlett, C.R., Blanco-Rodriguez, E., Borodin, O.I., Cao, Y.-H., Deitz, L.L., Dietrich, C.H., Dmitrieva, M.O., El-Sonbati, S.A., Evangelista de Souza, O., Gonçalves, A.C., Hendrix, S., McKamey, S., Kohler, M., Kunz, G., Malenovský, I., Morris, B.O., Novoselova, M., Pinedo-Escatel, J.A., Rakitov, R.A., Rothschild, M.J., Sanborn, A.F., Takiya, D.M., Wallace, M.S. & Zahniser, J.N. (2022 and updates) World Auchenorrhyncha Database. Taxon Pages. Available from: <https://hoppers.speciesfile.org/otus/5973/overview> (accessed 29 April 2025)
- Dmitriev, D.A. & Sanborn, A.F. (2023) Priority and the names of two cicada tribes (Hemiptera: Cicadidae: Cicadinae: Tacuini and Tettigomyiinae: Anopercalmini). *Zootaxa*, 5239 (1), 145–146.
<https://doi.org/10.11646/zootaxa.5239.1.9>
- Duffels, J.P. (2019) The cicada genus *Muda* Distant (Hemiptera: Cicadidae) from Sundaland: species and relationships. *Tijdschrift voor Entomologie*, 161, 131–154.
<https://doi.org/10.1163/22119434-20192077>
- Duffels, J.P., Schouten, M.A. & Lammertink, M. (2007) A revision of the cicadas of the *Purana tigrina* group (Hemiptera, Cicadidae) in Sundaland. *Tijdschrift voor Entomologie*, 150, 367–387.
<https://doi.org/10.1163/22119434-900000237>
- Duffels, J.P. & van der Laan, P.A. (1985) *Catalogue of the Cicadoidea (Homoptera, Auchenorrhyncha) 1956–1980. Series Entomologica 34*. Dr. W. Junk Publishers, Dordrecht, 414 pp.
- Fabricius, J.C. (1803) *Systema Rhyngotorum secundum ordines, genera, species, adiectis synonymis, locis*,

- observationibus, descriptionibus*. Reichard, Brunsvigae, 314 pp.
<https://doi.org/10.5962/bhl.title.11644>
- Gerhardt, H.C. & Huber, F. (2002) *Acoustic communication in insects and anurans: common problems and diverse solutions*. University of Chicago Press, Chicago, Illinois, 531 pp.
- Gogala, M. (1995) Songs of four cicada species from Thailand. *Bioacoustics*, 6, 101–116.
<https://doi.org/10.1080/09524622.1995.9753278>
- Gogala, M., Trilar, T., Kozina, U. & Duffels, H. (2004) Frequency modulated song of the cicada *Maua albigutta* (Walker 1856) (Auchenorrhyncha: Cicadoidea) from South East Asia. *Scopolia*, No. 54, 1–16.
- Handlirsch, A. (1925) Ordnung: Homoptera (Latr.) Westw. (Homopteren. *Systematische Übersicht (Schluss.)*. *Schröder's Handbuch der Entomologie*, 3, 1102–1126.
- Hayashi, M. (1978) The Cicadidae (Homoptera, Auchenorrhyncha) from east and central Nepal (Part I). *Bulletin of the National Science Museum, Series A (Zoology)*, 4, 163–195.
- Hill, K.B.R., Marshall, D.C., Marathe, K., Moulds, M.S., Lee, Y.J., Pham, T.-H., Mohagan, A.B., Sarkar, V., Price, B.W., Duffels, J.P., Schouten, M.A., Boer, A.J.de, Kunte, K. & Simon, C. (2021) The molecular systematics and diversification of a taxonomically unstable group of Asian cicada tribes related to Cicadini Latreille, 1802 (Hemiptera: Cicadidae). *Invertebrate Systematics*, 35, 570–601.
<https://doi.org/10.1071/IS20079>
- International Commission on Zoological Nomenclature. (1999) *International Code of Zoological Nomenclature. 4th Edition*. International Trust for Zoological Nomenclature, London, 306 pp.
<https://doi.org/10.5962/bhl.title.50608>
- Ishihara, T. (1961) Hemiptera: Cicadidae. *Insecta Japonica*, 1, 1–36, pls. 1–4.
- Kato, M. (1932) *Monograph of Cicadidae*. Sanseido, Tokyo, 450 pp., pls. 32. [in Japanese]
- Kato, M. (1961) *Fauna Japonica. Cicadidae (Insecta)*. Biogeographical Society of Japan, The National Science Museum, Uyeno Park, Taito-ku, Tokyo, 72 pp.
- Kirkaldy, G.W. (1909) Hemiptera, old and new, No. 2. *Canadian Entomologist*, 41, 388–392.
<https://doi.org/10.4039/ent41388-11>
- Kos, M. & Gogala, M. (2000) The cicadas of the *Purana nebulilinea* group (Homoptera, Cicadidae) with a note on their songs. *Tijdschrift voor Entomologie*, 143, 1–25.
<https://doi.org/10.1163/22119434-99900037>
- Lee, Y.J. (2009) Descriptions of two new species of the *Purana abdominalis* species group (Hemiptera: Cicadidae: Cicadini) from the Philippines, with a key to the species groups of *Purana*. *Journal of Natural History*, 43, 1487–1504.
<https://doi.org/10.1080/00222930902941848>
- Lee, Y.J. (2011) New genus and two new species of Oncotympanina stat. nov. (Hemiptera: Cicadidae: Cicadini) and the erection of Sonatini new tribe. *Journal of Asia-Pacific Entomology*, 14, 167–171.
<https://doi.org/10.1016/j.aspen.2010.12.001>
- Lee, Y.J. (2014) Cicadas (Hemiptera: Cicadidae) of Laos, with the description of four new genera and two new species. *Annales de la Société entomologique de France (Nouvelle Série): International Journal of Entomology*, 50, 59–81.
<https://doi.org/10.1080/00379271.2014.934038>
- Lee, Y.J. (2023) Circumscription of the genus *Vietanna* Lee & Pham, 2021 (Cicadidae: Leptopsaltriini) resulting in the synonymy of *Duffelsa* Wang *et al.*, 2023. *Zootaxa*, 5361 (2), 292–296.
<https://doi.org/10.11646/zootaxa.5361.2.10>
- Lee, Y.J. (2024) Redescription of *Purana* Distant resulting in four new genera of Puranina (Cicadidae, Leptopsaltriini). *Journal of Asia-Pacific Biodiversity*, 17, 573–579.
<https://doi.org/10.1016/j.japb.2024.01.012>
- Lee, Y.J. & Emery, D. (2013) New genera and species of Leptopsaltriini (Hemiptera: Cicadidae: Cicadinae) from India and Tibet, with the descriptions of five new subtribes. *Zoosystema*, 35, 525–535.
<https://doi.org/10.5252/z2013n4a6>
- Lee, Y.J. & Emery, D. (2014) Description of a new genus and species of the tribe Dundubiini (Hemiptera: Cicadidae: Cicadinae) from India, with taxonomic notes on Dundubiini including the description of two new subtribes. *Zoosystema*, 36, 73–80.
<https://doi.org/10.5252/z2014n1a5>
- Lee, Y.J. & Emery, D. (2020) A new species of the genus *Tanna* Distant (Hemiptera: Cicadidae: Cicadinae: Leptopsaltriini) from Vietnam, with notes on taxonomic changes in *Tanna*. *Journal of Asia-Pacific Biodiversity*, 13, 110–114.
<https://doi.org/10.1016/j.japb.2019.09.007>
- Lee, Y.J. & Hill, K.B.R. (2010) Systematic revision of the genus *Psithyristria* Stål (Hemiptera: Cicadidae) with seven new species and a molecular phylogeny of the genus and higher taxa. *Systematic Entomology*, 35, 277–305.
<https://doi.org/10.1111/j.1365-3113.2009.00509.x>
- Lee, Y.J. & Sanborn, A.F. (2009) Three new species of the genus *Megapomponia* (Hemiptera: Cicadidae) from Indochina, with a key to the species of *Megapomponia*. *Journal of Asia-Pacific Entomology*, 13, 31–39.
<https://doi.org/10.1016/j.aspen.2009.08.005>
- Lukasik, P., Chong, R.A., Nazario, K., Matsuura, Y., Bublitz, D.C., Campbell, M.A., Meyer, M.C., Van Leuven, J.T., Pessacq, P., Veloso, C., Simon, C. & McCutcheon, J.P. (2019) One hundred mitochondrial genomes of cicadas. *Journal of Heredity*, 110, 247–256.
<https://doi.org/10.1093/jhered/esy068>
- Marshall, D.C., Moulds, M.S., Hill, K.B.R., Price, B.W., Wade, E.J., Owen, C.J., Goemans, G., Marathe, K., Sarkar, V., Cooley, J.R., Sanborn, A.F., Kunte, K., Villet, M.H. & Simon, C. (2018) A molecular phylogeny of the cicadas (Hemiptera: Cicadidae) with a review of tribe and subfamily level classification. *Zootaxa*, 4424 (1), 1–64.
<https://doi.org/10.11646/zootaxa.4424.1.1>
- Matsumura, S. (1913) *Shin Nihon senchu zukai (Thousand Insects of Japan Additamenta 1)*. Keiseisha, Tokyo, 184

- pp., pls. I–XV.
<https://doi.org/10.5962/bhl.title.50718>
- Matsumura, S. (1917) A list of the Japanese and Formosan Cicadidae, with description of new species and genera. *Transactions of the Sapporo Natural History Society*, 6, 186–212.
- Matsumura, S. (1927) New species of Cicadidae from the Japanese Empire. *Insecta Matsumurana*, 2, 46–58, pl. II.
- Matsumura, S. (1930) Phychota. *Nihon senchu zukai (= The illustrated thousand insects of Japan)*. Toko-Shoin, Tokyo, 1, i–ii, 1–198.
- Metcalf, Z.P. (1963) General catalogue of the Homoptera, Fascicle VIII. Cicadoidea. Part 1. Cicadidae. Section II. Gaeaninae and Cicadinae. *North Carolina State College Contribution*, 1502, 587–919.
- Moulds, M.S. (2005) An appraisal of the higher classification of cicadas (Hemiptera: Cicadoidea) with special reference to the Australian fauna. *Records of the Australian Museum*, 57, 375–446.
<https://doi.org/10.3853/j.0067-1975.57.2005.1447>
- Moulds, M.S. (2012) A review of the genera of Australian cicada (Hemiptera: Cicadoidea). *Zootaxa*, 3287 (1), 1–262.
<https://doi.org/10.11646/zootaxa.3287.1.1>
- Moulton, J.C. (1923) Cicadas of Malaysia. *Journal of the Federated Malay States Museums*, 11, 69–182.
- Olivier, G.A. (1790) Cigale, *Cicada*. *Encyclopedie Méthodique Histoire Naturelles Insectes*, 5, 735–760.
- Ôuchi, Y. (1938) Contributiones ad cognitionem insectum Asiae Orientalis. V. A preliminary note on some Chinese cicadas with two new genera. *Journal of the Shanghai Science Institute. Section III. Systematic and morphological biology (systematics, ecology, anatomy, histology, embryology) and pharmacognosy*, 4, 75–111, pls. v–vi.
- Pham, T.H. & Constant, J. (2013) A new species of genus *Chremistica* Stål, 1870 (Hemiptera: Cicadidae) from Vietnam. *Tap Chi Sinh Hoc [Journal of Biology, Hanoi]*, 35, 32–36.
<https://doi.org/10.15625/0866-7160/v35n1.2935>
- Pham, T.-H. & Lee, Y.J. (2021a) A new genus and species of the subtribe Leptopsaltriina (Hemiptera: Cicadidae: Leptopsaltriini) from Vietnam, with a key to the genera of Leptopsaltriina. *Journal of Asia-Pacific Entomology*, 24, 1202–1205.
<https://doi.org/10.1016/j.aspen.2021.07.011>
- Pham, T.-H. & Lee, Y.J. (2021b) A new genus and species of the subtribe Aolina (Hemiptera: Cicadidae: Dundubiini) from Vietnam, with discussion on the taxonomic positions of *Meimuna*-like genera and species. *Journal of Asia-Pacific Entomology*, 24, 175–181.
<https://doi.org/10.1016/j.aspen.2021.02.012>
- Salmah, Y. & Zaidi, M.I. (2002) The genus *Chremistica* Stål (Homoptera: Cicadidae) from Peninsular Malaysia, with descriptions of two new species, *Chremistica guamusangensis* n. sp. and *Chremistica kecil* n. sp. *Serangga*, 7, 225–244.
- Sanborn, A.F. (2006) Two new cicada species from Shaanxi, China (Hemiptera: Cicadomorpha: Cicadidae). *Acta Entomologica Sinica*, 49, 829–834.
- Sanborn, A.F. (2013) *Catalogue of the Cicadoidea (Hemiptera: Cicadoidea). With contributions to the bibliography by Martin H. Villet*. Elsevier/Academic Press, San Diego, 1001 pp.
<https://doi.org/10.1016/b978-0-12-416647-9.00001-2>
- Sanborn, A.F. (2021) The cicadas (Hemiptera: Cicadoidea: Cicadidae) of Madagascar including a new tribe, five new genera, 12 new species, four new species synonymies, five revised species status, ten new combinations, new tribal assignments for four genera, one new subtribe synonymy, a checklist and key to the species. *Zootaxa*, 4937 (1), 1–79.
<https://doi.org/10.11646/zootaxa.4937.1.1>
- Sanborn, A.F. (2025) Comments and corrections to recent taxonomic changes in cicadas (Hemiptera: Cicadidae) including revised species status, a new subspecies, new combinations, and new tribal assignments of genera. *Zootaxa*, 5609 (4), 479–502.
<https://doi.org/10.11646/zootaxa.5609.4.2>
- Sanborn, A.F., Phillips, P.K. & Sites, R.W. (2007) Biodiversity, biogeography, and bibliography of the cicadas of Thailand (Hemiptera: Cicadoidea: Cicadidae). *Zootaxa*, 1413 (1), 1–46.
<https://doi.org/10.11646/zootaxa.1413.1.1>
- Schouten, M.A. & Duffels, J.P. (2002) A revision of the cicadas of the *Purana carmentis* group (Homoptera, Cicadidae) from the Oriental region. *Tijdschrift voor Entomologie*, 145, 29–46.
<https://doi.org/10.1163/22119434-900000097>
- Schouten, M.A., Duffels, J.P. & Zaidi, M.I. (2004) A checklist of the cicada fauna (Homoptera, Cicadoidea) of Endau Rompin National Park, Malaysia, with description of a new species. *Malayan Nature Journal*, 56, 369–386.
- Stål, C. (1866) Hemiptera Homoptera Latr. *Hemiptera Africana*, 4, 1–276, pl. 1.
<https://doi.org/10.5962/bhl.title.8566>
- Stål, C. (1870) Hemiptera insularum Phillippinarum. Bidrag till Philipponska öarnes Hemipter-fauna. *Öfversigt af Svenska Vetenskaps Akademien Förhandlingar*, 27, 607–776.
<https://doi.org/10.5962/bhl.title.61898>
- Trilar, T. (2006) Frequency modulated song of the cicada *Kalabita operculata* (Auchenorrhyncha: Cicadoidea) from Borneo. *Russian Entomological Journal*, 15, 341–346.
- Trilar, T. & Gogala, M. (2002a) Description of the song of *Purana sagittata* Schouten & Duffels (Homoptera, Cicadidae) from peninsular Malaysia. *Tijdschrift voor Entomologie*, 145, 47–55.
<https://doi.org/10.1163/22119434-900000097>
- Trilar, T. & Gogala, M. (2002b) Songs of genus *Purana* from SE Asia (Homoptera, Cicadoidea, Cicadidae). *11th International Auchenorrhyncha Congress, August 5–9, Potsdam, Germany, Abstracts of Talks and Posters*, 41.
- Walker, F. (1850) *List of the Specimens of Homopterous Insects in the Collection of the British Museum. Part I*. British Museum Trustees, London, 260 pp.
<https://doi.org/10.5962/bhl.title.9063>
- Walker, F. (1856) *Catalogue of the Homopterous insects*

- collected at Singapore and Malacca by Mr. A.R. Wallace, with descriptions of new species. *Journal of the Proceedings of the Linnean Society, London*, 1, 82–100.
<https://doi.org/10.1111/j.1096-3642.1856.tb00958.x>
- Walker, F. (1858) *Insecta Saundersiana: or characters of undescribed insects in the collection of William Wilson Saunders, Esq. Homoptera*. John van Voorts, London, 117 pp.
<https://doi.org/10.5962/bhl.title.5112>
- Walker, F. (1868) Catalogue of the Homopterous insects collected in the Indian archipelago by Mr. A.R. Wallace, with descriptions of new species. *Journal of the Proceedings of the Linnean Society, London*, 10, 82–193.
<https://doi.org/10.1111/j.1096-3642.1868.tb00660.x>
- Wang, J., Hayashi, M. & Wei, C. (2025) Phylogeny, biogeography and diversification of the cicada *Pomponia linearis* and its allies (Hemiptera, Cicadidae). *Zoological Journal of the Linnean Society*, 203, zlaf019.
<https://doi.org/10.1093/zoolinnean/zlaf019>
- Wang, J., Feng, L., Jiang, J. & Wei, C. (2024) A review of *Vietanna* with description of two new species from China (Hemiptera: Cicadidae). *Entomotaxonomia*, 46, 228–240.
<https://doi.org/10.11680/entomotax.2024022>
- Wang, J., Jiang, J. & Wei, C. (2023) A new genus, *Duffelsa*, gen. n., with descriptions of three new species and one new combination (Hemiptera, Cicadidae). *Zootaxa*, 5323 (3), 396–408.
<https://doi.org/10.11646/zootaxa.5323.3.3>
- Westwood, J.O. (1842) Insectorum novorum centuria, auctore. *Annals and Magazine of Natural History, Series 1*, 9 (56), 118–119.
<https://doi.org/10.1080/03745484209442799>
- Yaakop, S., Duffels, J.P. & Visser, H. (2005) The cicada genus *Chremistica* Stål (Hemiptera: Cicadidae) in Sundaland. *Tijdschrift voor Entomologie*, 148, 247–306.
<https://doi.org/10.1163/22119434-900000172>