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The genus *Imeria* CAMERON in the Oriental region (Hymenoptera, Ichneumonidae, Ichneumoninae)

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A b s t r a c t : In this survey, new taxonomical and distributional informations for the Oriental species of the genus *Imeria* CAMERON are presented. 16 species and subspecies and two subgenera, *Imeria* CAMERON sensu stricto and *Caenojoppa* CAMERON, are mentioned as valid. Most species are described in detail and illustrated, and a key for all Oriental species of *Imeria* CAMERON is provided.

Five species are described as new: *Imeria (Imeria) albitemplata* nov.sp., *Imeria (Imeria) albomaculatoides* nov.sp., *Imeria (Caenojoppa) flavomaculata* nov.sp., *Imeria (Caenojoppa) nigriscuta* nov.sp., and *Imeria (Imeria) orientalis* nov.sp.

Imeria formosana (UCHIDA, 1930) is accepted as a subspecies of *Imeria albomaculata* CAMERON, 1903, stat.nov.; *Elasmognathias albitarsis* CUSHMANN, 1922 is a new synonym of *Imeria cephalotes* (ASHMEAD, 1905), and *Elasmognathias dentatus* CUSHMAN, 1922 is synonymized with *Imeria longitarsis* (CAMERON, 1905). For *Imeria levifrons* CAMERON, 1907 the hitherto unknown male is described.

K e y w o r d s : Ichneumonidae, Ichneumoninae, *Imeria*, new species, Oriental.

Introduction

Imeria CAMERON, 1903 is a small genus of the family Ichneumonidae, subfamily Ichneumoninae which contains 16 species so far known from the Afrotropical and Oriental regions (YU et al. 2016).

For *Imeria* CAMERON, 1903 and some adjacent genera such as *Oedicephalus* CRESSON, 1868, *Notosemus* FÖRSTER 1869, *Aulojoppa* CAMERON, 1907, *Satrius* TOSQUINET, 1903 and *Bambuscopus* HEINRICH,1934, HEINRICH (1934) erected the tribe Oedicephalini within the Ichneumoninae which was usually recognized on the basis of a broad mandible with subequal teeth, large head with long gena and wide thyridia separated by about 0.5× thyridial width. Despite these morphological affinities, a newer genomic study (SANTOS et al. 2021) questions this tribal separation and includes all genera into the tribe Ichneumonini except *Notosemus* FÖRSTER, resurrecting the old tribal name Notosemini (TOWNES et al. 1961) for this single genus.

In the last years, I had the opportunity to study the Oriental Ichneumoninae from several European and Asian museums and institutions containing some specimens of the genus *Imeria*. Since I was not able to see HEINRICH’s types deposited in Warsaw/Poland and CUSHMAN’s types in Washington/USA, I cannot present a complete revision of the Oriental species here and had to go back to the original publications without studying available specimens in some cases, but my efforts result in an overview of the genus in the Oriental region.

Material and methods

For this survey, the material of Oriental *Imeria* CAMERON was studied from the following institutions and collections:

Biologiezentrum in Linz/Austria (Linz), Zoologische Staatssammlung in Munich/Germany (ZSM), Naturalis Biodiversity Center in Leiden/Netherlands (Leiden), Senckenberg Deutsches Entomologisches Institut in Müncheberg/Germany (SDEI), Natural History Museum in London/UK (NHM), and School of Biological Sciences, University of Hong Kong/China (HK).

For the descriptions below, morphological terms follow BROAD et al. (2018). The distributional records were taken from the catalogue of YU et al. (2016) and my own findings.

For the measurements the following relations are used: length of 1st flagellar segment is measured in lateral view (length without annellus) and length and width of hind femur in lateral view. For the punctuation of body parts, the following definitions are used: sparse – distance of punctures larger than their diameter; rather dense – distance about as large as their diameter; dense – diameter larger than their distance.

For the measurements an Olympus SZX 7 stereo microscope with dividing eyepiece was used. The figures were mainly taken with an Olympus SC 50 CCD-camera using the cellSens Imaging software and processed with the Helicon Pro software and Microsoft Office Picture Manager.

Used abbreviations:

OED.....distance between lateral ocellus and compound eye
 OOD.....distance between lateral ocelli
 HT.....holotype
 LT.....lectotype
 PT.....paratype

The genus *Imeria* CAMERON, 1903

Type species: *Imeria albomaculata* CAMERON, 1903.

Diagnosis: Body medium-sized, length 6-12 mm. Flagellum long and slender, bristle-shaped or slightly lanceolate. Head extremely thick, nearly cubital in dorsal view (figs 17-28). Occiput between ocelli and occipital carina not or slightly slanting and very wide (figs 17-28). Apical margin of clypeus thin, with median angle, laterally often \pm curved upward (figs 5-16). Malar space slightly shorter than width of mandibular base (fig. 1). Mandible strongly twisted, its apex turned about 20° to 70° from its base and the dorsal surface turned up into plane of clypeus, with two large teeth of almost equal size and rather wide gap between teeth (figs 1-2). Genal carina reaching mandibular base.

Epomia usually long. Collar simple, without lamella. Epicnemial carina sometimes \pm elevated behind fore coxa. Mesoscutum about as long as wide. Scutellum strongly raised above postscutellum, with complete and sometimes lamelliform or dentiform lateral carina (fig. 3). Juxtacoxal carina largely absent but often indicated at frontal margin of metapleuron. Posterior transverse carina of mesosternum interrupted before mid coxa.

Propodeum with nearly complete carination and narrow basal furrow behind postscutellum, fairly short (figs 39-42); area petiolaris much longer than basal horizontal part of propodeum medially. Area basalis present and carinated (figs 41-42) or replaced by a median longitudinal ridge (figs 39-40). Area superomedia slightly longer than wide or wider than long. Area dentipara usually sloping downward in a gentle curve, its posterolateral edge sometimes with short denticular apophysis. Hind coxa usually without, sometimes with weak scopa. Claws simple. Areolet pentagonal; vein 1cu-a interstitial or slightly postfurcal.

Metasoma oxypygous (figs 1, 43), at least 2nd to 4th sternites with median folds. Petiole about as wide as basally high. Postpetiole moderately widened, without separated median field, usually with fine sculpture, not aciculate. 2nd tergite with wide impressed gastrocoelus and thyridium. Thyridium very large and much wider than interval between thyridia (figs 44-51). 2nd tergite usually slightly wider than long (figs 44-50), rarely longer than wide (fig. 52). Apical tergites often weakly sclerotized and \pm depressed or compressed (at least in prepared specimens, figs 46, 48). Ovipositor sheath slender and stick-shaped, about 2 \times as long as apical depth of metasoma (fig. 4).

Color: Body usually black, rarely \pm red, with extended ivory coloration. Flagellum at least in ♀ with ivory ring.

R e m a r k : The taxonomical treatment of *Imeria* CAMERON, *Caenajoppa* CAMERON and *Elasmognathias* ASHMEAD was a matter of discussion in the past due to different and changing opinions of the authors. *Caenajoppa* CAMERON and *Elasmognathias* ASHMEAD were synonymized by HEINRICH (1934), but he separated *Imeria* CAMERON as a different genus due to the structure of the area basalis (replaced by a median longitudinal ridge in *Imeria* but distinctly present as a carinated field in the other groups). TOWNES et al. (1961) have treated all three taxa as subgenera of *Imeria*. In a newer analysis, HEINRICH (1967) considered to treat all three taxa as different genera since he could not find any intergrades in his African and Oriental material.

In this study, *Imeria* is treated as a (rather homogenous) genus which can be easily identified and separated from other genera of Ichneumoninae by the specialized and unique structure of the mandible. *Imeria* sensu stricto differs clearly and constantly from *Caenajoppa* by several features such as the median carina of basal propodeum and slightly lanceolate flagellum in ♀ (see key below), and both taxa are treated as different subgenera here.

In the Oriental material at hand, some of the members of *Caenajoppa* and *Elasmognathias* show a mix of the features that were formerly used for a separation such as the presence of apophysis, length of notaulus and form of epicnemial carina; the morphological features are also \pm variable in both sexes. As already proposed by HEINRICH (1934), I therefore treat *Caenajoppa* and *Elasmognathias* as synonyms here.

Key to the Oriental species of *Imeria* CAMERON

- 1 Area basalis of propodeum absent and replaced by a median longitudinal ridge (figs 39-40). Lateral longitudinal carina of propodeum often \pm absent. Flagellum of ♀ \pm lanceolate, bristle-shaped in ♂. Apical margin of clypeus usually \pm upcurved laterally. Hind tarsus black or red. Subgenus *Imeria* CAMERON, 1903...2

- Area basalis of propodeum present, bordered by a carina laterally (figs 41-42). Lateral longitudinal carina of propodeum usually present. Apical margin of clypeus not or weakly upcurved laterally. Flagellum of ♀ and ♂ bristle-shaped. Hind tarsus often ± ivory. Subgenus *Caenojoppa* CAMERON, 1905 7
- 2 Vertex with large ivory spot separated from eye (figs 17, 21).....3
- Vertex without ivory spot or if present then not separated from the eye (figs 18-20, 22)....4
- 3 Mesoscutum black, without paramedian yellow spot (as fig. 29). 2nd tergite longer than wide (fig. 52). Borneo, Malaysia. *I. levifrons* CAMERON, 1907
- Mesoscutum black, with paramedian yellow spot (as fig. 30). 2nd tergite wider than long (fig. 46). ♂ unknown. Cambodia..... *I. albitemplata* nov.sp.
- 4 4th to 7th tergites with equally wide apical ivory bands (fig. 47). Mesoscutum black, with central ivory spot, sometimes weak in ♂ (as fig. 30). Gena and outer orbit with long continuous ivory stripe (fig. 18). Laos. *I. albomaculatoides* nov.sp.
- 4th and 5th tergites without or with narrow ivory apical margins, 7th tergite mainly or completely ivory (figs 43-45). Mesoscutum entirely black, without ivory central spot (fig. 29). Gena often with ventral yellow spot, outer orbit usually black (figs 19, 20, 22).5
- 5 Face except small brown central spot ivory (fig. 10). Metapleuron entirely yellow (fig. 35). Postscutellum black (fig. 40). Propodeum without apophysis. Hind femur stouter, not more than 4.1× as long as wide, red and widely infusate basally and apically. Widespread in the Oriental region..... *I. orientalis* nov.sp.
- Face black, facial orbit with ivory spot or stripe (figs 2, 7, 8). Metapleuron black or red basally (figs 33-34). Postscutellum ivory. Propodeum with blunt apophysis. Hind femur slender, at least 4.3× as long as wide, red and slightly infusate apically.....6
- 6 6th and 7th tergites entirely ivory (fig. 43). Propodeum black, with ivory color pattern (fig. 33). Hind coxa black basally, ivory apically. India.....
- *I. albomaculata albomaculata* CAMERON, 1903
- 6th tergite with ± extended apical ivory band, 7th tergite entirely ivory (fig. 44). Propodeum usually ± red, with ivory coloration (fig. 34). Hind coxa reddish, ivory apically. Taiwan. *I. albomaculata formosana* (UCHIDA, 1930)
- 7 Temple distinctly narrowed behind eye, rather short; head dorsally wider than long. Apophysis long. Tergites unicolorous reddish-brown, 5th to 7th tergites with indistinct yellowish margins. Sulawesi. *I. caroni* (HEINRICH, 1934)
- Temple slightly widened or narrowed behind eye, long; head dorsally almost cubical. Apophysis variously developed, sometimes absent. Tergites usually black, at least 2nd, 3rd and 7th tergites with wide ivory bands.....8
- 8 Hind tarsus reddish or black. Lateral carina of scutellum high and with dentiform basal elevation (fig. 3). Mesoscutum black (as fig. 29). Vertex with separate ivory spot (fig. 24). Postscutellum black or with ivory spot. Metapleuron black or with apical ivory spot. Area spiraculifera black.9
- Hind tarsus ± ivory. Lateral carina of scutellum ± lamelliform but usually not dentiform basally. Mesoscutum often with central ivory spot or paramedian ivory stripe (figs 30-31). Vertex with or without separate ivory spot. Postscutellum ivory (figs 41-42). Metapleuron with yellow spot. Area spiraculifera without or without yellow coloration.10
- 9 Tergites black, with posterolateral yellow spots or apical bands. Postscutellum and metapleuron entirely black. Hind tibia apically and hind tarsus entirely blackish. India, Borneo, Philippines. *I. laminata laminata* (CUSHMAN, 1922)
- 2nd, 3rd and 7th tergites ± red, with posterolateral yellow spots or apical bands (fig. 50). Postscutellum and metapleuron with ivory spots. Hind tibia and tarsus red. Postscutellum with ivory spot. Sulawesi.
- *I. laminata makassariensis* (HEINRICH, 1934)

- 10 Wide orbits entirely ivory in both sexes (fig. 25). Vertex without separated ivory spot 11
- Ivory stripes on frontal and outer orbits not confluent (figs 23, 24, 26). Vertex either black or with ivory spot separated from eye 12
- 11 Propodeum with long apophysis. Hind coxa mainly black, ivory apically. Hind trochanter ivory; hind femur and tibia reddish, \pm infusate basally and apically. Face and orbits entirely yellow (fig. 13). Mesoscutum black in ♀, with ivory central spot in ♂. Tergites black, with ivory color pattern. Indonesia, Malaysia, Philippines. *I. longitarsis* (CAMERON, 1905)
- Propodeum with short apophysis. Hind coxa red, yellow dorsally. Hind trochanter, femur and tibia entirely red. Mesoscutum entirely black in both sexes. Tergite of ♂ mainly reddish. Sulawesi *I. celebicola* (HEINRICH, 1934)
- 12 Vertex with separated ivory spot (fig 23). Mesoscutum black, with short ivory stripe (fig. 30). Area spiraculifera \pm yellow. Widespread in the Oriental region *I. cephalotes* (ASHMEAD, 1905)
- Vertex without separated ivory spot (figs 26, 28). Mesoscutum black, sometimes with long ivory stripe. Area spiraculifera black 13
- 13 Hind tibia with subbasal ivory ring. Hind coxa of ♀ with \pm distinct scopa ventro-apically. Mesoscutum black, with superficial punctures, smooth and shining (fig. 32). ♂ unknown. New Guinea and Moluccas. *I. pancarpus* (TOSQUINET, 1903)
- Hind tibia without subbasal ivory ring. Hind coxa of ♀ without scopa. Mesoscutum black or with paramedian ivory stripe, densely and coarsely punctate, \pm dull (fig. 31) 14
- 14 Basal bands of 2nd and 3rd tergites, apical margins of 4th to 6th tergites and entire 7th tergite ivory. ♂ unknown. Borneo. *I. maculiceps* (CAMERON, 1912)
- 2nd and 3rd tergites without basal ivory bands, 2nd to 7th tergites with apical ivory bands which are sometimes narrowed medially (figs 49, 51) 15
- 15 Mesoscutum black, without yellow stripe (as fig. 29). Face yellow, with small dorso-central brown spot (fig. 15). Notaulus weakly present in basal third of mesoscutum. Hind tibia basally and apically infusate in ♀, with basal infuscation in ♂. India and Laos. *I. nigriscuta* nov.sp.
- Mesoscutum with long paramedian stripe in ♀ (fig. 31). Face mainly yellow, with small central brown spot (fig. 14). Notaulus not impressed. Hind tibia reddish-yellow apically. ♂ unknown. Laos. *I. flavomaculata* nov.sp.

List of species

Subgenus *Imeria* CAMERON, 1903

Imeria (Imeria) albitemplata nov.sp. (figs 5, 17, 46)

H o l o t y p e (♀): Cambodia: (Siem Reap), Angkor Thom, Netcatching, IG 30.192, 1-15.viii.2003, leg. Daniel R. Jump, Coll. I.R.Sc.N.B. (HK).

E t y m o l o g y : The species name refers to the separate ivory spot of the vertex.

D e s c r i p t i o n : ♀. Body length 10.5 mm. Flagellum with >11 segments (tip broken off); 1st flagellar segment 3.9× as long as wide. Temple long, parallel behind eye and slightly narrowed apically. OED 1.6× and OOD 0.9× ocellar diameter. Temple, frons and gena smooth. Face with fine sparse superficial punctures. Clypeus large, flat, with fine very sparse punctures; apical margin slightly lamelliform raised laterally and with small tooth medially. Malar space 0.8× as long as width of mandibular base.

Epomia long, not reaching ventral margin of pronotum. Mesoscutum densely rugose-

punctate, dull. Notaulus not impressed. Epicnemial carina not widened ventrally. Sternaulus slightly impressed at frontal margin of mesopleuron. Mesopleuron coarsely striate dorsally, rugose-punctate ventrally; speculum smooth. Metapleuron striate ventrally, rugose-punctate dorsally; juxtacoxal carina largely absent, only indicated at frontal margin of metapleuron. Scutellum moderately and roundly elevated, wider than long, with complete and slightly lamelliform lateral carina. Postscutellum rugose. Propodeum incompletely carinate, without apophysis; spiracle oval. Area basalis indicated by median longitudinal ridge. Area superomedia pentagonal, c. $2\times$ as wide as long; costula reaching at 6/10 of its length. Lateral carina of area petiolaris and lateral longitudinal carina of propodeum absent. Hind coxa densely punctate, without scopa or carina. Hind femur $4.6\times$ as long as wide. Claws simple, apically strongly curved (by 90°). Areolet pentagonal; frontal distance between veins 2rs-m and 3rs-m $1\times$ their width. Vein 1cu-a slightly postfurcal by $1\times$ its width.

Metasoma rather slender, with almost parallel sides, oxypygous, 2nd to 5th sternites with median folds. Postpetiole moderately widened, finely granulate but shining. Gastrocoelus moderately impressed. Thyridium large, transverse, c. $2\times$ as wide as interval between thyridia. 2nd tergite $1.1\times$ as wide as long. 2nd and 3rd tergites with dense but superficial punctures, shining; following tergites finely granulate. Ovipositor sheath extending beyond metasomal apex by length of 3rd hind tarsomere.

Color: Black. Antenna black, dorsal stripes of central flagellomeres from 6th flagellomere on ivory. Palps, mandible except teeth, clypeus, face except large triangular median spot, gena, frontal orbit up to ocelli, large posterolateral spot of vertex (widely separated from compound eye), frontal margin, ventral edge and upper margin of pronotum, dumb-bell shaped central spot on mesoscutum, tegula, subtegular ridge, scutellum, postscutellum, wide stripe on ventral mesopleuron, transversal band covering apical metapleuron, area petiolaris and area posteroexterna, narrow base of petiole, wide basal bands and narrow apical margins of 2nd and 3rd tergites, and apical bands of 4th to 7th tergites (\pm narrowed medially) ivory. Fore and mid coxae and trochanters ivory; hind coxa and trochanter black, with apical ivory bands. Legs otherwise reddish; fore tarsus distally and mid and hind tarsi entirely black; hind femur narrowly infusate at apex; hind tibia red, black basally. Wings hyaline; pterostigma black.

♂ unknown.

Remark: This species is characterized by its ivory spot on vertex, which is widely separated from compound eye, ivory spot on mesoscutum and black hind tarsus.

Distribution: Only known from Cambodia.

***Imeria (Imeria) albomaculata albomaculata* CAMERON, 1903 (figs 7, 19, 29, 33, 43)**

Studied material: India: Ghumti, Darjeeling distr., E. Himalayas, c. 4000 ft., 1♀ vii.1911, F.H. Gravely (NHM); India: Coimbatore District, Siruvani, 1♀ 9.v.1937, P. S. Nathan, NHMUK 015214883 (NHM).

Description: ♀. Body length 7.5-8.5 mm. Flagellum with >27 segments (tip broken off), slightly lanceolate; 1st flagellar segment $4.0\times$ as long as wide, widest segments $1.2\times$ as wide as long. Temple long, slightly and almost linearly narrowed behind eye. OED $2.1\times$ and OOD $0.8\times$ ocellar diameter. Temple, frons and gena smooth. Face with dense superficial punctures medially, almost smooth laterally. Clypeus large,

flat, with fine very sparse punctures; apical margin slightly lamelliform raised laterally and with small tooth medially. Malar space $0.8\times$ as long as width of mandibular base.

Epomia long, not reaching ventral margin of pronotum. Side of pronotum smooth medially, with some longitudinal striae posteriorly. Mesoscutum densely rugose-punctate, dull. Notaulus not impressed. Epicnemial carina slightly widened behind fore coxa. Sternaulus slightly impressed at frontal margin of mesopleuron. Mesopleuron including speculum with coarse vermiform rugae. Metapleuron rugose-punctate; juxtacoxal carina absent. Scutellum moderately and roundly elevated, wider than long, with complete lamelliform lateral carina. Postscutellum rugose. Propodeum incompletely carinate and without apophysis; spiracle oval. Area basalis replaced by median longitudinal ridge. Area superomedia pentagonal, about as long as wide; costula reaching at $4/10$ of its length. Lateral carina of area petiolaris and lateral longitudinal carina of propodeum absent. Hind coxa densely punctate, without scopa or carina. Hind femur slender, $4.8-5.0\times$ as long as wide. Claws simple, apically strongly curved (by 90°). Areolet pentagonal; frontal distance between veins $2rs-m$ and $3rs-m$ $2\times$ their width. Vein $1cu-a$ slightly postfurcal by $3\times$ its width. Hind wing with 8 distal hamuli.

Metasoma oxypygous, 2^{nd} to 5^{th} sternites with median folds. Postpetiole moderately widened, finely granulate but shining. Gastrocoelus moderately impressed. Thyridium large, transverse, $2\times$ as wide as interval between thyridia. 2^{nd} tergite about as long as wide. 2^{nd} and 3^{rd} tergites with fine dense but superficial punctures, shining; following tergites finely granulate. Ovipositor sheath extending beyond metasomal apex by length of 3^{rd} hind tarsomere.

Color: Black. Antenna black, flagellar segments 7-15 dorsally ivory. Palps, mandible except teeth, clypeus \pm , stripes of facial orbit (sometimes \pm reduced) and frontal orbit, sometimes spot on gena, frontal and ventral margins of pronotum, tegula, subtegular ridge, small postero-ventral spot on mesopleuron, scutellum, postscutellum, transversal band covering apical metapleuron, apical half of area superomedia, entire area petiolaris and area posteroexterna, base of petiole, wide basal bands of 2^{nd} and 3^{rd} tergites, narrow apical margin of 5^{th} tergite, 6^{th} and 7^{th} tergites mainly or entirely, 2^{nd} and 3^{rd} sternites, and apical bands of 4^{th} to 6^{th} sternites ivory. Fore and mid coxae and trochanters ivory; hind coxa black, with dorsal ivory spot. Legs otherwise reddish; distal tarsomeres of fore and mid legs brown; hind femur narrowly infusate at apex; hind tibia narrowly infusate basally, black in apical 0.25 ; hind tarsus black. Wings hyaline; pterostigma brown.

♂ unknown.

Distribution: This subspecies is only known from India.

***Imeria (Imeria) albomaculata formosana* (UCHIDA, 1930), stat. nov. (figs 8, 20, 34, 39, 44)**

Studied material: Taiwan: Kankau (Koshun), 3♀♀ 1♂ iv.1912, 4♀♀ 2♂♂ vi.1912, 2♂♂ vii.1912, 2♀♀ viii.1912, 1♂ ix.1912, 1♂ x.1912, Taihorin, 1♀ iv.1910, 1♀ 1♂ 7.xi.1911, 1♂ 7.xii.1911, Hoozan, 1♀ 1♂ 7.ix.1910, all leg. Sauter (SDEI); Taiwan NW: Hueisuen exp. Forest, 600 m, $24^\circ07'N$ $121^\circ03'E$, E Taichung, 1♀ 23-27.vi.2000, leg. W. Schacht (ZSM); Taiwan: (ROC), Hueisuen exp. Forest Stn (700 m), $24^\circ05'N$ $121^\circ02'E$, 1♀ 3-8.ix.2002, leg. K. Schönlitzer (ZSM); Taiwan: Pingtung, Chunri Township, Dahan Forest Road, $N\ 24.41^\circ$ $E\ 120.72^\circ$, 2♀♀ 16.vi.2019, leg. K. Watanabe (Kanagawa).

Description: ♀. Body length 8.5-9.5 mm. Flagellum with 38-40 segments,

slightly lanceolate; 1st flagellar segment 3.9-4.2× as long as wide, widest segments 1.3-1.4× as wide as long. Temple long, slightly and roundly narrowed behind eye. OED 2.0× and OOD 0.9× ocellar diameter. Temple, frons and gena smooth and shining, with very sparse fine punctures. Face with dense superficial punctures. Clypeus large, flat, with fine very sparse punctures; apical margin slightly lamelliform raised laterally and with small tooth medially. Malar space 0.8× as long as width of mandibular base.

Epomia long, not reaching ventral margin of pronotum. Mesoscutum densely rugose, sometimes partly striate, dull. Notaulus not impressed. Epicnemial carina slightly widened behind fore coxa. Sternaulus impressed in frontal 0.4 of mesopleuron. Mesopleuron with coarse vermiform rugae, speculum ± smooth. Metapleuron rugose-punctate; juxtacoxal carina sometimes indicated at frontal margin of metapleuron. Scutellum almost pyramidal, 1.3× as wide as long, with complete lamelliform lateral carina. Postscutellum finely rugose. Propodeum incompletely carinated; spiracle long-oval; apical transverse carina weak but with posterolateral blunt tooth-like apophysis. Area basalis replaced by median longitudinal ridge. Area superomedia pentagonal, about as long as wide; costula reaching at 4/10 of its length. Lateral carina of area petiolaris and lateral longitudinal carina of propodeum weak. Hind coxa densely punctate, without scopa. Hind femur 4.5-4.7× as long as wide. Claws simple, apically strongly curved (by 90°). Areolet pointed frontally or pentagonal with frontal distance between veins 2rs-m and 3rs-m 1-2× their width. Vein 1cu-a slightly postfurcal by 1× its width.

Metasoma oxypygous, 2nd to 5th sternites with median folds. Postpetiole moderately widened, finely granulated but shining. Gastrocoelus moderately impressed, granulate. Thyridium large, transverse, c. 2× as wide as interval between thyridia. 2nd tergite 0.9-1.1× as long as wide. 2nd tergite with dense superficial punctures in basal half, finely granulated apically. 3rd tergite finely granulated. Ovipositor sheath widely reaching beyond metasomal apex, seen from lateral 0.3× as long as hind tibia.

Color: Black, metapleuron and propodeum usually ± reddish. Flagellum black, flagellar segment 6/7-14/15 ivory dorsally. Palps, mandible except teeth, clypeus ±, spots or stripes on facial and frontal orbits, sometimes spot on gena, frontal margin and hind edge of pronotum, tegula, subtegular ridge, sometimes postero-ventral spot of mesopleuron, scutellum, postscutellum, upper division of metapleuron, transversal band covering apical metapleuron, area petiolaris and area posteroexterna, base of petiole, wide basal bands of 2nd and 3rd tergites, narrow apical margins of 3rd to 5th tergites, apical band of 6th tergite and 7th tergite mainly or entirely ivory. Fore and mid coxae and trochanters ivory; hind coxa black or reddish, with dorsal ivory spot. Legs otherwise red; hind femur black in apical 0.1; hind tibia black in basal 0.1 and apical 0.1-0.2; hind tarsus reddish or brown. Wings hyaline; pterostigma reddish.

♂. Body length 9-10 mm. Flagellum with 38 segments, bristle-shaped; 1st flagellar segment 3.7-3.8× as long as wide. Tyloids on flagellar segments 9/10-17, linear to long-oval, maximally 0.5-0.6× as long as their flagellomeres. OED 2.0× and OOD 1.1× ocellar diameter. Mesopleuron striate dorsally and rugose-striate ventrally. Epicnemial carina moderately elevated behind fore coxa. Sternaulus impressed in frontal 0.3 of mesopleuron. Juxtacoxal carina sometimes partly present frontally. Spiracle long-oval to slit-shaped. Propodeum with small blunt apophysis. Hind femur 4.3-4.5× as long as wide. 2nd tergite 1.1-1.2× as wide as long. Structure otherwise as described for the ♀.

Color: as described for the ♀ but propodeum sometimes mainly reddish; flagellar

segments 8/9-15/18 ivory; facial orbit widely ivory, sometimes face entirely ivory; gena and outer orbit usually ivory; propleuron \pm ivory, petiole \pm ivory; paramere ivory. Hind tibia reddish, \pm black basally and apically. Pterostigma reddish-brown.

Remark: The Taiwanese specimens have only minor color differences compared to the Indian material of *Imeria albomaculata*. The propodeum and hind coxa are usually mainly red instead of black, but some specimens from the long series in SDEI have a completely black and ivory mesosoma. I was not able to find any other color or structural differences between the Indian and Taiwanese material. In my opinion, *Imeria formosana* (UCHIDA) represents a subspecies of *I. albomaculata*.

It should be noted here that the examined *Imeria* specimens from Vietnam, Laos and the Hainan Island of China belong to different but closely related species.

Distribution: Only known from Taiwan.

***Imeria (Imeria) albomaculatoides* nov.sp. (figs 6, 18, 36, 47)**

Holotype: (♀) Laos: Prov. Hua Phan, Phon-Pan, Umg. Ort Ban Saleui, 20°13'30"N 103°59'26"E, 1350-1900 m, 15.vi.2013, KJa, leg. C. Holzschuh & locals (Linz).

Paratypes: S Vietnam: Dak Lak, Chu Yang Sin N.P. nr dam, 800-940 m, 2♂♂ 2-10.vi.2007, Mal. traps, C. v. Achterberg and R de Vries RMNH '07 (Leiden); S Vietnam: Dak Lak, Chu Yang Sin N.P. Krong K'Mar, Malaise traps 840-940 m, 1♂ 2-10.vi.2007, leg. C. v. Achterberg and R. de Vries RMNH '07; S Vietnam: Dak Lak, Chu Yang Sin N.P., nr river, Malaise traps, c. 740 m, 1♂ 1-10.vi.2007, leg. C. v. Achterberg and R. de Vries RMNH '07 (Leiden).

Etyymology: The species name refers to the resemblance with *Imeria albomaculata*.

Description: ♀. Body length 8.2 mm. Flagellum with >25 segments (tips broken off), moderately lanceolate; 1st flagellar segment 4.0× as long as wide; widest segments 1.7× as wide as long. Temple long, shortly parallel behind eye and slightly narrowed apically. OED 1.8× and OOD 1.0× ocellar diameter. Occiput concave medially. Temple smooth; frons with fine rather dense punctures dorso-laterally. Face with rather dense punctures, partly rugose medially. Clypeus large, flat, with sparse punctures; apical margin slightly lamelliform raised laterally and with blunt tubercle medially. Malar space 0.6× as long as width of mandibular base.

Epomia long, almost reaching ventral margin of pronotum; side of pronotum with some longitudinal rugae at posterior margin. Mesoscutum densely rugose-punctate, dull. Notaulus not impressed, its area with some oblique ridges. Epicnemial carina slightly lamelliform widened ventrally. Sternaulus impressed in frontal third of mesopleuron. Mesopleuron with striae dorsally, rugose-punctate ventrally; speculum partly smooth. Metapleuron \pm striate frontally, rugose-punctate posteriorly; juxtacoxal carina largely absent. Scutellum pyramidal, slightly wider than long, with complete and moderately lamelliform lateral carina; strongly descending apical side. Postscutellum with fine longitudinal striae. Propodeum incompletely carinated and without apophysis; spiracle oval. Area basalis replaced by fine median longitudinal ridge. Area superomedia pentagonal, slightly wider than long; costula reaching its middle. Lateral carina of area petiolaris and lateral longitudinal carina of propodeum absent. Hind coxa densely punctate, without scopa or carina. Hind femur 4.5× as long as wide. Claws simple, apically strongly curved (by 90°). Areolet pentagonal; frontal distance between veins 2rs-m and 3rs-m 1× their width. Vein 1cu-a interstitial.

Metasoma rather slender, with almost parallel sides, oxypygous. Postpetiole moderately

widened, with microsculpture but shining. Gastrocoelus moderately impressed, finely rugose. Thyridium large, transverse, c. $2\times$ as wide as interval between thyridia. 2nd tergite about as long as wide. 2nd tergite densely punctate, punctures very superficial in apical half; following tergites \pm granulate, but shining. Ovipositor sheath extending beyond metasomal apex by length of 3rd hind tarsomere.

Color: Black. Palps reddish-yellow. Scape reddish-brown ventrally. Flagellum black, flagellar segments 6-14 ivory dorsally. Mandible except teeth, clypeus, face except brown median stripe and ventral brown transverse band, frontal orbit up to ocelli (widened dorsally), gena and outer orbit up to vertex, wide frontal and upper margins of pronotum, central spot on mesoscutum, tegula, subtegular ridge, scutellum, postscutellum, wide stripe on ventral mesopleuron, upper division of metapleuron, small spot around propodeal spiracle, confluent band of apical 2/3 of metapleuron, area petiolaris and area posteroexterna, base of petiole, small apical spot on postpetiole, wide basal bands on 2nd and 3rd tergites, wide apical bands on 4th to 7th tergites ivory. Legs mainly reddish; fore and mid coxae and all trochanters ivory; hind coxa black, with ivory dorsal spot; hind femur red, narrowly black apically; hind tibia basally black, slightly infusate apically; distal fore and mid tarsomeres and hind tarsus blackish. Wings hyaline; pterostigma brown.

♂. Body length 8.5-10.0 mm. Flagellum with 38-40 segments, bristle-shaped; 1st flagellar segment 3.3-3.4 \times as long as wide. Tyloids indistinct. Head large. Temple long, shortly widened behind eye and slightly narrowed apically. OED $2.0\times$ and OOD $1.0\times$ ocellar diameter. Temple smooth; frons with fine very sparse punctures dorso-laterally. Face with rather dense punctures. Clypeus large, flat, with sparse punctures; apical margin with blunt tubercle medially. Malar space $0.8\times$ as long as width of mandibular base.

Mesoscutum densely rugose-punctate, dull. Notaulus not impressed, its area with some oblique ridges. Mesopleuron and metapleuron striate; speculum smooth. Scutellum pyramidal, wider than long, with complete and lamelliform lateral carina; strongly descending apical side. Postscutellum with fine longitudinal striae. Propodeum incompletely carinated and without apophysis; spiracle oval. Area superomedia hexagonal, wider than long; costula reaching its middle. Hind femur 4.1-4.5 \times as long as wide. Postpetiole moderately widened, with microsculpture but shining. Gastrocoelus moderately impressed, finely rugose. Thyridium large, transverse, 1.6-1.8 \times as wide as interval between thyridia. 2nd tergite about as long as wide.

Color: Black. Scape often reddish-brown ventrally. Flagellum black, flagellar segments 9/10-15/19 ivory dorsally. Mandible except teeth, clypeus, face entirely or except small brown median spot, frontal orbit up to ocelli (widened dorsally), gena and outer orbit, wide frontal and upper margins of pronotum, central spot on mesoscutum (sometimes very small), tegula, subtegular ridge, scutellum, postscutellum, wide stripe on ventral mesopleuron, upper division of metapleuron, small spot around propodeal spiracle, confluent band of apical 2/3 of metapleuron, area petiolaris and area posteroexterna, base of petiole, small apical spot on postpetiole, wide basal bands of 2nd and 3rd tergites, 3rd tergite laterally, wide apical bands on 4th to 7th tergites, hypopygium partly and paramere ivory. Legs mainly reddish; fore and mid coxae and all trochanters ivory; hind coxa black, with ivory dorsal spot; hind femur red, narrowly black apically; hind tibia reddish-yellow, black basally and slightly infusate apically; distal fore and mid tarsomeres and

hind tarsus blackish. Wings hyaline; pterostigma brown.

Remark: The Vietnamese ♂♂ were mentioned as *I. albomaculata* in a previous publication (RIEDEL 2017) but belong to this new species.

Distribution: Laos and Vietnam.

***Imeria (Imeria) levifrons* CAMERON, 1907, new ♂ (figs 9, 21)**

Holotype ♀: [red] Type; Kuching Sept. 06, JH; *Imeria levifrons* CAM. type Borneo; NHMUK 015214879 (NHM), type examined.

Additional studied material: Malaysia: Perak, 30 km NE Gerik, Belum, 5°34'42''N 101°22'44''E, 1♂ 2-13.iv.2015, 350 m, E. Jendek & O. Sauša (Linz).

Description: ♀ (holotype). Body length 7.2 mm. Tips of flagella broken off. Temple long, slightly and roundly narrowed apically. OED 1.5× and OOD 0.7× ocellar diameter. Temple, frons and gena smooth. Face with sparse superficial punctures. Clypeus large, flat, almost smooth; apical margin slightly lamelliform raised laterally and with median tooth. Malar space 0.7× as long as width of mandibular base.

Epomia long, not reaching ventral margin of pronotum. Side of pronotum almost smooth. Mesoscutum densely rugose-punctate, dull. Notaulus not impressed. Epicnemial carina moderately widened behind fore coxa. Sternaulus weakly impressed at frontal half of mesopleuron. Mesopleuron striate dorsally, rugose ventrally; speculum smooth. Metapleuron finely and superficially striate; juxtacoxal carina absent. Scutellum pyramidal, slightly wider than long, punctate; with complete and slightly lamelliform lateral carina. Postscutellum rugose. Propodeum incompletely carinate and without apophysis; spiracle oval. Area basalis replaced by median longitudinal ridge. Area superomedia pentagonal, about as long as wide; costula reaching its middle. Lateral carina of area petiolaris and lateral longitudinal carina of propodeum absent. Hind coxa densely punctate, without scopa. Hind femur 4.7× as long as wide. Claws simple, apically strongly curved (by 90°). Areolet pentagonal; frontal distance between veins 2rs-m and 3rs-m 2× their width. Vein 1cu-a interstitial.

Metasoma oxypygous, 2nd to 4th sternites with median folds. Postpetiole moderately widened, weakly granulate, ± shining. Gastrocoelus moderately impressed, finely granulated. Thyridium large, slightly oblique, 2.0× as wide as interval between thyridia. 2nd tergite 1.3× as long as wide. 2nd and 3rd tergites finely and densely rugose-punctate, slightly shining. Ovipositor sheath slender, reaching beyond metasomal apex.

Color: Black, [original description: flagellar segments 4-18 ivory]. Palps, mandible except teeth, clypeus, face except small brown median spot, frontal orbit up to ocelli, spot of gena, large spot at vertex, collar, ventral half and upper margin of pronotum, tegula, subtegular ridge, scutellum, postscutellum, postero-ventral spot and hind margin of mesopleuron, upper division of metapleuron, apical band covering apical third of metapleuron, area posteroexterna and area petiolaris of propodeum, narrow base of petiole, apical margin of postpetiole, wide basal band and small posterolateral spots of 2nd tergite, basal posterolateral spots and narrow apical band of 3rd tergite, narrow apical bands of 4th to 6th tergites and large median spot on 7th tergite ivory. Fore and mid coxae and all trochanters ivory; hind coxa black, reddish basally, ivory dorsally; fore and mid femora and tibiae yellowish, brownish dorsally; fore and mid tarsi brown; hind femur reddish, blackish ventrally and with yellow dorso-apical spot; hind tibia blackish, ivory

in apical 0.4 and external 0.7; hind tarsus black. Wings hyaline; pterostigma brown.

♂. Body length 7.2 mm. Flagellum with >10 segments (tips broken off); 1st flagellar segment 3.9× as long as wide. Tyloids not visible. Temple long, shortly parallel behind eye and moderately narrowed apically. OED 1.6× and OOD 0.7× ocellar diameter. Temple, frons and gena smooth. Face with sparse superficial punctures. Clypeus large, flat, almost smooth; apical margin slightly lamelliform raised laterally and with tooth medially. Malar space 0.8× as long as width of mandibular base.

Epomia very long but not reaching ventral margin of pronotum. Mesoscutum densely rugose-punctate, dull. Notaulus not impressed. Epicnemial carina moderately widened ventrally. Sternaulus slightly impressed at frontal margin of mesopleuron. Mesopleuron coarsely striate; speculum smooth. Metapleuron finely striate; juxtacoxal carina absent. Scutellum pyramidal, slightly wider than long, with complete and slightly lamelliform lateral carina. Postscutellum finely striate. Area basalis replaced by median longitudinal ridge. Area superomedia pentagonal, about as long as wide; costula reaching its middle. Area externa smooth; area dentipara rugose. Lateral carina of area petiolaris and lateral longitudinal carina of propodeum absent. Hind coxa densely punctate. Hind femur 4.2× as long as wide. Claws simple, apically strongly curved (by 90°). Areolet pentagonal; frontal distance between veins 2rs-m and 3rs-m 2× their width. Vein 1cu-a slightly postfurcal by 1× its width.

Metasoma rather slender, with almost parallel sides, oxygyous, 2nd to 4th sternites with median folds. Postpetiole moderately widened, smooth, with few fine punctures apically. Gastrocoelus moderately impressed, finely granulate. Thyridium large, slightly oblique, 2.4× as wide as interval between thyridia. 2nd tergite 1.2× as long as wide. 2nd and 3rd tergites with dense but superficial punctures, shining; following tergite with superficial punctures, shining. Apical margin of hypopygium elongate and almost pointed medially.

Color: Black. Scape reddish; basal flagellar segments black. Palps mainly brownish. Mandible except teeth, clypeus, face, frontal orbit up to ocelli, gena and outer orbit up to vertex, collar, ventral edge and upper margin of pronotum, tegula, subtegular ridge, scutellum, posterior spot on mesopleuron, upper division of metapleuron, apical band covering apical third of metapleuron, area posteroexterna and area petiolaris of propodeum, narrow base of petiole, wide basal band and small posterolateral spots of 2nd tergite, apical bands of 5th and 6th tergite and large median spot on 7th tergite ivory. Fore and mid coxae and trochanters ivory; hind coxa reddish brown, ivory dorsally; fore and mid femora, tibiae and tarsi brownish-red; tibiae cream-yellow frontally; hind femur reddish, basally, apically and ventrally blackish; hind tibia black, ivory in apical 0.4 and external 0.7; hind tarsus black. Wings hyaline; pterostigma brown.

Distribution: Borneo and Malaysian Peninsula.

***Imeria (Imeria) orientalis* nov.sp. (figs 1, 10, 22, 35, 40, 45)**

Holotype ♀: Malaysia: Ng. Sembila, Pasoh foresi, N 2.97, E 102.30, 80 m, 10-21.VI.2013, E. Jenek (Linz).

Paratypes: (♂) China: Hainan Island, Nam-lin-tin, Lam-wan-tung, Kiung-chow district, July 29-30, 1935, F.K. To (HK); (♀) S. Vietnam: Dong Nai, Cat Tien N.P., c. 100 m, Ficus trail, Malaise traps 1-8, 1-9.x.2005, C. van Achterberg & R. deVries (Leiden); (♀) Cambodia: Sien Reap Prov., Phnom Kulen N.P., Forest around Phum Preah Thom, day collection, 26-27.vii.2006, leg. K. Smets, Youl & D. Jump, Coll. I.R.Sc.N.B. (HK); (♀) Cambodia: Sien Reap Prov., Prean Khan

Temples, Malaise trap, 2006, leg. O. Yothin, I.R.Sc.N.B. (HK); (♂) Thailand: Nakhon Ratchasima prov., Pak Chong district, Khao Yai National Park, 7.xi.2018, N. Tharantnanephong (coll. Riedel).

Description: ♀. Body length 9.0-10.7 mm. Flagellum with 39-41 segments, moderately lanceolate; 1st flagellar segment 3.3-3.8× as long as wide, widest segments 1.4-1.6× as wide as long. Temple long, slightly and roundly narrowed behind eye. OED 1.5-2.2 × and OOD 0.7-1.0 × ocellar diameter. Temple and gena almost smooth. Frons sometimes with sparse punctures laterally. Face densely or rather densely punctate. Clypeus large, flat, with fine sparse punctures; apical margin slightly lamelliform raised laterally and with tooth medially. Malar space 0.8× as long as width of mandibular base.

Epomia long and almost reaching ventral margin of pronotum. Mesoscutum densely rugose-punctate, dull. Notaulus not impressed but sometimes indicated by oblique ridges. Epicnemial carina ± widened behind fore coxa. Sternaulus distinctly impressed in frontal 0.4-0.5 of mesopleuron. Mesopleuron striate dorsally and rugose-punctate ventrally, sometimes ± striate ventro-posteriorly. Speculum partly smooth. Metapleuron rugose-striate; juxtacoxal carina present in frontal third to half of metapleuron. Scutellum pyramidal, 1.3-1.4× as wide as long, punctate, apical margin striate, with complete lamelliform lateral carina. Postscutellum finely striate. Propodeum incompletely carinated, almost smooth basally and rugose in apical 2/3, and without or with weak stout apophysis; spiracle oval. Area basalis replaced by median longitudinal ridge. Area superomedia pentagonal, 1.2-1.5× as wide as long; costula reaching its middle. Lateral carina of area petiolaris and lateral longitudinal carina of propodeum absent. Hind coxa densely punctate, without scopa. Hind femur 3.5-4.1× as long as wide. Claws simple, strongly curved apically (by 90°). Areolet pentagonal; frontal distance between veins 2rs-m and 3rs-m 1-2× their width. Vein 1cu-a interstitial or slightly postfurcal.

Metasoma oxypygous, 2nd to 5th or 6th sternites with median folds. Postpetiole moderately widened, finely granulate but shining medially, finely rugose laterally. Gastrocoelus moderately impressed. Thyridium large, transverse, 2.0-2.3× as wide as interval between thyridia. 2nd tergite about as long as wide. 2nd tergite finely and densely punctate, with superficial punctures in apical half. 3rd tergite with superficial punctures, shining. Ovipositor sheath in profile 0.25-0.33× as long as hind tibia.

Color: black. Antenna black; sometimes scape ventrally and basal two flagellomeres ± brownish, flagellar segments 6/7-15 ivory dorsally. Palps, mandible except teeth, clypeus, face except brown median spot, frontal orbit, gena and outer orbit, collar, ventral edge and upper margin or hind edge of pronotum, tegula, subtegular ridge, wide ventral stripe of mesopleuron, scutellum (postscutellum black), metapleuron mainly or entirely, area petiolaris and area posteroexterna, base of petiole, wide basal bands of 2nd and 3rd tergites, sometimes 3rd tergite only laterally, posterolateral spots or lateral and/or apical margins of 4th and 5th tergites, apical band of 6th tergite and 7th tergite mainly ivory. Fore and mid coxae and trochanters ivory; hind coxa black, with dorsal and ventral ivory spots. Legs otherwise reddish; fore and mid femora and tibiae sometimes yellowish frontally; mid tarsus brown; hind femur red, black in basal and apical 0.2; hind tibia blackish, sometimes with diffuse reddish-brown subbasal ring; hind tarsus black. Wings hyaline; pterostigma ochreous or brown.

♂. Body length 9.0-10.3 mm. Flagellum with 38-40 segments, bristle-shaped; 1st flagellar segment 3.6-4.1× as long as wide. Tyloids on flagellar segments 11-18, long-oval, maximally 0.5× as long as their segments, often indistinct. Temple long, slightly

widened behind eye, slightly and roundly narrowed apically. OED 2.2-2.3× and OOD 1.0-1.1× ocellar diameter. Temple, frons and gena smooth, with very sparse fine punctures. Face with dense punctures. Clypeus large, flat, with fine very sparse punctures; apical margin slightly lamelliform raised laterally and with median tooth. Malar space 0.8× as long as width of mandibular base.

Epomia very long and almost reaching ventral margin of pronotum. Mesoscutum densely rugose-punctate, dull. Notaulus not impressed. Epicnemial carina slightly widened behind fore coxa. Sternaulus slightly impressed at frontal margin of mesopleuron. Mesopleuron with striation dorsally and striated rugae or striation ventrally. Speculum partly smooth. Metapleuron finely striate; juxtacoxal carina absent or indicated in frontal third of metapleuron. Scutellum almost pyramidal, slightly wider than long, with complete lamelliform lateral carina. Postscutellum with longitudinal striae. Propodeum incompletely carinated, rugose but area externa almost smooth, with weak blunt apophysis; spiracle oval. Area superomedia pentagonal, 1.2-1.4× as wide as long; costula reaching at 4/10 of its length. Lateral carina of area petiolaris and lateral longitudinal carina of propodeum absent. Hind femur 4.0-4.4× as long as wide. Claws simple, apically strongly curved (by 90°). Areolet pentagonal; frontal distance between veins 2rs-m and 3rs-m 2× their width. Vein 1cu-a slightly postfurcal by 1× its width.

Postpetiole moderately widened, with microsculpture but shining. Gastrocoelus moderately impressed, granulate. Thyridium large, transverse, 2.5-2.9× as wide as interval between thyridia. 2nd tergite 1.0-1.2× as long as wide. 2nd and 3rd tergites with fine dense punctures, shining; following tergite finely granulate. Apical margin of hypopygium moderately or tongue-like elongate medially, not pointed.

Color: black, mesosoma sometimes with dark reddish shine. Scape brown, reddish-yellow ventrally. Flagellum black, two basal flagellomeres usually red ventrally, flagellar segments 9/10-15/19 ivory dorsally; tyloids ± yellowish. Palps, mandible except teeth, clypeus, face, frontal orbit, gena and outer orbit, frontal and ventral margins of pronotum, tegula, subtegular ridge, wide ventral band of mesopleuron, often spot on metasternum, often median spot on mesoscutum, scutellum, often postscutellum, metapleuron apically or almost completely, area petiolaris and area posteroexterna, narrow base of petiole, wide basal bands of 2nd and 3rd tergites, lateral margin of 3rd tergite, narrow apical margins of 3rd to 6th tergites, entire 7th tergite and spot on paramere ivory. Fore and mid coxae and trochanters ivory; hind coxa black or brown, with internal and dorsal ivory spot. Fore and mid femora and tibiae reddish; sometimes basal spot on mid femur, fore and mid tarsi reddish (Vietnamese specimens) or fore tarsus distally and mid tarsus entirely black (Siamese specimen); hind trochanter and trochantellus brown or ± ivory; hind femur red, apically black, sometimes also basally; hind tibia reddish-yellow, basally and apically black; hind tarsus brown or black. Wings hyaline; pterostigma reddish-brown.

Remark: This new species is closely related to *Imeria albomaculata* but differs constantly by the almost entirely ivory face, entirely yellow metapleuron, black postscutellum, and stouter and large blackish hind femur. In addition, the area dentipara has no dentiform apophysis at the posterolateral edge.

The Vietnamese ♀ which had been mentioned as *I. albomaculata* in a previous publication (RIEDEL 2017) belongs to this species.

Distribution: Cambodia, China (Hainan Island), Thailand, and Vietnam.

Subgenus *Caenojoppa* CAMERON, 1905

syn. *Elasmognathias* ASHMEAD, 1906

Imeria (*Caenojoppa*) *cephalotes* (ASHMEAD, 1905) (figs 4, 11, 23, 30, 37, 48)

Type not examined.

syn. nov. *Elasmognathias albitarsis* CUSHMANN, 1922

Type not examined.

Studied material: Taiwan: Kankau (Koshun) Formosa, H. Sauter, 1♀ vii.1912; *cephalotes* det. Cushman (SDEI); Cambodia: Siem Raep Prov., Angkor Thom, 1♀ 6-28.viii.2005, 1♂ ix.2005, leg. D. R. Jump, Coll. I.R.Sc.N.B. (HK); Indonesia: N Sumatra, Aceh, Bengkung (Soraya), N.P. Gn. Leuser, Mal. trap, 1♂ ii.1995, Y. van Nierop & Dolly (Leiden); Indonesia: Java, Verlaten Island [Sertung island between Java and Sumatra], 1♂ xii. 1919, NHMUK 015214884 (NHM); Pak Sha O, Hk, 50 Q KK 242849, 70 m, 1♀ 28.iii.-12.vi.2015, leg. C. Barth (HK); 1♀ “M027.C.Hy.9” (HK); 1♀ “M025.C.Hy.8” (HK).

Description: ♀. Body length 8.5-9.5 mm. Flagellum with 35-40 segments, slender, bristle-shaped; 1st flagellar segment 4.8-5.2× as long as wide, all segments much longer than wide. Temple very long, ± parallel behind eye, slightly and roundly narrowed apically. OED 1.8-2.0× and OOD 1.3-1.6× ocellar diameter. Temple and frons smooth and shining, with very sparse superficial punctures, frons medially with some superficial rugae. Face with sparse or rather dense punctures, shining. Gena with very sparse punctures. Clypeus almost flat, with very sparse punctures; apical margin sharp and pointed medially. Malar space 0.8× as long as width of mandibular base.

Epomia long but not reaching ventral margin of pronotum. Notaulus weakly impressed in frontal third of mesoscutum. Mesoscutum densely punctate, ± dull. Mesopleuron coarsely striate dorsally and rugose-punctate ventrally; speculum smooth. Epicnemial carina moderately widened behind fore coxa. Sternaulus weakly impressed in frontal 0.3 of mesopleuron. Metapleuron coarsely rugose-punctate; juxtacoxal carina absent. Scutellum moderately and roundly elevated, 1.1-1.3× as wide as long, rugose; lateral carina slightly widened, complete. Postscutellum ± striate, sometimes smooth. Propodeum rugose-punctate, completely carinated, without apophysis; spiracle long-oval. Area basalis c. 3× as wide as long, slightly bulging medially. Area superomedia hexagonal, about as long as wide; costula reaching at 4/10 of its length. Area petiolaris with transverse rugae. Hind coxa densely punctate, densely pilose, without or with weak scopa apico-ventrally. Hind femur with sparse punctures in ventral third, 4.2-4.3× as long as wide. Areolet pentagonal, frontal distance between veins 2rs-m and 3rs-m 2× their diameter. Vein 1cu-a interstitial.

Metasoma oxypygous. 2nd to 4th sternites with median folds. Postpetiole moderately widened, without latero-median carina, ± punctate laterally; median field not separated. Gastrocoelus impressed. Thyridium large, slightly oblique, c. 2× as wide as interval between thyridia. 2nd tergite 1.2-1.4× as wide as long. 2nd tergite densely rugose-punctate in basal half, densely punctate apically. 3rd tergite with sparse or rather dense superficial punctures in basal half, almost smooth apically. Ovipositor sheath slender and stick-shaped, in profile 0.4-0.5 × as long as hind tibia.

Color: black. Mesosoma with pale setae. Flagellum black, flagellar segments 6-16/17 ivory dorsally. Palps, mandible except teeth, clypeus, face except brown median spot, spot on frontal orbit, gena and outer orbit, large spot on vertex separated from compound eye, frontal and upper margins of pronotum, two short paramedian stripes on meso-

scutum, often tegula, subtegular ridge, wide longitudinal stripe on ventral mesopleuron, scutellum and postscutellum, apical spot on metapleuron, propodeal spots on area spiraculifera and on posterolateral areas, petiole mainly, often gastrocœlus and thyridium, sometimes narrow basal band on 3rd tergite and apical bands on all tergites ivory. Fore and mid coxae and trochanters ivory; hind coxa black with ivory spots dorsally and laterally; fore and mid femora and tibiae reddish; fore and mid tarsi reddish or brown; hind femur red, often black basally in apical 0.2, sometimes with ivory spot apically; hind tibia red, black in basal 0.1-0.2 and apical 0.2-0.3; hind tarsus ivory, distal tarsomere usually black. Wings hyaline; pterostigma reddish-brown.

♂. Body length 7.8-9.0 mm. Flagellum with 38-41 segments, bristle-shaped; 1st flagellar segment 3.3-4.3× as long as wide, all segments longer than wide. Tyloids not visible. OED 1.4× and OOD 1.0× ocellar diameter. Face with fine sparse or rather dense punctures. Malar space 0.8-1.0× as long as width of mandibular base. Area basalis much wider than long. Area superomedia hexagonal, as long as or slightly longer than wide; costula reaching its middle. Hind femur densely punctate, 4.0-5.2× as long as wide. Postpetiole with fine microsculpture, finely punctate or partly with fine transverse rugae. 2nd tergite 1.2-1.3× as wide as long, densely rugose-punctate. 3rd tergite with dense superficial punctures. Following tergites shining and almost smooth. Apical margin of hypopygium with median tongue-like elongation which is almost pointed medially. Structure otherwise as in ♀.

Color: as in ♀. Flagellar segments 7/10-12/19 ivory dorsally. Palps, mandible except teeth, clypeus, face except brown median stripe, gena and outer orbit, frontal orbit, spot on vertex (separated from compound eye), frontal and upper margins of pronotum, short confluent paramedian stripes on mesoscutum, spot on tegula, subtegular ridge, wide stripe on ventral mesopleuron, scutellum, upper division and apical spot on metapleuron, area spiraculifera in front of spiracle, posterolateral stripes on propodeum, base of petiole, posterolateral spot on postpetiole, thyridium, apical bands on 2nd to 7th tergites and spot on paramere ivory. Fore and mid coxae and trochanters ivory; hind coxa with ivory dorsal and ventral spots; hind trochanter with ivory dorsal spot; fore and mid femora and tibiae blackish, with frontal ivory stripes; fore and mid tarsi ± black; hind femur reddish, black in basal 0.2 and apical 0.3, often with ivory apical spot; hind tibia reddish, basally and subapically blackish, apically ivory; hind tarsus entirely ivory or metasoma basally and distal tarsomere ± blackish. Wings hyaline; pterostigma black.

Remark: In his original description of *Elasmognathias albitarsis*, CUSHMAN (1922) mentioned only minor differences to *I. cephalotes* (ASHMEAD) such as a distinctly elevated scutellum and slightly different color pattern of the hind tarsus. As already stated by HEINRICH (1934) in a longer series of *I. cephalotes*, the form of scutellum is variable and probably correlates with the size of the specimens. In my material, the color of hind tarsus is also variable. In recognition of this variability, both species are synonymized here.

Distribution: Known from the Philippines, Sulawesi and Taiwan, new records for Cambodia, Indonesia: Java and Sumatra, and continental China.

***Imeria (Caenojoppa) flavomaculata* nov.sp. (figs 14, 26, 31, 41, 49)**

Holotype ♀: Laos: Prov. Hua Phan, Phou-Pan, Umg. Ort Ban Saleui, 20°13'30"N 103°59'26"E, 1350-1900 m, 03.04.-11.04.2014, KJa, leg. C. Holzschuh & locals (Linz).

Paratype: (♀) Laos: Prov. Hua Phan, Phou-Pan, Umg. Ort Ban Saleui, 20°13'30''N 103°59'26''E, 1350-1900 m, 29.iv.2012, KNo, leg. C. Holzschuh & locals (Linz).

Etymology: The species name refers to the rich ivory color pattern.

Description: ♀. Body length 9.5-10.0 mm. Flagellum with 41-42 segments, slender, bristle-shaped; 1st flagellar segment 4.7× as long as wide, all segments longer than wide. Temple very long, parallel behind eye and moderately and roundly narrowed apically. OED 1.5× and OOD 1.0× ocellar diameter. Temple and frons smooth and shining, with sparse superficial punctures. Face with rather dense punctures, shining. Clypeus slightly concave, with sparse punctures; apical margin sharp and pointed medially. Gena with very sparse punctures. Malar space 0.6× as long as width of mandibular base.

Side of pronotum almost smooth, epomia long but not reaching ventral margin of pronotum. Notaulus not impressed. Mesoscutum with densely but superficially punctate, dull. Mesopleuron coarsely striate dorsally and striate-punctate ventrally; speculum smooth. Epicnemial carina slightly widened ventrally. Sternaulus distinctly impressed in frontal half of mesopleuron. Metapleuron coarsely rugose-punctate; juxtacoxal carina distinct. Scutellum moderately and roundly elevated, about as long as wide, coarsely punctate basally, striate apically; lateral carina slightly widened basally, reaching apical 0.6 of scutellum. Postscutellum rugose or ± striate. Propodeum rugose-punctate, without lateral longitudinal carina, with short apophysis (shorter than its basal width); spiracle long-oval. Area basalis much wider than long, slightly bulging medially. Area supero-media hexagonal, about as long as wide; costula reaching its middle. Area petiolaris with transverse rugae. Hind coxa densely punctate, without scopa. Hind femur with sparse punctures in ventral half, 4.3-4.5× as long as wide. Claws simple. Areolet pentagonal, frontal distance between veins 2rs-m and 3rs-m 2× their diameter. Vein 1cu-a interstitial.

Metasoma oxypygous. 2nd to 4th sternites with median folds. Postpetiole moderately widened, without latero-median carina, finely rugose or rugose-punctate. Gastrocoelus strongly impressed, with few oblique ridges. Thyridium large, slightly oblique, 2.3× as wide as interval between thyridia. 2nd tergite 1.2× as wide as long. 2nd and 3rd tergites densely rugose-punctate, ± dull. 4th tergite with superficial punctures, following tergites finely granulate and ± shining. Ovipositor sheath slender and stick-shaped, reaching behind metasomal apex by length of 3rd hind tarsomere.

Color: black. Flagellum black, flagellar segments 8-13 ivory dorsally. Palps, mandible except teeth, clypeus, face except small brown median spot and two brown paramedian longitudinal stripes, frontal orbit up to vertex, gena and outer orbit up to dorsal margin of compound eye, frontal and upper margins of pronotum, two long paramedian stripes on mesoscutum, tegula except black outer margin, subtegular ridge, wide longitudinal stripe on ventral mesopleuron, scutellum and postscutellum, upper division and apical spot on metapleuron, posterolateral stripes on propodeum, basal third or half of petiole, apical bands on all tergites (medially interrupted on 4th to 6th tergites) ivory. Legs reddish; fore and mid coxae and trochanters, apical and dorsal spots on hind coxa ivory; hind femur black in apical 0.1-0.2; hind tibia black in basal 0.1; distal fore and mid tarsomeres brown; hind tarsus yellow, distal tarsomere brown in paratype. Wings hyaline; pterostigma brown.

♂ unknown.

Distribution: Laos.

***Imeria (Caenojoppa) laminata laminata* (CUSHMAN, 1922) (figs 3, 12)**

Studied material: Malaysia: SE Sabah, nr Danum Valley Field C, WO, Mal. trap 5, c. 150 m, 1♀ 12.vii.-2.viii.1987, C. v. Achterberg & D. Kennedy (Leiden); India: Ranchi, Namkum, 1♀ iv/v.1957 (ZSM); India: Ranchi, Namkum, 1♀ 15.i.1956 (ZSM); 1♀ without date and location, NHMUK 015214882 (NHM); Malaysia [Sabah]: Kinabalu Park, on *Aporosa subcaudata*, 1♂ 9.ii.1993, leg. A. Floren (ZSM).

Description: ♀. Body length 6.0-6.3 mm. Flagellum with 31-35 segments, slender, bristle-shaped; 1st flagellar segment 4.0-4.9× as long as wide, all segments longer than wide. Temple long, ± parallel behind eye, slightly and roundly narrowed apically. OED 1.5-1.9× and OOD 1.1-1.8× ocellar diameter. Temple and frons smooth and shining, with very sparse superficial punctures. Face with sparse or rather dense punctures, shining. Clypeus flat, almost smooth; apical margin sharp and pointed medially. Gena with very sparse punctures. Malar space 0.8× as long as width of mandibular base.

Notaulus absent or weakly impressed at frontal margin of mesoscutum. Mesoscutum densely punctate, dull. Mesopleuron striate dorsally and rugose-punctate or ± striate ventrally; speculum partly smooth. Epicnemial carina not or slightly widened ventrally. Sternaulus weakly impressed. Metapleuron striated-punctate; juxtacoxal carina absent or shortly indicated at frontal margin of metapleuron. Scutellum moderately and roundly elevated, 1.4-1.5× as wide as long, coarsely punctate; lateral carina complete, rather low but dentiform widened basally. Postscutellum striate. Propodeum rugose-punctate, completely carinated, without apophysis; spiracle slit-shaped. Area basalis much wider than long. Area superomedia hexagonal, 1.1-1.4× as wide as long; costula reaching at 3/10 to 4/10 of its length. Hind coxa densely punctate or rugose-punctate, without scopa. Hind femur densely punctate, 4.1-4.2× as long as wide. Claws simple. Areolet pentagonal, frontal distance between veins 2rs-m and 3rs-m 2× their width. Vein 1cu-a interstitial. Hind wing with 9 distal hamuli.

Metasoma oxypygous. Postpetiole moderately widened, without latero-median carina, finely punctate. Gastrocoelus ± impressed. Thyridium large, transverse, 2.2-2.5× as wide as interval between thyridia. 2nd tergite 1.1-1.4× as wide as long. 2nd tergite densely punctate or rugose-punctate. Ovipositor sheath slender and stick-shaped, reaching beyond metasomal apex by length of 3rd hind tarsomere.

Color: black. Flagellum black, flagellar segments 7-12/13 ivory dorsally. Palps, mandible except teeth, clypeus, face except brown median stripe and sometimes basal margin, gena and outer orbit, frontal orbit, spot on vertex (sometimes confluent with stripe on outer orbit), frontal and upper margins of pronotum, sometimes spot on tegula, subtegular ridge, wide stripe on ventral mesopleuron, scutellum, posterolateral stripes on propodeum, petiole in basal half, posterolateral spots on postpetiole and 2nd to 6th tergites or with apical bands on 2nd to 7th tergites ivory, sometimes 2nd tergite with ivory basal band. Legs reddish; fore and mid coxae and trochanters ivory; hind coxa brown, with ivory dorsal spot; distal fore and mid tarsomeres brown; hind femur apically ± and hind tibia basally and apically infusate; hind femur sometimes with dorsal ivory stripe (in ♀ from Borneo), hind tarsus reddish-brown or black. Wings hyaline; pterostigma reddish-brown or brown.

♂. Body length 6.0 mm. Flagellum with 34 segments, very slender, bristle-shaped; 1st flagellar segment 4.4× as long as wide, all segments much longer than wide. Tyloids not

visible. Temple long, shortly parallel behind eye and moderately and roundly narrowed apically. OED 1.7× and OOD 1.6× ocellar diameter. Temple and frons smooth and shining, with very sparse superficial punctures. Face with sparse punctures, shining. Clypeus flat, with sparse punctures; apical margin sharp and pointed medially and laterally slightly protruding. Gena with very sparse punctures. Malar space 0.8× as long as width of mandibular base.

Notaulus indicated at frontal margin of mesoscutum. Mesoscutum with superficial coarse punctures, shining. Mesopleuron and metapleuron distinctly striate; speculum smooth. Epicnemial carina moderately widened ventrally. Sternaulus impressed in frontal fourth of mesopleuron. Juxtacoxal carina shortly indicated frontally. Scutellum pyramidal, wider than long, with coarse transverse rugae; lateral carina complete, dentiform widened basally. Postscutellum striate. Propodeum completely carinated, without apophysis; spiracle slit-shaped. Area basalis much wider than long. Area superomedia hexagonal, slightly wider than long, costula reaching at 4/10 of its length. Hind femur superficially punctate and granulated, 4.0× as long as wide. Areolet pentagonal, frontal distance between veins 2rs-m and 3rs-m 3× their diameter. Vein 1cu-a interstitial.

Postpetiole moderately widened, without latero-median carina, almost smooth. Gastrocoelus ± impressed. Thyridium large, transverse, 2.0× as wide as interval between thyridia. 2nd tergite 1.2× as wide as long. 2nd tergite granulated and with superficial punctures.

Color: Flagellum black. Head black; palps, mandible except teeth, clypeus, face except brown median stripe, stripe on frontal orbit, long stripe on gena and outer orbit ivory. Mesosoma black; frontal and upper margins of pronotum, spot on tegula, subtegular ridge, ventro-posterior spot on mesopleuron, posterior 2/3 of scutellum and area dentipara on propodeum ivory. Tergites black; base half of petiole, basal band on 2nd tergite, posterolateral spots on 2nd and 3rd tergite, apical bands on 4th to 7th tergites and spot on paramere ivory. Fore and mid coxae and trochanters ivory; fore and mid legs otherwise reddish; hind coxa black, with dorsal ivory spot; hind trochanters and femur black, hind femur red in median third; hind tibia black, with diffuse reddish-brown subbasal ring; hind tarsus black. Wings hyaline; pterostigma brown.

D i s t r i b u t i o n : Known from the Philippines, new record for Borneo and India.

***Imeria (Caenajoppa) laminata makassariensis* (HEINRICH, 1934) (figs 24, 50)**

S t u d i e d m a t e r i a l : Indonesia: SE Sulawesi, nr Sanggona, Base Camp, Gn. Watuwila, Mal. trap 2, c. 200 m, 1♀ 10-15.x.1989, C. v. Achterberg (Leiden).

D e s c r i p t i o n : ♀. Body length 9.0 mm. Flagellum with 38 segments, slender, bristle-shaped; 1st flagellar segment 4.8× as long as wide, all segments longer than wide. Temple long, slightly widened behind eye, slightly and roundly narrowed apically. OED 1.8× and OOD 1.4× ocellar diameter. Temple, gena and frons smooth and shining, with very sparse superficial punctures. Face with rather dense punctures, shining. Clypeus flat, almost smooth; apical margin sharp and pointed medially. Gena with very sparse fine setiferous punctures. Malar space 0.8× as long as width of mandibular base.

Notaulus absent. Mesoscutum densely punctate, ± shining. Mesopleuron striate dorsally and rugose-punctate ventrally; speculum partly smooth. Epicnemial carina moderately widened ventrally. Sternaulus weakly impressed. Metapleuron striated-punctate; juxta-

coxal carina absent. Scutellum moderately and roundly elevated, $1.4\text{--}1.5\times$ as wide as long, coarsely punctate; lateral carina complete, dentiform widened basally. Postscutellum longitudinally striate. Propodeum completely carinated, without apophysis; spiracle slit-shaped. Area basalis much wider than long. Area superomedia hexagonal, slightly wider than long; costula reaching at $4/10$ of its length. Area externa almost smooth; area superomedia finely rugose; area dentipara and area petiolaris transversely striate. Hind coxa densely punctate, without scopa. Hind femur densely punctate, $3.9\times$ as long as wide. Areolet pentagonal, frontal distance between veins $2rs\text{--}m$ and $3rs\text{--}m$ $1\times$ their diameter. Vein $1cu\text{--}a$ interstitial. Hind wing with 9–10 distal hamuli.

Postpetiole moderately widened, without latero-median carina, finely punctate. Gastrocoelus \pm impressed. Thyridium large, transverse, $2.3\times$ as wide as interval between thyridia. 2^{nd} tergite $1.3\times$ as wide as long. 2^{nd} and 3^{rd} tergites densely but superficially punctate. Ovipositor sheath slender and stick-shaped, reaching beyond metasomal apex by length of 3^{rd} hind tarsomere.

Color: black. Flagellum black, flagellar segments 6–16 ivory dorsally. Palps, basal spot of mandible, clypeus, face except brown median spot, gena, outer orbit, frontal orbit, spot on vertex (confluent with stripe on outer orbit), frontal and upper margins of pronotum, tegula, subtegular ridge, longitudinal stripe on ventral mesopleuron, scutellum, spot on postscutellum, large spot on posterior metapleuron, area posteroexterna and area dentipara, petiole, posterolateral spots on postpetiole and 2^{nd} to 3^{rd} tergites, apical bands on all following tergites ivory. Mandible except teeth reddish. Postpetiole apically, 2^{nd} and 3^{rd} tergites, 4^{th} tergite basally and 7^{th} tergite \pm reddish. Fore and mid legs including coxae and trochanters ivory, distal tarsomeres brownish. Hind coxa black basally, with large ivory dorsal and ventral spots; hind trochanters reddish; hind femur red, with dorsal ivory stripe; hind tibia and tarsus reddish. Wings hyaline; pterostigma ochreous.

Distribution: Only known from Sulawesi.

***Imeria (Caenojoppa) longitarsis* (CAMERON, 1905) (figs 13, 25)**

Lectotype ♂: [red] type; B. M. Type Hym. 3.6.99; Kuching June 4 1903; NHMUK 015214880 (NHM), type examined.

syn. nov. *Elasmognathias dentatus* CUSHMAN, 1922

Type not studied.

Additional studied material: Malaysia: Pahang, F.M.S. Fraser's Hill, 4200 ft., 1♀ 19.v.1932, NHMUK 015214886 (NHM).

Description: ♀. Body length 10.0 mm. Flagellum with 42 segments, slender, bristle-shaped; 1^{st} flagellar segment $5.0\times$ as long as wide, all segments longer than wide. Temple long, slightly and roundly narrowed apically. OED $1.4\times$ and OOD $0.9\times$ ocellar diameter. Temple and frons smooth and shining, with sparse superficial punctures. Face with rather dense superficial punctures, shining. Clypeus with very sparse punctures; apical margin sharp and pointed medially. Gena with very sparse punctures. Malar space $0.8\times$ as long as width of mandibular base.

Side of pronotum almost smooth, epomia long but not reaching ventral margin of pronotum. Notaulus impressed in frontal 0.3 of mesoscutum. Mesoscutum with some coarse oblique rugae around notaulus and apico-medially, otherwise with very superficial

punctures and almost smooth, shining. Mesopleuron coarsely striate dorsally and punctate ventrally; speculum smooth. Epicnemial carina slightly widened behind fore coxa. Sternaulus distinctly impressed in frontal 0.4 of mesopleuron. Metapleuron \pm striate; juxtacoxal carina distinct in frontal half. Scutellum moderately elevated, almost pyramidal, about as long as wide, very superficially punctate; with complete lateral and apical slightly lamelliform carina. Postscutellum smooth. Propodeum rugose-punctate, \pm smooth basally, completely carinated, with blunt but distinct apophysis; spiracle long-oval. Area basalis much wider than long, trapezoid. Area superomedia hexagonal, about as long as wide; costula reaching its middle. Area petiolaris with transverse rugae. Hind coxa densely punctate, without scopa. Hind femur with sparse punctures in ventral half, $4.3\times$ as long as wide. Claws simple. Areolet pentagonal, frontal distance between veins 2rs-m and 3rs-m $2\times$ their diameter. Vein 1cu-a interstitial.

2nd to 4th sternites with median folds. 2nd tergite $1.1\times$ as wide as long. Ovipositor sheath slender and stick-shaped, reaching behind metasomal apex by length of 3rd hind tarsomere.

Color: black. Flagellum black, flagellar segments 6-14 ivory dorsally. Palps, mandible except teeth, clypeus, face except small brown median spot, complete wide orbits, frontal and upper margins of pronotum, tegula, subtegular ridge, longitudinal stripe on ventral mesopleuron, scutellum and postscutellum, upper division and apical spot on metapleuron, stripe on area dentipara and area posteroexterna, petiole, apical bands on all tergites (medially narrowed on postpetiole, 2nd to 3rd tergites) ivory. Legs reddish; fore and mid coxae and all trochanters ivory; hind coxa black, reddish ventrally, with ivory spot dorsally; fore and mid tarsi brownish; hind femur black in apical 0.2; hind tibia black in basal 0.2 and apical 0.25, with subbasal ivory stripe externally; hind tarsus ivory yellow (distal tarsomere absent). Wings hyaline; pterostigma brown.

♂ (holotype of *Caenojoppa longitarsis*). Body length 12 mm. Flagellum with >10 segments (tips broken off); 1st flagellar segment $3.3\times$ as long as wide. Tyloids not visible. Temple long, parallel behind eye and slightly and roundly narrowed apically. OED $1.7\times$ and OOD $1.2\times$ ocellar diameter. Temple and frons smooth and shining, with sparse superficial punctures. Face with superficial punctures, shining. Clypeus with very sparse punctures; apical margin sharp and pointed medially. Gena with very scattered punctures. Malar space $0.6\times$ as long as width of mandibular base.

Side of pronotum almost smooth, with some longitudinal rugae at posterior margin; epomia long but not reaching ventral margin of pronotum. Notaulus impressed in frontal 0.4 of mesoscutum. Mesoscutum finely granulate, \pm dull. Mesopleuron coarsely striate dorsally and rugose-punctate ventrally; speculum smooth. Epicnemial carina slightly widened behind fore coxa. Sternaulus distinctly impressed in frontal 0.5 of mesopleuron. Metapleuron \pm obliquely striate; juxtacoxal carina distinct. Scutellum moderately elevated, almost pyramidal, slightly wider than long; with complete lateral and apical, slightly lamelliform carina. Postscutellum smooth. Propodeum rugose-punctate, \pm smooth basally, completely carinated, with blunt but distinct apophysis; spiracle long-oval. Area basalis wider than long, about rectangular. Area superomedia hexagonal, about as long as wide; costula reaching its middle. Area petiolaris with transverse rugae. Hind femur $4.5\times$ as long as wide. Claws simple. Areolet pentagonal, frontal distance between veins 2rs-m and 3rs-m $3\times$ their diameter. Vein 1cu-a interstitial.

Metasoma oxypygous. Postpetiole distinctly widened, almost smooth and shining. 2nd tergite $1.3\times$ as wide as long. Gastrocoelus impressed, granulated. Thyridium large,

transverse, $2.5\times$ as wide as interval between thyridia. Hypopygium unmodified, apical margin straight.

Color: black. Basal flagellum black. Palps, mandible except teeth, clypeus, face except small brown median spot, complete orbits, frontal and upper margins of pronotum, spot on tegula, subtegular ridge, central spot on mesoscutum, ventral band and posterior margin of mesopleuron, scutellum and postscutellum, upper division and apical spot on metapleuron, spot around apophysis, petiole, and apical bands on all tergites ivory. Legs reddish-yellow; fore and mid coxae and all trochanters ivory; hind coxa black, yellowish basally, with ivory spot dorsally; hind femur black in apical 0.2; hind tibia yellowish, black in basal 0.1 and apical 0.15; hind tarsus ivory. Wings hyaline; pterostigma black.

Remark: *Imeria longitarsis* (as *Caenojoppa longitarsis*) was described by CAMERON (1905a, 1905b) in two different papers from presumably one male specimen. In 1933, HEINRICH (1937: 261) studied this type in London but mentioned it as a female. This interpretation was adopted, published and the specimen designated as lectotype by TOWNES et al. (1961).

It is not clear if TOWNES really studied the type because there is none of his labels at the original material. Also, CAMERON did not mention other than the type material. In my opinion, the statement of HEINRICH (1937) could be a lapsus, and the “lectotype” in the NHM is in fact the male holotype of this species.

Distribution: Indonesia, Malaysia, Philippines.

Imeria (Caenojoppa) nigriscuta nov.sp. (figs 15, 27, 51)

Holotype ♀: Laos: Prov. Hua Phan, Phou-Pan, Umg. Ort Ban Saleui, $20^{\circ}13'30''\text{N}$ $103^{\circ}59'26''\text{E}$, 1350-1900 m, 21.04.2012, KJa, leg. C. Holzschuh & locals (Linz).

Paratypes: (♀) Laos: Hua Phan Prov., Ban Saleui, Phou-Pan-Mt., $20^{\circ}13'30''\text{N}$ $103^{\circ}59'26''\text{E}$, 1350-1900 m, 27-28.04.2010, HS2010b, leg. C. Holzschuh & locals (Linz); (♂) NE India: Arunchal, Hunli env., c. 1300 m, $28^{\circ}19.32'\text{N}$ $95^{\circ}57.31'\text{E}$, 26-30.V.2012, O Sauša (Linz).

Etymology: The species name refers to the black mesoscutum.

Description: ♀: Body length 8.0-8.2 mm. Flagellum with 38 segments, slender, bristle-shaped; 1st flagellar segment $4.9\times$ as long as wide, all segments longer than wide. Temple very long, slightly and roundly narrowed behind eye. OED $1.6\times$ and OOD $0.9\times$ ocellar diameter. Temple and frons smooth and shining, with sparse superficial punctures. Face densely punctate, shining. Clypeus flat, with sparse punctures; apical margin sharp and pointed medially. Gena with very sparse punctures. Malar space $0.7\times$ as long as width of mandibular base.

Side of pronotum \pm striate posteriorly, epomia long but not reaching ventral margin of pronotum. Notaulus weakly impressed at frontal third of mesoscutum. Mesoscutum coarsely rugose-punctate, with some oblique striae centrally, dull. Mesopleuron striate dorsally and striate-punctate ventrally; speculum smooth. Epicnemial carina not widened ventrally. Sternaulus distinctly impressed in frontal 0.6 of mesopleuron. Metapleuron striated frontally and rugose posteriorly; juxtacoxal carina distinct. Scutellum moderately and roundly elevated, slightly wider than long, coarsely punctate basally, striate apically; lateral carina slightly lamelliform widened, reaching apical 0.7 of scutellum. Postscutellum finely striate. Propodeum rugose-punctate, completely carinated, with short apophysis (shorter than its basal width); spiracle slit-shaped. Area basalis much wider than long, slightly bulging medially. Area superomedia hexagonal, slightly wider than long; costula reaching its middle. Area petiolaris with transverse rugae. Hind coxa den-

sely punctate, without scopa. Hind femur densely punctate, 4.3-4.5× as long as wide. Claws simple. Areolet almost quadrangular, frontal distance between veins 2rs-m and 3rs-m 1× their diameter. Vein 1cu-a interstitial.

Metasoma oxygygous. 2nd to 4th sternites with median folds. Postpetiole moderately widened, without latero-median carina, finely rugose-punctate; median field not separated. Gastrocoelus impressed. Thyridium large, slightly oblique, 2.0× as wide as interval between thyridia. 2nd tergite 1.2× as wide as long. 2nd tergite densely rugose-punctate, with superficial structure in apical 1/4. 3rd tergite with dense superficial punctures; following tergites finely granulate and ± shining. Ovipositor sheath slender and stick-shaped, reaching behind metasomal apex by length of 3rd hind tarsomere.

Color: black. Flagellum black, flagellar segment 7-14 ivory dorsally. Palps, mandible except teeth, clypeus, face except small brown median spot, small apical spot on ventral scape, gena and complete orbits except narrow interruption on vertex, frontal and upper margins of pronotum, tegula, subtegular ridge, wide stripe of ventral mesopleuron, scutellum and postscutellum, upper division and apical spot on metapleuron, posterolateral stripes on propodeum, petiole mainly, and apical bands of all tergites (medially ± narrowed) ivory. Legs reddish; fore and mid coxae and trochanters ivory; hind coxa black, with ivory dorsal spot; hind femur apically and hind tibia basally and apically infuscate; fore and mid tarsi brown; hind tarsus except brown base of metatarsus and brown distal tarsomere ivory. Wings hyaline; pterostigma reddish or brown.

♂. Body length 10.5 mm. Flagellum with 40 segments, long and bristle-shaped; 1st flagellar segment 3.2× as long as wide. Tyloids on flagellar segments 11-21, long-oval, small, maximally 0.3× as long as their segments. OED 1.8× and OOD 1.4× ocellar diameter. Area superomedia 1.3× as wide as long. Apophysis about as long as basally wide. Hind femur 4.0× as long as wide. Areolet pointed frontally. 2nd tergite 1.2× as wide as long. Apical margin of hypopygium moderately elongate medially. Structure otherwise as described for the ♀.

Color: Flagellar segments 11-20 ivory dorsally. Face entirely ivory. Mesoscutum without paramedian ivory stripes. Postpetiole with posterolateral yellow spots; 2nd to 5th tergites with apical yellow bands (interrupted medially at 5th tergite); 6th tergite black; 7th tergite with wide apical ivory band. Hind tibia yellowish, black in basal 0.15. Hind tarsus including distal tarsomere ivory. Color otherwise as described for the ♀.

Distribution: India and Laos.

***Imeria (Caenojoppa) pancarpus* (TOSQUINET, 1903) (figs 10, 28, 32, 38, 42)**

H o l o t y p e ♀: “Nuevo Guinea: Fly River, L.M. D’Albertis 1876-77” (Genua), type examined.

A d d i t i o n a l s t u d i e d m a t e r i a l: Indonesia: S Halmahera, 20 km S Payahe, Sagutora, Mal. trap 11, c. 125 m, 1♀ 18.ii.-18.iii.1995, C. v. Achterberg, R. deVries & Y. Yasir, RMNH’95 (Leiden); Indonesia: S Halmahera, between Payahe & Gita Woda, Mal. trap 7, c. 25 m, 1♀ 17.ii.-17.iii.1995, C. v. Achterberg, R. deVries & Y. Yasir, RMNH’95 (Leiden).

D e s c r i p t i o n: ♀. Body length 7.5-10.6 mm. Flagellum with 37-38 segments, bristle-shaped; 1st flagellar segment 4.5-4.6× as long as wide, all segments much longer than wide. Temple very long, parallel or slightly widened behind eye and moderately and roundly narrowed apically. OED 1.7× and OOD 1.2-1.4× ocellar diameter. Temple, frons and gena smooth and shining, with very sparse fine punctures. Face with sparse punctures, shining. Clypeus almost flat, smooth and with sparse punctures; apical margin

not lamelliform laterally, sharp and pointed medially. Malar space $0.6-0.7\times$ as long as width of mandibular base.

Side of pronotum almost smooth, epomia long and distinct. Notaulus weakly impressed in frontal 0.3 of mesoscutum. Mesoscutum with sparse and superficial punctures, smooth and shining between punctures. Mesopleuron rugose-striate, finely striate ventrally; speculum smooth. Epicnemial carina slightly widened behind fore coxa, reaching dorsally frontal margin of mesopleuron. Sternaulus strongly impressed in frontal 0.5 of mesopleuron. Metapleuron rugose-striate; juxtacoxal carina indicated by some irregular rugae. Scutellum pyramidal, with vertical apical margin, $1.3\times$ as wide as long, punctate, with complete lamelliform carina laterally and apically. Propodeum completely carinated, with distinct blunt apophysis; spiracle long-oval. Area basalis much wider than long, without median tubercle. Area superomedia hexagonal, $1.1-1.3\times$ as wide as long, finely rugose; costula reaching at 5/10 to 6/10 of its length. Area petiolaris with transverse rugae. Hind coxa finely punctate, with small sometimes diffuse scopa apico-ventrally. Hind femur densely punctate, $4.0-4.1\times$ as long as wide. Claws simple. Areolet pentagonal, frontal distance between veins 2rs-m and 3rs-m $1-2\times$ their diameter. Vein 1cu-a interstitial.

Metasoma oxypygous. 2nd to 4th sternites with median folds. Postpetiole moderately widened, without latero-median carina, with microsculpture and very sparse punctures, shining. Gastrocoelus impressed, granulated. Thyridium large, almost transverse, $1.8-2.0\times$ as wide as interval between thyridia. 2nd tergite $1.2\times$ as wide as long. 2nd and 3rd tergites densely punctate, shining. Following tergites with microsculpture, shining. Ovipositor sheath slender and stick-shaped, seen from lateral $0.3\times$ as long as hind tibia.

Color: black. Scape brownish; flagellum black, flagellar segment 6-17/19 ivory. Palps, mandible except teeth, clypeus, wide spots of face laterally (\pm confluent dorsally), narrow stripes of frontal orbit, large spot of vertex reaching compound eye, collar, ventral and upper margins of pronotum, tegula, subtegular ridge, wide stripe on ventral mesopleuron, scutellum and postscutellum, upper division of metapleuron, wide band on apical $\frac{1}{2}$ of metapleuron and apical $\frac{2}{3}$ of propodeum, petiole and wide apical bands on all tergites ivory. Basal $\frac{1}{3}$ of propodeum brownish. Frontal half of metapleuron reddish or black. Legs reddish; fore and mid coxae and trochanters ivory; hind coxa and trochanter reddish; fore and mid tibiae with subbasal ivory stripes; apical half of fore tarsus and entire mid tarsus brown; hind femur reddish, black in apical 0.15; hind tibia blackish, with external ivory stripe subbasally; hind tarsus black, apical half of metatarsus and 2nd and 3rd hind tarsomeres ivory. Wings hyaline; pterostigma brown.

♂ unknown.

D i s t r i b u t i o n : Indonesia: Moluccas, Papua New Guinea.

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Zusammenfassung

In dieser Studie werden neue Informationen zur Taxonomie und Verbreitung der orientalischen Arten der Gattung *Imeria* CAMERON präsentiert. 16 Arten und Unterarten und zwei Subgattungen, *Imeria* CAMERON sensu stricto und *Caenjojoppa* CAMERON, werden als valide genannt. Die meisten Arten werden ausführlich beschrieben und illustriert und ein Bestimmungsschlüssel für alle orientalischen *Imeria*-Arten gegeben.

Fünf Arten werden neu beschrieben: *Imeria (Imeria) albitemplata* nov.sp., *Imeria (Imeria) albomaculatoides* nov.sp., *Imeria (Caenjojoppa) flavomaculata* nov.sp., *Imeria (Caenjojoppa) nigriscuta* nov.sp. und *Imeria (Imeria) orientalis* nov.sp.

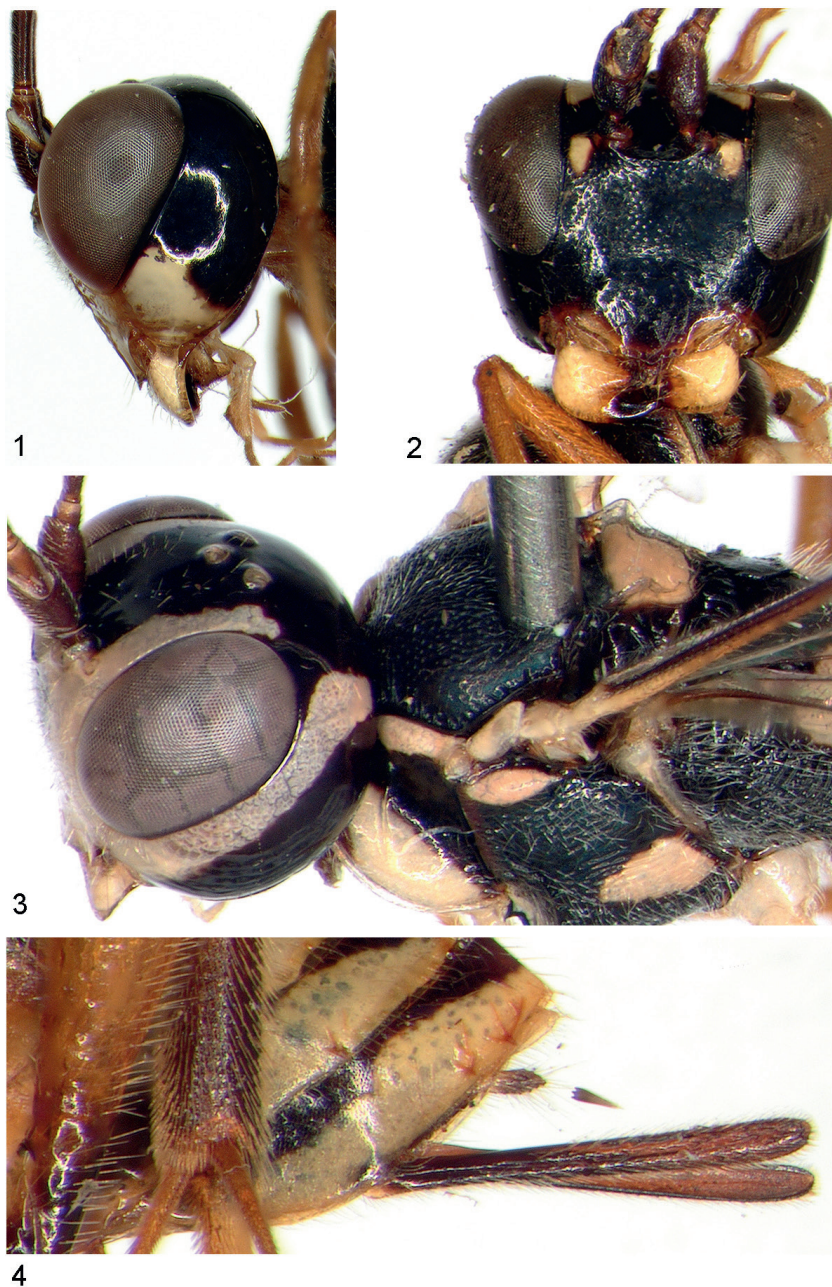
Imeria formosana (UCHIDA, 1930) wird als Unterart von *Imeria albomaculata* CAMERON, 1903 betrachtet (stat. nov.); *Elasmognathias albitarsis* CUSHMANN, 1922 ist ein neues Synonym von *Imeria cephalotes* (ASHMEAD, 1905) und *Elasmognathias dentatus* CUSHMAN, 1922 wird mit *Imeria longitarsis* (CAMERON, 1905) synonymisiert. Von *Imeria levifrons* CAMERON, 1907 wird das bisher unbekannte Männchen beschrieben.

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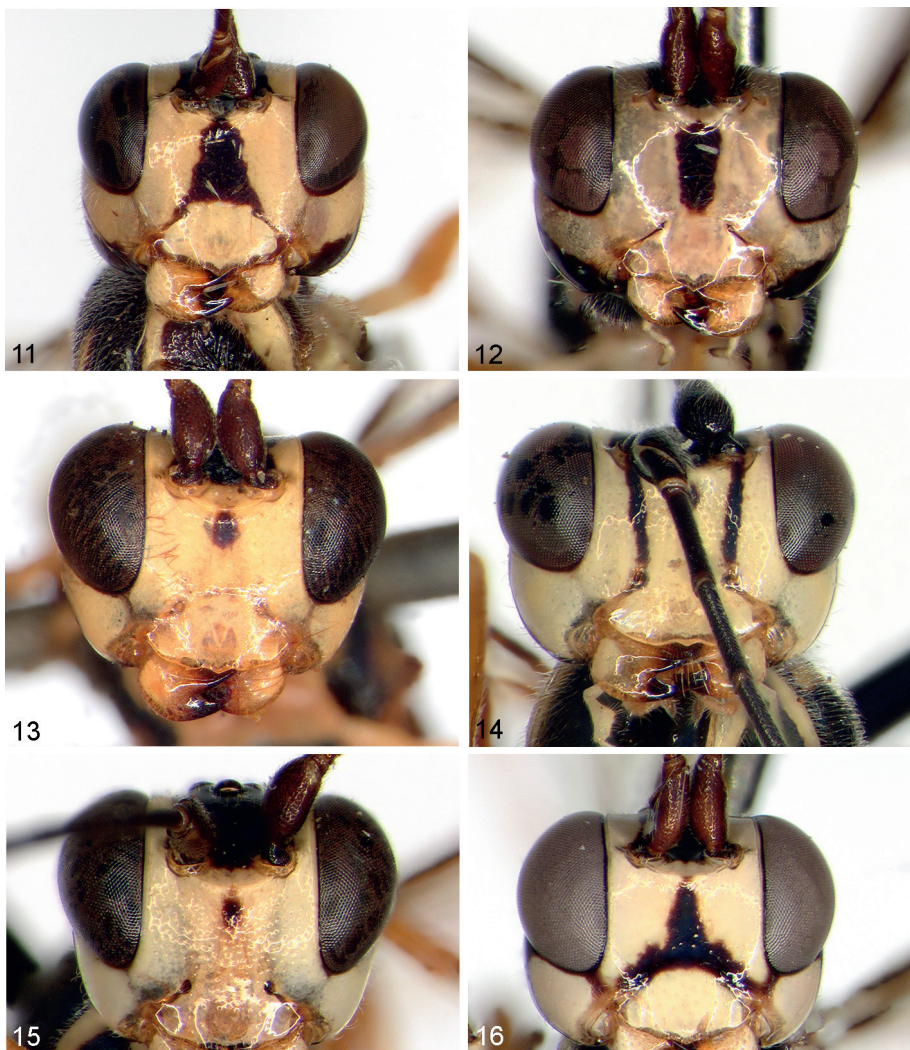
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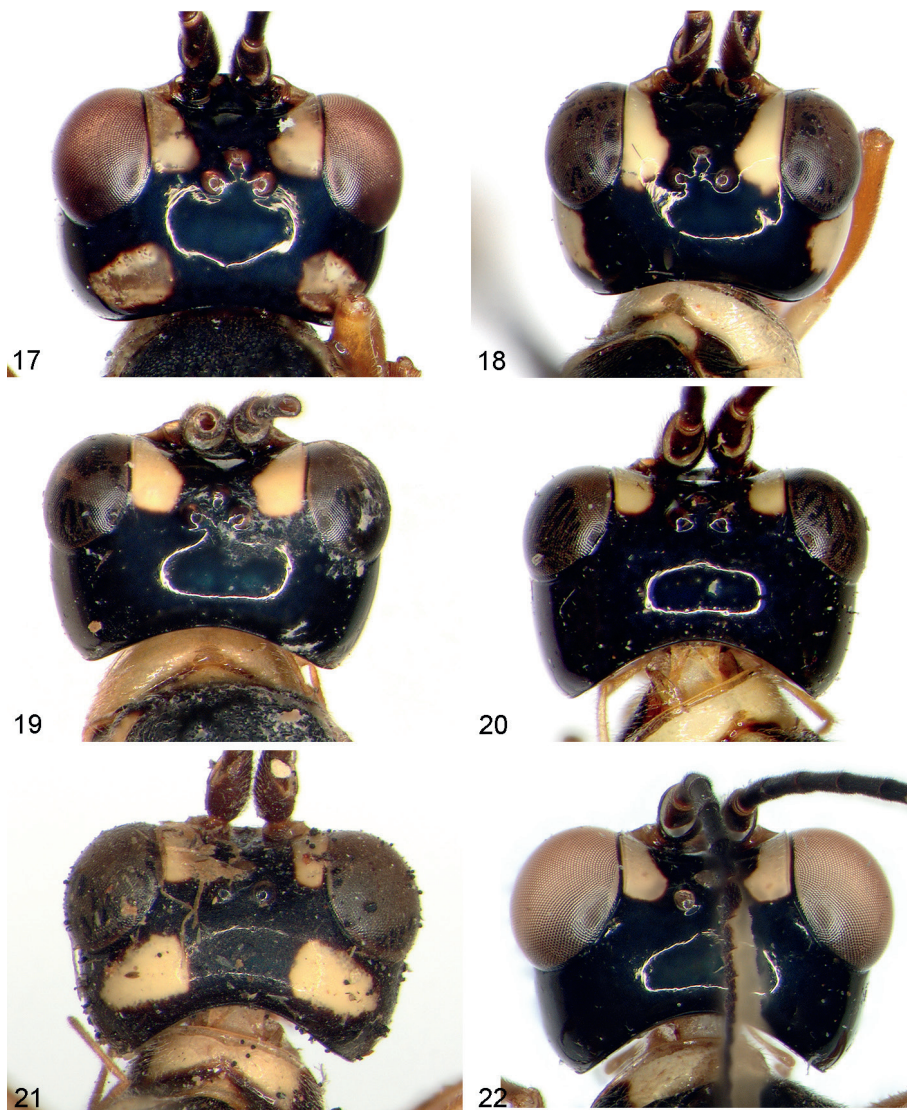
Figs 1-2: Head of ♀♀: (1) *Imeria orientalis* nov.sp. HT, lateral view; (2) *I. albomaculata* CAMERON (South India) in frontal view. **Fig. 3:** *Imeria laminata laminata* (CUSHMAN) ♀, dorso-lateral view. **Fig. 4:** Metasoma apex and ovipositor sheaths of *Imeria cephalotes* (ASHMEAD) ♀, lateral view.



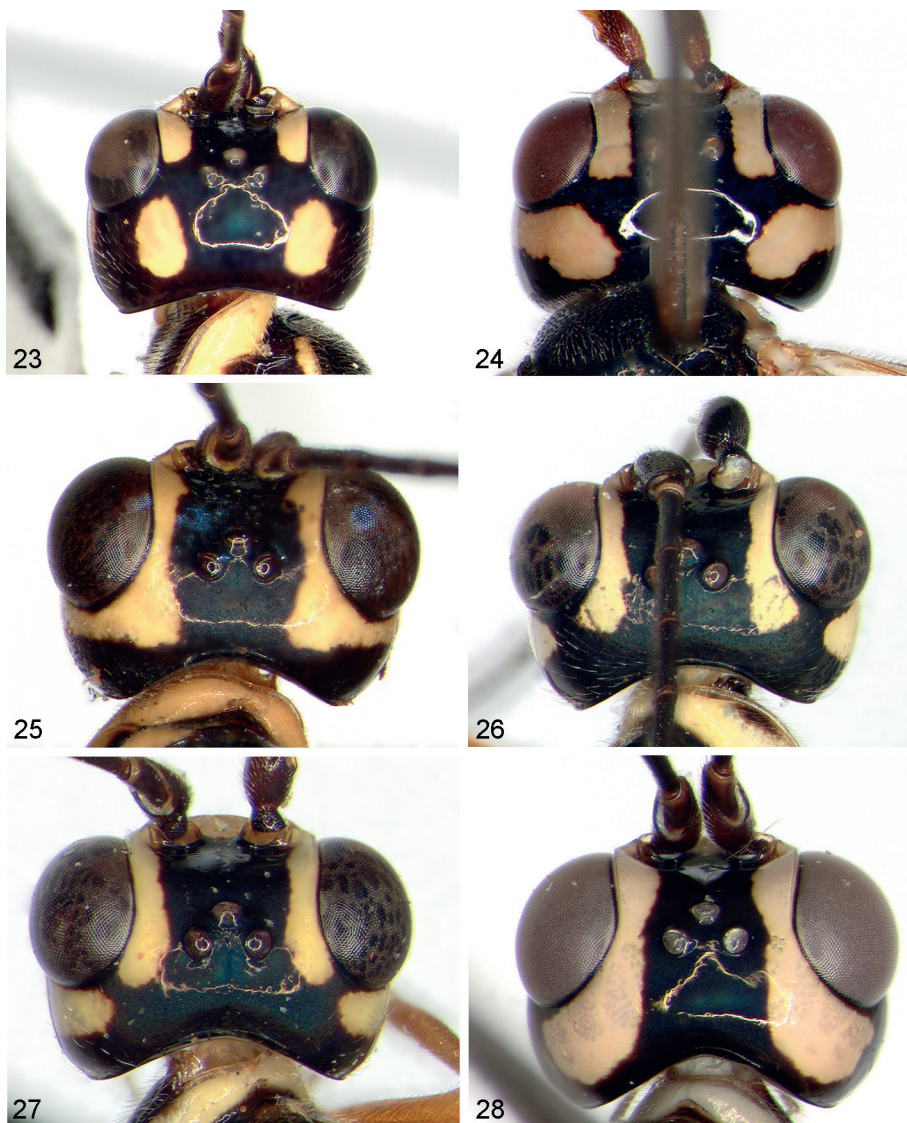
Figs 5-10: Face of ♀♀ in frontal view: (5) *Imeria albitemplata* nov.sp. HT; (6) *I. albomaculatoides* nov.sp. HT; (7) *I. albomaculata albomaculata* CAMERON (Darjeeling); (8) *I. albomaculata formosana* (UCHIDA); (9) *I. levifrons* CAMERON HT; (10) *I. orientalis* nov.sp. HT.



Figs 11-16: Face of ♀♀ in frontal view: (11) *Imeria cephalotes* (ASHMEAD); (12) *I. laminata laminata* (CUSHMAN); (13) *I. longitarsis* (CAMERON); (14) *I. flavomaculata* nov.sp. PT; (15) *I. nigriscuta* nov.sp. HT; (16) *I. pancarpus* (TOSQUINET).



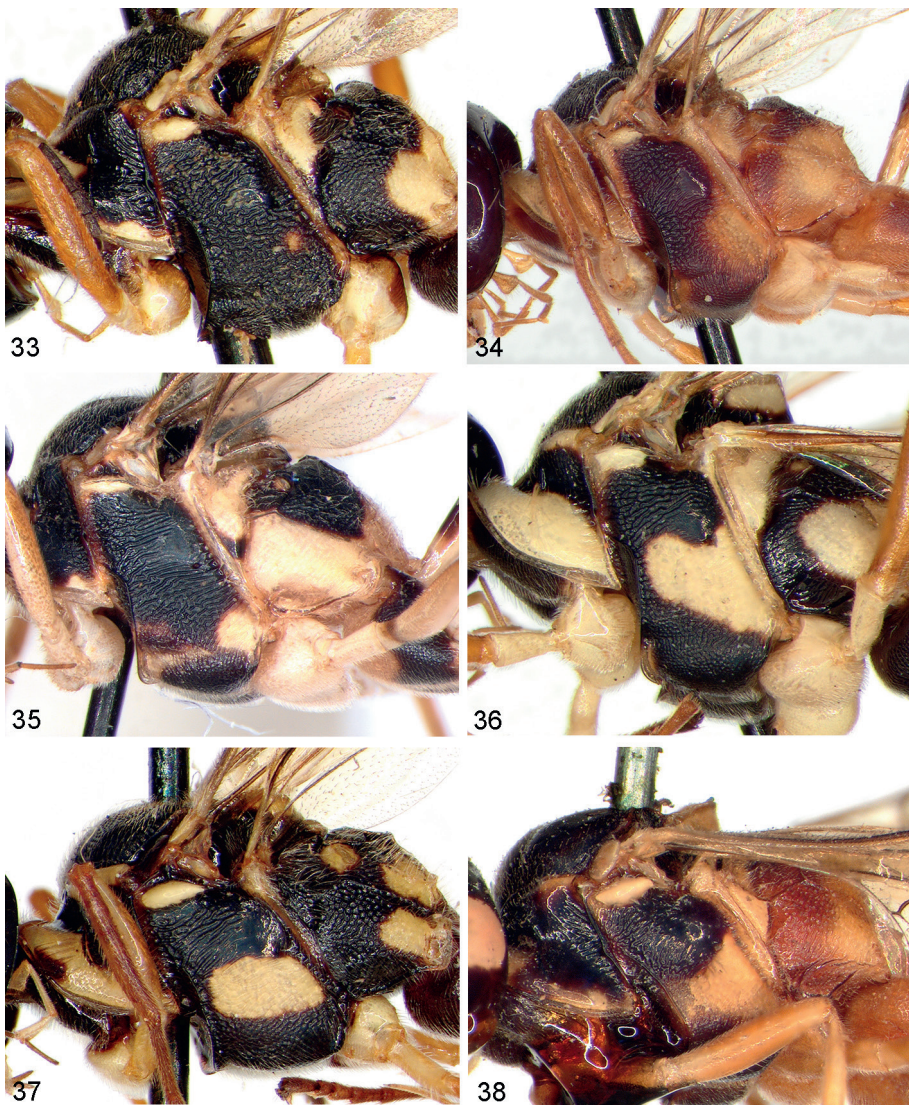
Figs 17-22: Head of ♀♀ in dorsal view: (17) *Imeria albitemplata* nov.sp. HT; (18) *I. albomaculatoides* nov.sp. HT; (19) *I. albomaculata albomaculata* CAMERON; (20) *I. albomaculata formosana* (UCHIDA); (21) *I. levifrons* CAMERON HT; (22) *I. orientalis* nov.sp. HT.



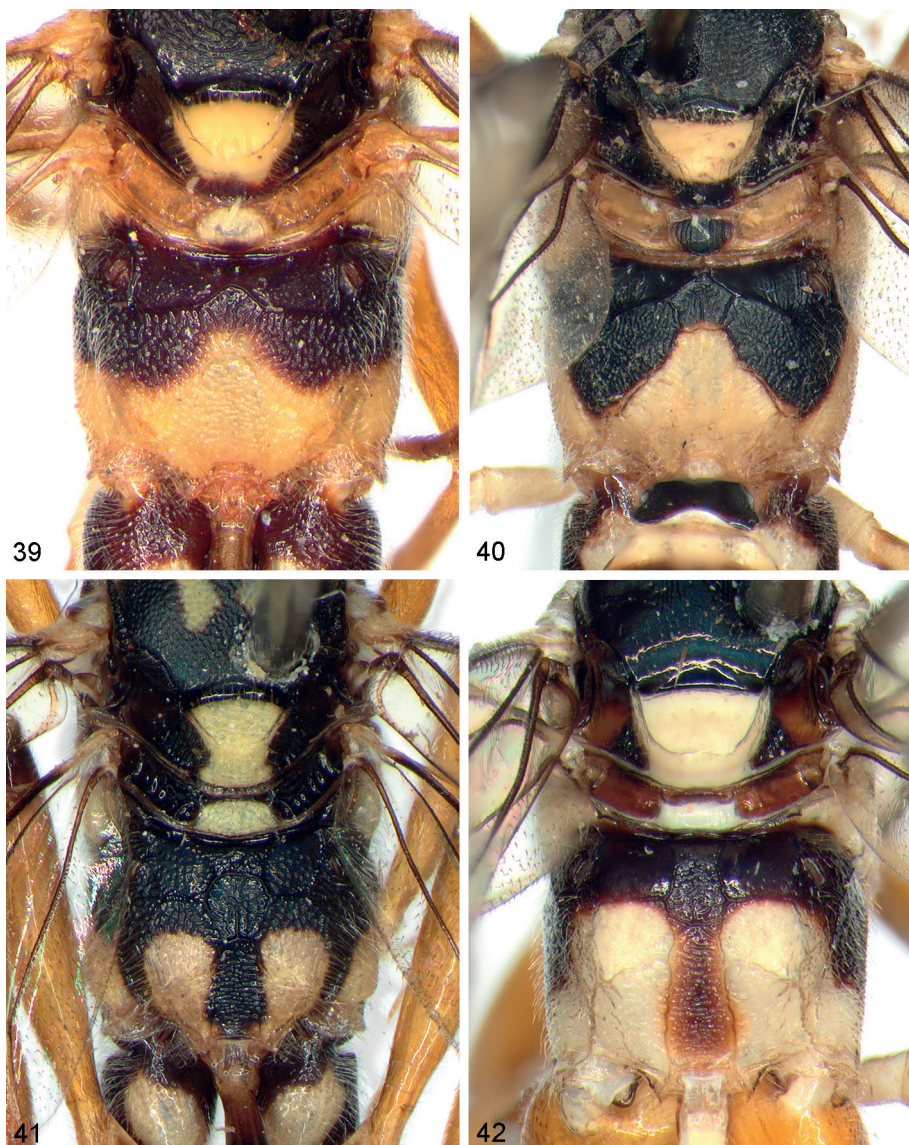
Figs 23-28: Face of ♀♀ in frontal view: (23) *Imeria cephalotes* (ASHMEAD); (24) *I. laminata makassariensis* (HEINRICH); (25) *I. longitarsis* (CAMERON); (26) *I. flavomaculata* nov.sp. PT; (27) *I. nigriscuta* nov.sp. HT; (28) *I. pancarpus* (TOSQUINET).



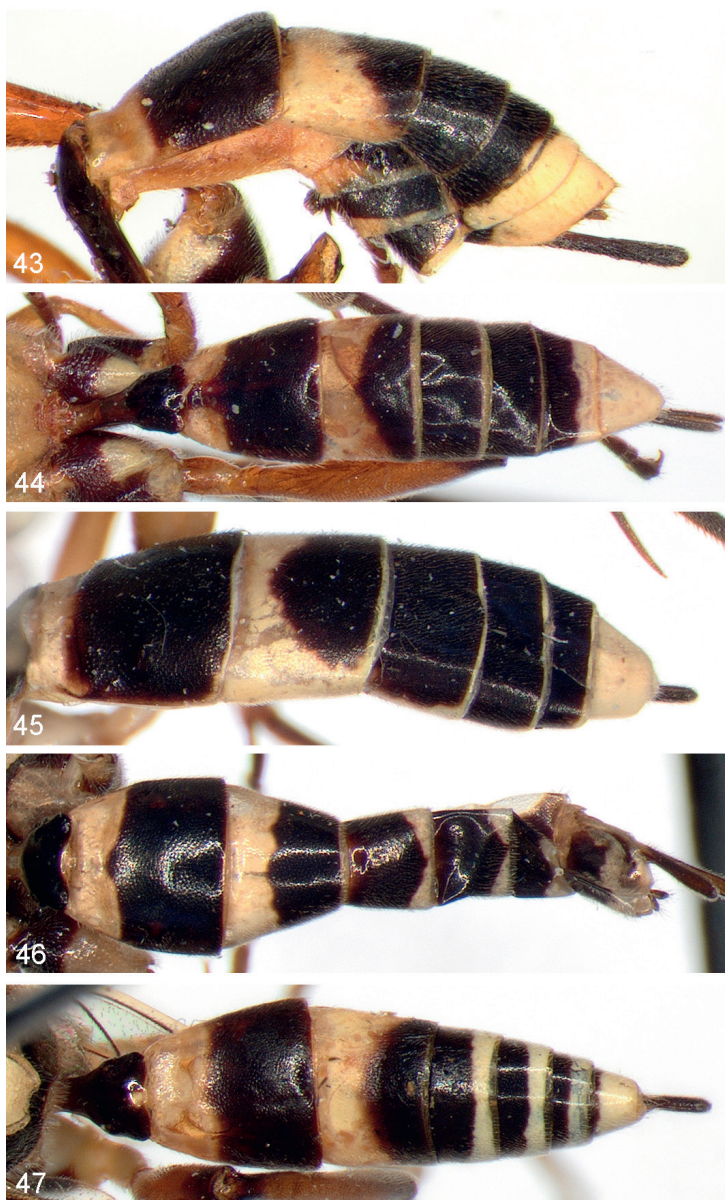
Figs 29-32: Mesoscutum in dorsal view: (29) *Imeria albomaculata albomaculata* CAMERON ♀; (30) *I. cephalotes* (ASHMEAD) ♂; (31) *I. flavomaculata* nov.sp. ♀ PT; (32) *I. pancarpus* (TOSQUINET) ♀.



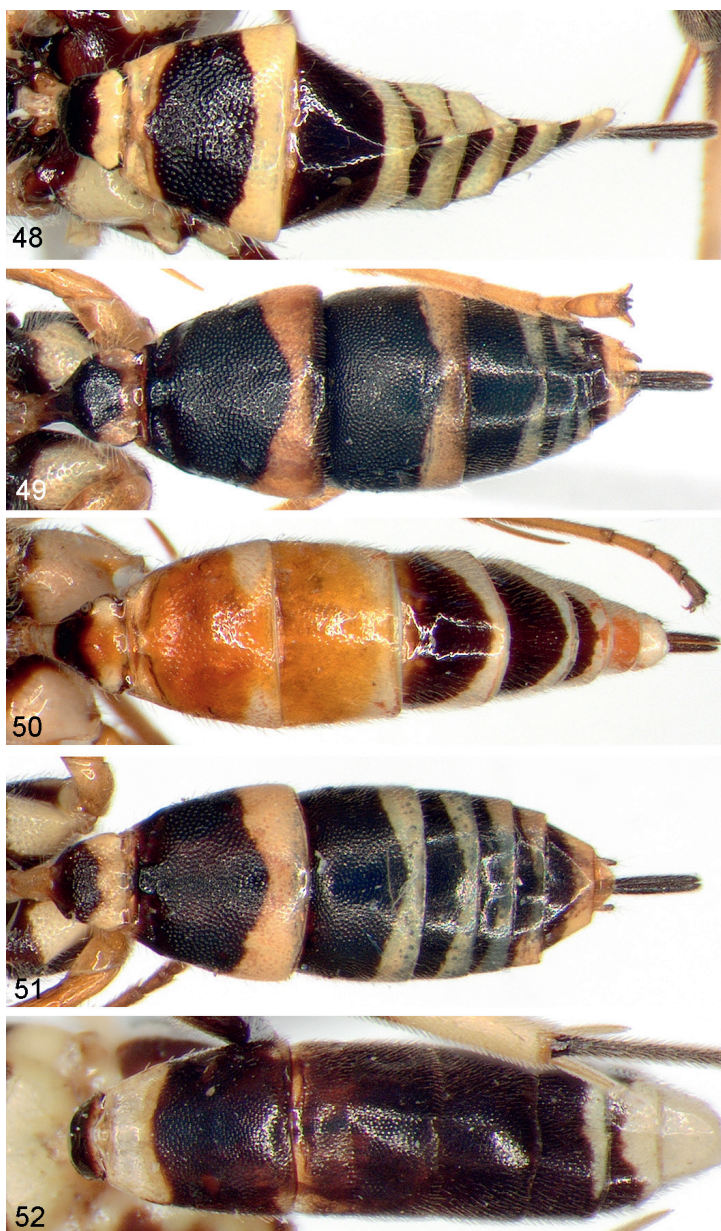
Figs 33-38: Mesosoma of ♀♀ from lateral: (33) *Imeria albomaculata albomaculata* CAMERON; (34) *I. albomaculata formosana* (UCHIDA); (35) *I. orientalis* nov.sp. HT; (36) *I. albomaculoides* nov.sp. HT; (37) *I. cephalotes* (ASHMEAD); (38) *I. pancarpus* (TOSQUINET) HT.



Figs 39-42: Propodeum of ♀♀ from dorsal: (39) *Imeria albomaculata formosana* (UCHIDA); (40) *I. orientalis* nov.sp. HT; (41) *I. flavomaculata* nov.sp. HT; (42) *I. pancarpus* (TOSQUINET).



Figs 43-47: Metasoma of ♀♀ from dorsal: (43) *Imeria albomaculata albomaculata* CAMERON; (44) *I. albomaculata formosana* (UCHIDA); (45) *I. orientalis* nov.sp. PT; (46) *I. albitemplata* nov.sp. HT; (47) *I. albomaculoides* nov.sp. HT.



Figs 48-52: Metasoma from dorsal: (48) *Imeria cephalotes* (ASHMEAD) ♀; (49) *I. flavomaculata* nov.sp. PT ♀; (50) *I. laminata makassariensis* (Heinrich) ♀; (51) *I. nigriscuta* nov.sp. HT ♀; (52) *I. levifrons* CAMERON ♂.

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