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# Revision of the Eurybrachidae XVIII. The Australian genus *Olonia* Stål, 1862: Four new species, new records and biological data (Hemiptera: Fulgoromorpha)

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**Abstract.** Four new species of the Australian genus of Eurybrachidae (Hemiptera, Fulgoromorpha) *Olonia* Stål, 1862 are described from northern Queensland: *O. albomarginata* sp. nov., *O. aschei* sp. nov., *O. jackiei* sp. nov. and *O. lindae* sp. nov. Host plants and natural history data are documented and additional new records provided for *O. guillaumei* Constant, 2018, *O. hochae* Constant, 2018, *O. picea* Kirkaldy, 1906, *O. rubicunda* (Walker, 1851) and *O. soulierae* Constant, 2018. Trophobiosis is recorded for the first time in the genus, between a female of *O. hochae* and ants of the genus *Camponotus* Mayr, 1861 (Hymenoptera, Formicidae), representing the second record of trophobiosis in Australian Eurybrachidae. The male terminalia of the new species are illustrated and photographs of collection and live specimens, distribution maps, biological data and an identification key are provided. The genus *Olonia* currently contains sixteen species.

**Keywords.** Planthopper, Queensland.

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## Introduction

The family Eurybrachidae Stål, 1862 is a small, Old World family of planthoppers (Fulgoromorpha Evans, 1946) with 40 genera and 210 species, representing only 1.6% of the genera and 1.5% of the described species of Fulgoromorpha (Bourgoin 2023). Australia counts 16 genera and 63 species, representing 30% of all the species of the family and they are all endemic in the country. Even though the conspicuous Eurybrachidae egg masses, which are laid on tree trunks or leaves and covered with a white wax, are well known to Australian entomologists and naturalists, many aspects of the natural history in the group remain unknown; for example, the first case of trophobiosis involving an Australian Eurybrachidae was only reported last year, between *Gelastopsis insignis* Kirkaldy, 1906 and a cockroach (Blattodea) as observed by Mr Peter Chew (Bourgoin *et al*. 2023). Among the Australian genera, *Olonia*

Stål, 1862 is one of the most speciose, with 12 species, seven of them recently described in my revision of the genus (Constant 2018). However, the male of the type species *O. rubicunda* (Walker, 1851) was only more recently described, including its terminalia, the structure of which confirmed the consistency of the genus (Constant & Semeraro 2020). The species in the genus *Olonia* seem to be polyphagous and 13 species of host plants have been recorded in nine different plant families but Fabaceae Lindl. seem to be generally preferred (Constant 2018; Constant & Semeraro 2020).

A recent expedition in May 2022 in the northeastern part of Queensland provided nine species of *Olonia*, including four species new to science. As the 18th part of the ongoing revision of the family Eurybrachidae, the present paper aims to describe the four new species based on the 2022 material and additional material from collections, and to provide new natural history and distribution records for the five other described species found. An updated version of the key to the species of the genus is provided, as well as updated distribution maps when necessary.

## Material and methods

The terminalia were extracted after boiling the abdomen for some minutes in a 10% solution of potassium hydroxide (KOH) and rinsed thoroughly in 70% ethanol. The pygofer was separated from the abdomen and the aedeagus dissected with a needle blade for examination in 70% ethanol. The dissected pygofer and abdomen were then placed in glycerine for preservation in a tube attached to the pin of the corresponding specimen.

For routine identification, the abdomen was removed and the terminalia directly examined. In this case, the dry abdomen was placed in a gelatin capsule or glued on a cardboard, pinned under the specimen.

Posterior wings have also been mounted for a large number of specimens: they have been glued on white cardboard or transparent plastic rectangles and pinned under the specimen.

The external morphological terminology follows O'Brien & Wilson (1985) and for the male genitalia, Bourgoin & Huang (1990); the description of the wings venation follows Bourgoin *et al.* (2015).

The metatibiotarsal formula gives the number of spines on the (side of metatibia) apex of metatibia/ apex of first metatarsus/ apex of second metatarsus. For example, the metatibiotarsal formula: (1) 6/4/2 represents 1 spine on the side of metatibia, 6 teeth on the apex of metatibia, 4 spines on the apex of first metatarsus, and 2 spines on the apex of second metatarsus.

The photographs of habitats were taken with an Olympus Tough 6 camera. Those of the collection specimens and male terminalia were taken with a Leica EZ4W stereo microscope with integrated camera, stacked with CombineZ software and optimized with Adobe Photoshop CS3. The distribution maps were produced with SimpleMappr (Shorthouse 2010). The bioregion(s) as defined by the Interim Biogeographic Regionalisation for Australia, ver. 7 (see http://www.environment.gov.au/land/nrs/science/ibra) are given together with the distribution. In the results section, species are treated in alphabetical order.

### Abbreviations

#### Measurements

The measurements were taken as in Constant (2004) and the following abbreviations are used:

BF = maximum breadth of the frons
BT = maximum breadth of the thorax
BTg = maximum breadth of the tegmen
BV = maximum breadth of the vertex

BW = maximum breadth of the posterior wing
LF = length of the frons in midline
LM = length of the mesonotum in midline
LP = length of the pronotum in midline
LT = total length from anterior margin of vertex to apex of tegmina
LTg = maximum length of the tegmen
LV = length of the vertex in midline
LW = maximum length of the posterior wing

**Male terminalia**

*An* = anal tube
*cv* = connective
*cvp* = centroventral part of gonostylus
*dpp* = dorsal portion of phallobase
*ep* = epiproct
*G* = gonostylus
*ldp* = lateroventral part of gonostylus
*lp* = lateral process of gonostylus
*ph* = phallus
*Py* = pygofer
*ssp* = spoon-shaped process
*vpp* = ventral portion of phallobase

**Repositories**

ANIC = Australian National Insect Collection, CSIRO, Canberra, Australian Capital Territory, Australia
ASCU = Agricultural Scientific Collections Unit, Orange Agricult. Inst., Orange, NSW, Australia
DPIRD = Department of Primary Industries and Regional Development, Perth, Western Australia, Australia
MFNB = Museum für Naturkunde – Leibniz Institute for Research on Evolution and Biodiversity, Berlin, Germany
MVMA = Museum of Victoria, Melbourne, Victoria, Australia
QM = Queensland Museum, South Brisbane, Queensland, Australia
RBINS = Royal Belgian Institute of Natural Sciences, Brussels, Belgium

## Results

Class Hexapoda Blainville, 1816
Order Hemiptera Linnaeus, 1758
Suborder Auchenorrhyncha Duméril, 1806
Infraorder Fulgoromorpha Evans, 1946
Superfamily Fulgoroidea Latreille, 1807
Family Eurybrachidae Stål, 1862
Subfamily Platybrachinae Schmidt, 1908
Tribe Platybrachini Schmidt, 1908

Genus ***Olonia*** Stål, 1862

*Olonia* Stål, 1862: 488 (description (in key); list of included species). Type species: *Eurybrachys rubicunda* Walker, 1851 by subsequent designation by Distant (1906: 206).
*Lyncilia* Stål, 1863: 248 (description) synonymized by Constant (2018). Type species: *Lyncilia nobilis* Stål, 1863 by monotypy.

*Olonia* – Stål 1863: 250 (description of a new species). — Atkinson 1886: 13 (incomplete English translation of Stål's (1862) key to Eurybrachidae genera). — Karsch 1890: 60 (compared with *Metoponitys* Karsch, 1890); 1895: 215 (compared with *Aspidonitys* Karsch, 1895). — Melichar 1903: 67 (placed in a group of Eurybrachidae genera without spine under eye). — Distant 1906: 206 (type-species designation, new species), 207 (compared to *Yarrana* Distant, 1906). — Kirkaldy 1907: 105 (listed without comment). — Schmidt 1908: 243 (placed in the Platybrachini (= current Platybrachinae)). — Hacker 1924: 40 (compared with *Platybrachys* Stål, 1859 and notes on *O. viridiventris* Stål, 1863 (now in *Hackerobrachys* Constant, 2006)). — Metcalf 1936: 131 (senior homonym of *Olonia* Muir, 1925); 1938: 294 (senior homonym of *Olonia* Muir, 1925); 1947: 163 (listed as typical genus of the Australian fauna); 1956: 63 (catalogued). — Fennah 1964: 159 (in key to Platybrachini genera), 162 (compared with *Maon* Fennah, 1964). — Constant 2005a: 41 (mentioned in historical review of *Metoponitys* Karsch, 1890); 2006a: 47 (mentioned as needing revision); 2006b: 31 (compared with *Hackerobrachys* Constant, 2006 and *Fletcherobrachys* Constant, 2006); 2018: 4 (revision of the genus). — Constant & Semeraro 2020: 5 (diagnosis, key to species).

*Lyncilia* – Karsch 1895: 215 (compared with *Aspidonitys* Karsch, 1895). — Schmidt 1908: 243 (placed in the Platybrachini (= current Platybrachinae)). — Metcalf 1956: 68 (catalogued). — Fennah 1964 (synonymized under *Platybrachys* Stål, 1859 (erroneous!). — Constant 2018: 4 (synonymized under *Olonia*).

non *Olonia* – Muir 1925: 161 (new genus of Cixiidae (junior homonym of *Olonia* Stål, 1862)). — Metcalf 1936: 131 (*Muirolonia* as replacement name of *Olonia* Muir, 1925 in the Cixiidae); 1938: 294 (*Muirolonia* as replacement name of *Olonia* Muir, 1925 (*Muirolonia* erroneously stated as being a new genus)).

**Diagnosis**

Rather small-sized (5–12 mm), dark brown variegated with black and white, tegmina usually with a white marking along costal margin on nodal line and posterior wings usually with a white marking near externoapical angle, sometimes orange on disc. The genus can be recognized by the following set of characters:

(1) gonostyli strongly sclerified and fused basally on about ¼–⅓ of length;
(2) gonostyli divided into a centroventral and a laterodorsal part;
(3) gonostyli with laterodorsal part with large lateral process projecting laterally and bearing dorsoapical, articulate, spoon-shaped process;
(4) aedeagus strongly reduced with dorsal portion of phallobase projecting dorsally as a spine or hook.

The most similar genus is *Stalobrachys* Constant, 2018 from which *Olonia* can be separated by the narrower posterior wings with LW/BW = 1.7–2.2 (1.5 in *Stalobrachys*), the pygofer with posterior margin strongly sinuate (posterior margin with elongate laterodorsal process projecting posteriorly in *Stalobrachys*), the gonostyli fused on about ⅓ of length (not or very shortly fused in *Stalobrachys*) and the laterodorsal part of the gonostyli with strong spine or hook, and with lateral process bearing spoon-shaped process (laterodorsal part of the gonostyli elongate and laminate, without spine or hook, and bearing spoon-shaped process apically in *Stalobrachys*).

**Biology**

According to the available data, species of *Olonia* seem present all year round, and are polyphagous, living on plants close to the ground and tree trunks. They were recorded from plants in the families Burseraceae Kunth, Convolvulaceae Juss., Fabaceae, Myrtaceae Juss., Proteaceae Juss., Solanaceae Juss., Urticaceae Juss. and Vitaceae Juss. Known habitats range from open forests to beaches. Several species seem to have a rather restricted distribution. Species of *Olonia* are present in all bioregions included in the distribution range of the genus.

**Species included** (16)

*Olonia albomarginata* sp. nov.
*Olonia aschei* sp. nov.
*Olonia bourgoini* Constant, 2018
*Olonia danielsi* Constant, 2018
*Olonia guillaumei* Constant, 2018
*Olonia hochae* Constant, 2018
*Olonia jackiei* sp. nov.
*Olonia lindae* sp. nov.
*Olonia marginata* Distant, 1906
*Olonia maura* (Fabricius, 1775)
*Olonia monteithi* Constant, 2018
*Olonia nobilis* (Stål, 1863)
*Olonia picea* Kirkaldy, 1906
*Olonia rubicunda* (Walker, 1851)
*Olonia rylandae* Constant, 2018
*Olonia soulierae* Constant, 2018

**Identification key to the species of *Olonia***

Illustrations marked with * are found in Constant (2018); ** in Constant & Semeraro (2020).

1. Process of the laterodorsal part of gonostyli bifid (*figs 30d, 33d), sometimes with one point much shorter than the other (Fig. 2G) ..... 2
– Process of the laterodorsal part of gonostyli not bifid (*figs 5d, 10d, 19d) ..... 6

2. Process of the centroventral part of gonostyli with several teeth apically (*fig. 30c) ..... ..... ***O. maura*** (Fabricius, 1775)
– Process of the centroventral part of gonostyli without multiple teeth apically (*figs 33c, 42c) ..... 3

3. Processes of the laterodorsal part of gonostyli obviously unequal in size, one being reduced to a spine (Fig. 2A, C, G) ..... ***O. albomarginata*** sp. nov.
– Processes of the laterodorsal part of gonostyli about equal in size (*figs 33a, 42a; **fig. 3b) ..... 4

4. Processes of the laterodorsal part of gonostyli both curved and convergent apically, subequal in length and surpassing process of centroventral part in ventral view (*fig. 42a, c–d); lateral process of gonostyli directed anteriorly (*fig. 42c) ..... ***O. picea*** (Kirkaldy, 1906)
– Processes of the laterodorsal part of gonostyli slightly diverging or subparallel apically with ventral/central one straight, and not surpassing level of apex of process of centroventral part in ventral view (*fig. 33a, c–d; **fig. 3a–c, f); lateral process of gonostyli directed anterolaterally in ventral view (*fig. 33c; **fig. 3b) ..... 5

5. Processes of the laterodorsal part of gonostyli in a nearly vertical plane, and projecting dorsally well above the centroventral part in lateral view (*fig. 33a, c–d); anal tube more elongate, 2.3 times as long as wide in dorsal view (*fig. 33b); phallus short and wide (*fig. 33f); dorsal processes of periandrium strongly hooked dorsally (*fig. 33e) .....***O. monteithi*** Constant, 2018
– Processes of the laterodorsal part of gonostyli in a nearly horizontal plane, and projecting posteroventrally under the centroventral part in lateral view (**fig. 3a–d); anal tube less elongate, 1.9 times as long as wide in dorsal view (**fig. 3e); phallus elongate (**fig. 3i–j); dorsal processes of periandrium projecting posterodorsally (**fig. 3g) ..... ***O. rubicunda*** Walker, 1851

6. Processes of the laterodorsal part of gonostyli surpassing processes of centroventral part in ventral view (*figs 19c, 46c) ..... 7
– Processes of the laterodorsal part of gonostyli shorter than processes of centroventral part in ventral view (*figs 5c, 10c, 37c) ..... 8

7. Processes of the laterodorsal part of gonostyli strongly sinuate with central portion straight (*fig. 46a, c) ..... ***O. rylandae*** Constant, 2018
– Processes of the laterodorsal part of gonostyli strongly and regularly curved ventrally (*fig. 19a, c) ..... ***O. marginata*** Distant, 1906

8. Anal tube elongate and narrow, more than 3 times as long as broad, and with sides subparallel (*figs 5b, 10b) ..... 9
– Anal tube broader, less than 2.5 times as long as broad, and with sides curved (Fig. 8B, *fig. 37b) ..... 11

9. Processes of the laterodorsal part of gonostyli falcate, broader at midlength and incurved (*fig. 5a, c–d) ..... ***O. bourgoini*** Constant, 2018
– Processes of the laterodorsal part of gonostyli regularly narrowing from base to apex and not incurved (*fig. 10a, c–d) ..... 10

10. Processes of the laterodorsal part of gonostyli curved laterally (*fig. 10c–d); process of centroventral part of gonostyli with ventral margin convex in lateral view (*fig. 10a) ..... ***O. guillaumei*** Constant, 2018
– Processes of the laterodorsal part of gonostyli curved ventrally (*fig. 13c–d); process of centroventral part of gonostyli with ventral margin slightly concave in lateral view (*fig. 13a) ..... ***O. hochae*** Constant, 2018

10. Anal tube with apical margin notched and lateral margins subparallel beyond epiproct (*fig. 48b); process of centroventral part of gonostyli very elongate and narrow, more than 10 times as long as wide at mid-length in ventral view (*fig. 48a, c) ..... ***O. soulierae*** Constant, 2018
– Anal tube with apical margin not notched and lateral margins not subparallel beyond epiproct (*figs 8b, 37b); process of centroventral part of gonostyli not very elongate and narrow, less than 10 times as long as wide at mid-length in ventral view (*figs 8a, c, 37a, c) ..... 11

11. Processes of the centroventral part of gonostyli obviously incurved or sinuate in ventral view (Fig. 8B; *fig. 37c) ..... 12
– Processes of the centroventral part of gonostyli straight and parallel on most of their length in ventral view (Figs 15B, 19B; *fig. 8c) ..... 13

12. Processes of the centroventral part of gonostyli sinuate, with distal portion straight, and largely surpassing processes of lateroventral part in ventral view (Fig. 8B); process of the laterodorsal part of the gonostyli strongly curved laterad in ventral view (Fig. 8B) ..... ***O. aschei*** sp. nov.
– Processes of the centroventral part of gonostyli regularly incurved and slightly surpassing processes of lateroventral part in ventral view (*fig. 37c); process of the laterodorsal part of the gonostyli straight in ventral view (*fig. 37c) ..... ***O. nobilis*** (Stål, 1863)

13. Processes of the lateroventral part of gonostyli regularly curved posteroventrad in lateral view and with distal portion curved posterolaterally in ventral view (Fig. 19A–B; *fig. 48a, c) ..... 14
– Processes of the lateroventral part of gonostyli not regularly curved posteroventrad in lateral view, either sinuate (Fig. 15A) or directed posterodorsad (*fig. 8a) and directed caudad in ventral view (Fig. 15B; *fig. 8c) ..... 15

14. Processes of the centroventral part of gonostyli ending in a point slightly curved laterally (Fig. 19B); ventral portion of phallobase strongly widening towards apex, largely surpassing laterally the processes of the dorsal portion of the phallobase in dorsal view (Fig. 19I) ..... ***O. lindae*** sp. nov.
– Processes of the centroventral part of gonostyli ending in a hook curved dorsally (*fig. 48a); ventral portion of phallobase elongate and tapering towards apex, not surpassing laterally the processes of the dorsal portion of the phallobase in dorsal view (*fig. 48f) ..... ***O. soulierae*** Constant, 2018

15. Processes of the laterodorsal part of the gonostyli curved posteroventrad, then sinuate in distal portion (Fig. 15A); centroventral part of gonostyli ending in a short point curved lateroventrad (Fig. 15A–C); ventral portion of phallobase widening towards apex, surpassing laterally the processes of the dorsal portion of the phallobase in dorsal view (Fig. 15I) ..... ***O. jackiei*** sp. nov.
– Processes of the laterodorsal part of the gonostyli directed posterodorsad (*fig. 8a); centroventral part of gonostyli ending in a strong hook directed dorsad (*fig. 8a); ventral portion of phallobase elongate, not widening towards apex, not surpassing laterally the processes of the dorsal portion of the phallobase in dorsal view (*fig. 8f) ..... ***O. danielsi*** Constant, 2018

## ***Olonia albomarginata*** sp. nov.

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Figs 1–6A

### Diagnosis

The species can be recognized by the following combination of characters:
(1) hind wings rather narrow with conspicuous orange marking (Figs 1E, 3E);
(2) pro- and mesofemora and tibiae mostly dark brown (Figs 1A–B, 3A–B);
(3) anal tube of male oblong with posterior margin broadly rounded with a small indentation in middle (Fig. 2F);
(4) centroventral part of gonostyli narrowing into an elongate process directed caudad, with inner margin rather strongly sinuate at mid-length and with apical point curved laterad (Fig. 2A–B);
(5) laterodorsal part of gonostyli bifid, with upper process strongly elongate and curved posteroventrad, and lower process reduced to a strong spine projecting caudad (Fig. 2A, C, G);
(6) rather small size: 5–7.5 mm.

### Differential diagnosis

The most similar species are *O. jackiei* sp. nov., *O. lindae* sp. nov., *O. marginata* Distant, 1906 and *O. rylandae* Constant, 2018. However, *O. albomarginata* sp. nov. is immediately differentiated from all those species by the strong spine forming the lower process of the laterodorsal part of the gonostyli, which is absent in the four other species.

### Etymology

The species epithet is formed from '*albus*' (adj., Latin) meaning 'white' and '*marginatus*' (adj., Latin) meaning 'marginate'. It refers to the narrow white margin of the apex of the tegmina in the females of the species.

### Type material

#### Holotype

AUSTRALIA • ♂; Queensland, Chillagoe; 17°08′55″ S, 144°31′43″ E; 7–11 May 2022; elev. 400–500 m; J. Constant and L. Semeraro leg.; Leopold III Funds exped.; QM.

**Paratypes**

AUSTRALIA – **Queensland** • 1 ♀; same data as for holotype; QM • 2 ♂♂; same data as for holotype; RBINS • 2 ♂♂, 2 ♀♀; Chillagoe, surface around Ryan Creek Tower; 17°08′14.7″ S 144°26′41.7″ E; 14 Jun. 1987; M. Asche and H. Hoch leg.; A15; MFNB • 1 ♂, 1 ♀; same data as for preceding; RBINS • 2 ♂♂, 1 ♀; Chillagoe, between Rockwood and Mungana, surface around Piano Tower; 13 Jun. 1987; M. Asche and H. Hoch leg.; A13; MFNB • 1 ♀; same data as for preceding; RBINS • 1 ♂, 1 ♀; W Chillagoe, around Haunted Tower; 2 Jan. 1989; M. Asche and H. Hoch leg.; Au5; MFNB • 1 ♂; Chillagoe Caves National Park, Haunted Tower, surface; 15 Mar. 1997; F.D. Stone leg.; RBINS • 1 ♀; Chillagoe Caves National Park, Haunted Tower; 12–13 Mar. 1997; M. Asche and H. Hoch leg.; sweeping shrubs; Au97-36, 38; MFNB • 1 ♂; same data as for preceding; RBINS • 1 ♂; Chillagoe, Mungana Caves National park, surface around Carpentaria Cave; 17°05′31.4″ S, 144°23′51.4″ E; 1 Jan. 1989; M. Asche and H. Hoch leg.; Au4; MFNB • 1 ♂; Chillagoe, Walkway Donna, Royal Arch Cave; 17 Sep. 2003; P. Erbe leg.; ASCT HE029999; ASCU.

## Description

Measurements and ratios. LT: ♂ (n = 12): 6.0 mm (5.1–6.4); ♀ (n = 8): 6.9 mm (6.6–7.5); BV/LV = 4.0; BF/LF = 1.67; LP+LM/BT = 0.7; Ltg/BTg = 2.36; LW/BW = 2.22.

**Male**

Head (Fig. 1A–D). Vertex concave with anterior and posterior margins parallel, curved; brown, often with darker marking at lateral angles. Frons brown. Clypeus elongate, brown. Genae variegated brown and yellowish. Labium dark brown, reaching metacoxae. Antennae dark brown; scape short, ring-shaped; pedicel subcylindrical, slightly narrowing towards apex.

Thorax (Fig. 1A–D). Pronotum brown, sometimes slightly paler in lateral angles; obsolete median carina and 2 small impressed points on disc. Lateral fields of prothorax brown. Mesonotum brown weakly variegated with yellowish and black, scutellum usually paler; median and peridiscal carinae weakly marked; median carina ending before scutellum; slight impression before scutellum. Red ventrally. Tegulae brown.

Tegmina (Fig. 1A, C, F). Brown; dark brown to black along costal and apical margins and with dark area at about ⅔ of tegmen length, expanding from costal area; moderately developed triangular white marking on costal margin on nodal line, sometimes missing. Maximum breadth at nodal line; costal margin broadly rounded; apical margin obliquely rounded.

Posterior wings (Fig. 1E). Black-brown, orange between veins CuP and A1, with orange area expanding to vein CuA in middle portion; anal area orange basally turning to brown towards distal portion; small triangular white marking at apicocostal angle, extending on 1–3 cells, sometimes absent. Anal area narrow with margin weakly sinuate; sutural margin with one cleft at A1, cubital one obsolete.

Legs (Fig. 1A–D). Pro- and mesocoxae brown, sometimes variegated with yellowish. Pro- and mesofemora brown, sometimes with some yellowish markings, and with apical portion dark brown to black. Pro- and mesotibiae entirely brown to yellowish brown with 3 ring-shaped darker markings, larger one near apex. Pro- and mesotarsi brown with basal half of third tarsomere paler. Metacoxae and metafemora reddish yellow with distal portion of metafemora brown ventrally. Metatibiae yellowish brown with 3 lateral and 8 apical black-brown spines. Metatarsi brown to yellowish with a ventral row of 6 black spines on first tarsomere. Metatibiotarsal formula: (3) 8/6/0.

Abdomen. Bright red with genital segments brown.

Male terminalia (Fig. 2). Posterior margin of pygofer (*Py*) in lateral view strongly sinuate, strongly roundly projecting at dorsal ⅓, moderately broad ventrally (Fig. 2A–C). Anal tube (*An*) spatulate, 2.1 times as long as broad, with lateral margins weakly diverging from base to half-length in dorsal

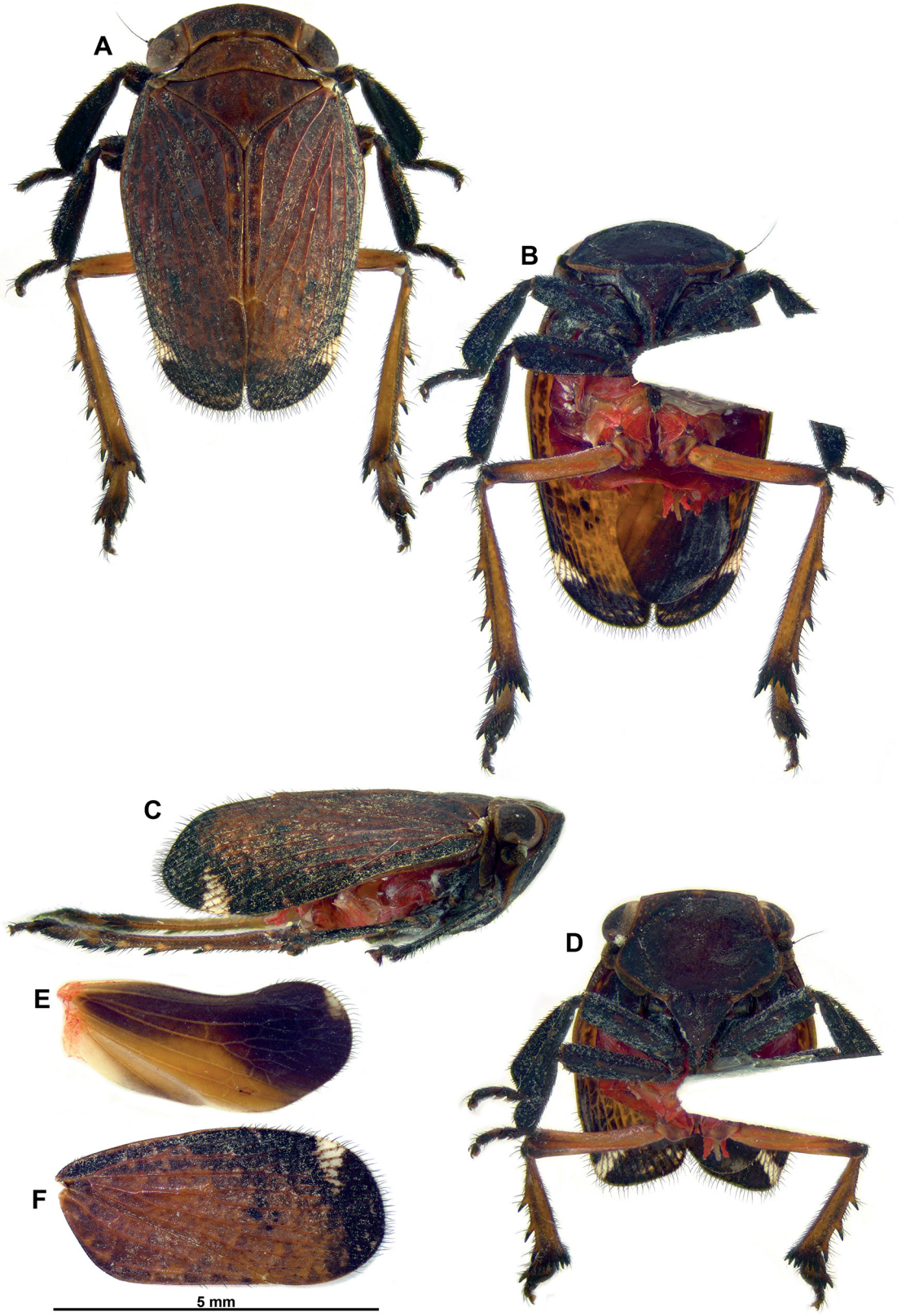


**Fig. 1.** *Olonia albomarginata* sp. nov., holotype, ♂ (QM). **A**. Habitus, dorsal view. **B**. Habitus, ventral view. **C**. Habitus, lateral view. **D**. Habitus, perpendicular view of frons. **E**. Posterior wing. **F**. Right tegmen.

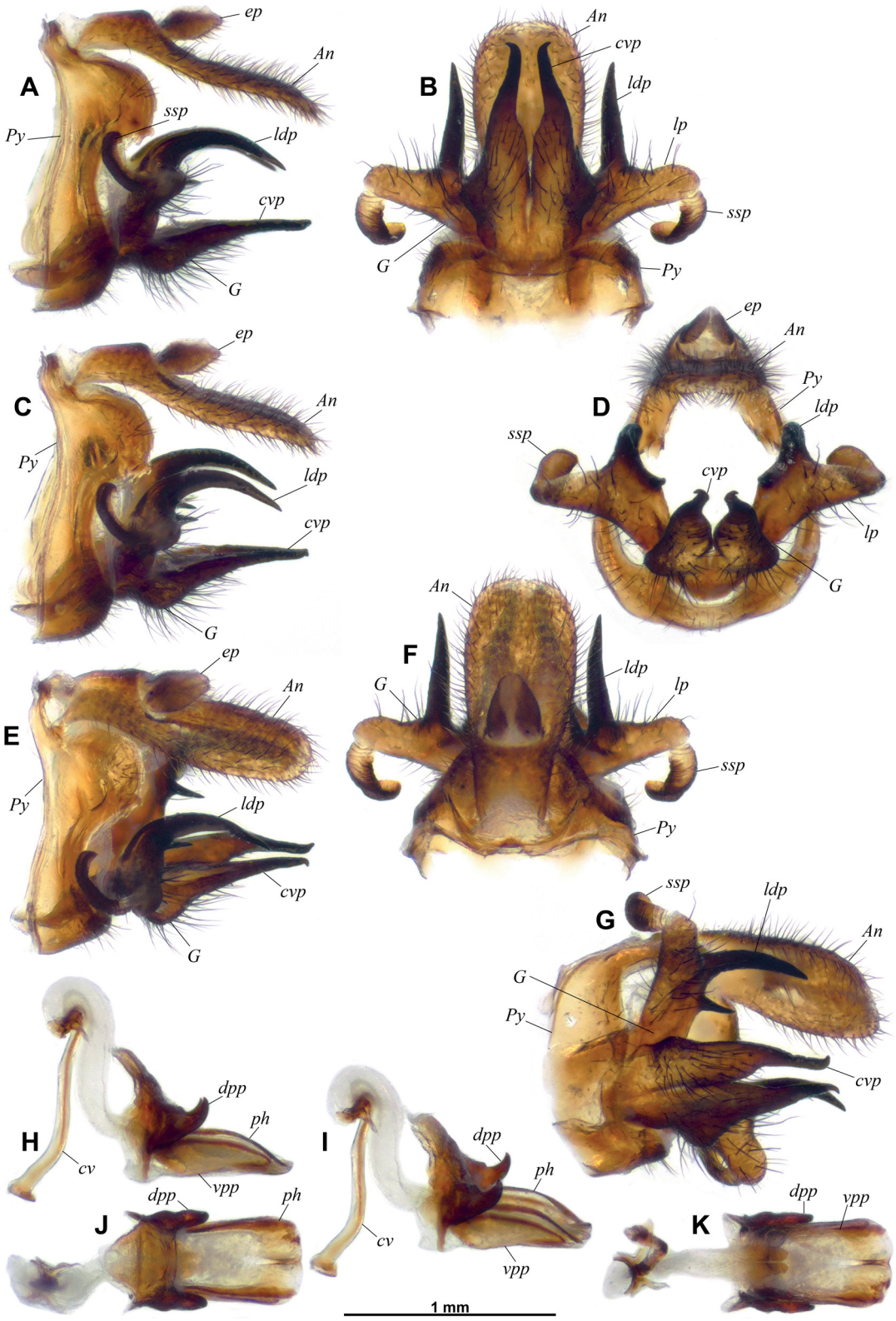


**Fig. 2.** *Olonia albomarginata* sp. nov., holotype, ♂ (QM), terminalia. **A–G**. Pygofer, anal tube and gonostyli. **A**. Left lateral view. **B**. Ventral view. **C**. Dorsolateral view. **D**. Caudal view. **E**. Laterodorsal view. **F**. Dorsal view. **G**. Lateroventral view. **H–K**. Aedeagus and connective. **H**. Lateral view. **I**. Laterodorsal view. **J**. Dorsal view. **K**. Ventral view. Abbreviations: see Material and methods.

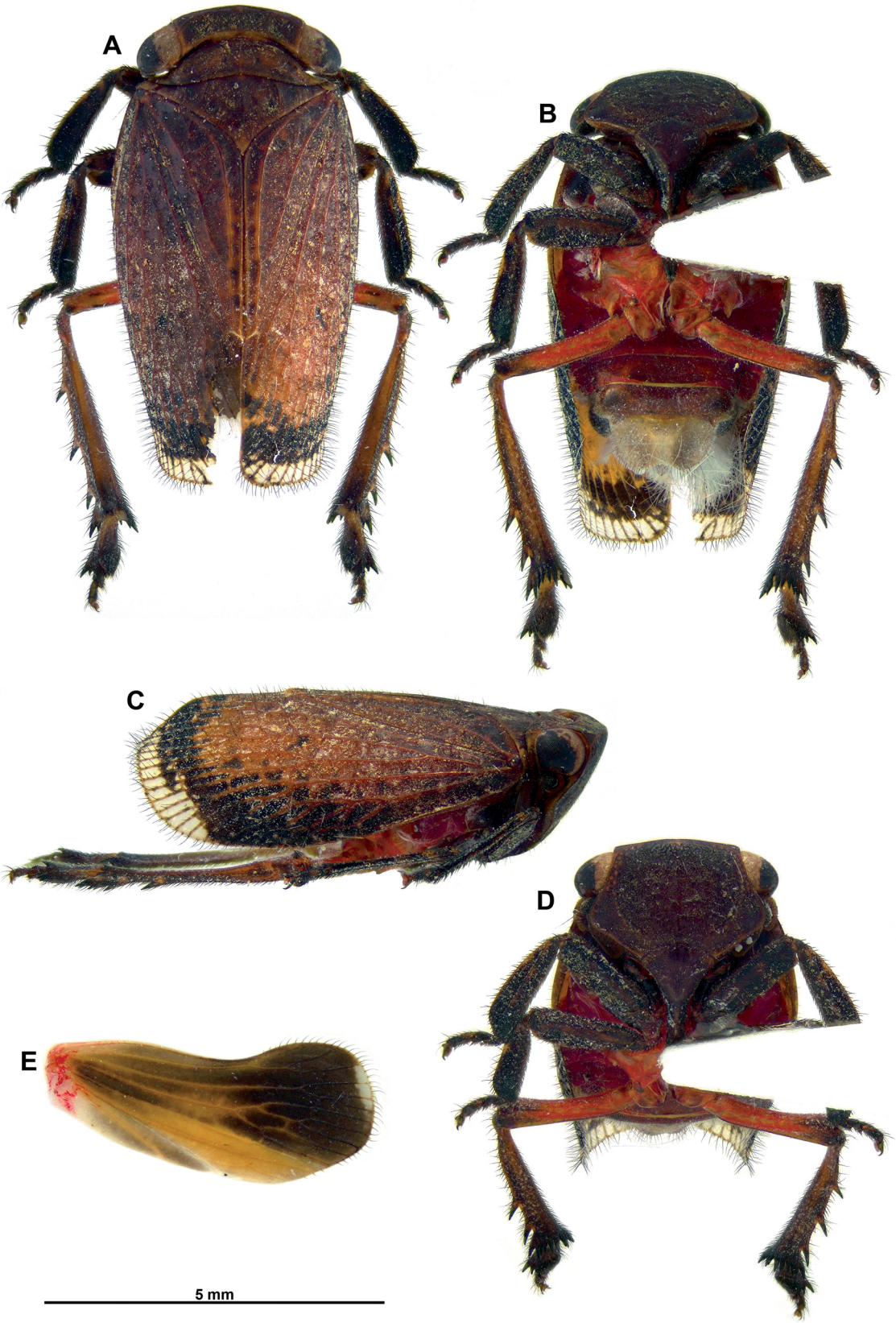


**Fig. 3.** *Olonia albomarginata* sp. nov., paratype, ♀ (QM). **A–D**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Perpendicular view of frons. **E**. Posterior wing.

view; slightly sinuate ventrally in lateral view; lateral margins slightly curved ventrally in distal ⅔; apical margin broadly rounded with small median indentation; epiproct (*ep*) in basal ⅓ (Fig. 2A–F). Gonostyli (*G*) fused on basal third of length of centroventral part (*cvp*) and projecting posteriorly (Fig. 2A–G). Centroventral part of gonostyli moderately broad and dorsoventrally flattened on basal half, then narrowing into an elongate, slightly sinuate, process directed caudad and with inner margin rather strongly sinuate at mid-length; apex forming point curved laterad (Fig. 2A–B). Laterodorsal part


**Fig. 4.** *Olonia albomarginata* sp. nov., live specimens, Chillagoe, 10 May 2022. **A–C**. Male. **A**. Lateral view. **B**. Dorsal view. **C**. Lateroventral view. **D–F**. Female. **D**. Lateral view. **E**. Dorsal view. **F**. Anterodorsal view.


**Fig. 5.** Host plants and habitat of *Olonia albomarginata* sp. nov., Chillagoe, 9 May 2022. **A–C**. *Neptunia major* (Benth.) Windler (Fabaceae). **A**. Entire plant. **B**. Leaves. **C**. Seedpods. **D–F**. *Vigna vexillata* (L.) A.Rich. (Fabaceae). **D**. Stems and leaves. **E**. Underside of leaf. **F**. Seedpod. **G–I**. *Sida atherophora* Domin (Malvaceae). **G**. Stem with flowers and leaves. **H**. Flower. **I**. Seedpods. **J–K**. Habitat. **J**. Dominated by *N. major*. **K**. Dominated by *S. atherophora* and *V. vexillata*.

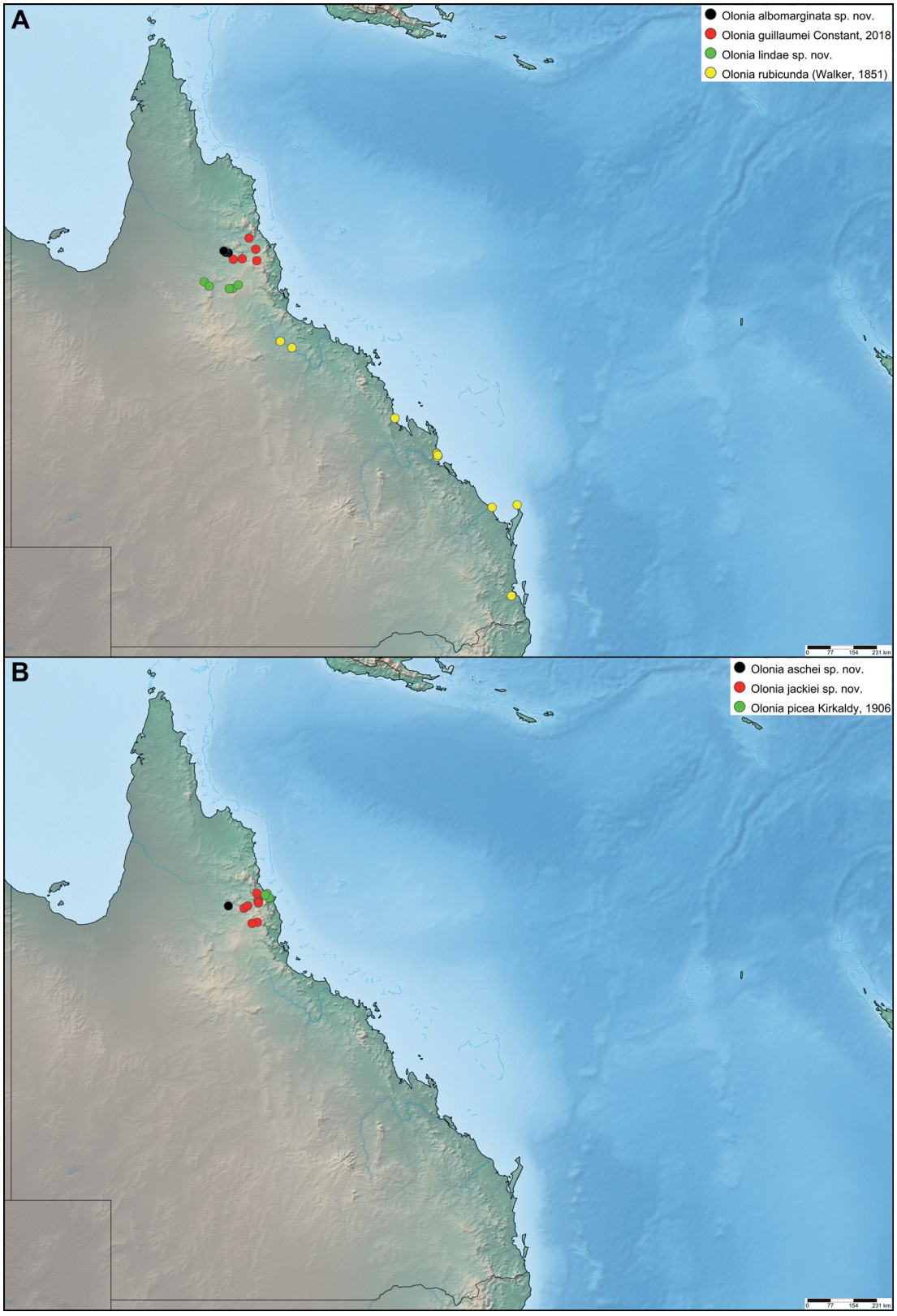


**Fig. 6.** *Olonia* spp., distribution maps. **A**. *Olonia albomarginata* sp. nov., *O. guillaumei* Constant, 2018, *O. lindae* sp. nov. and *O. rubicunda* (Walker, 1851). **B**. *Olonia aschei* sp. nov., *O. jackiei* sp. nov. and *O. picea* Kirkaldy, 1906.

of gonostyli bifid, with upper process strongly elongate, directed straight caudad in dorsal view and curved posteroventrad, shorter than centroventral part in lateral view, and lower process reduced to a strong spine projecting caudad; lateral process (*lp*) elongate, as long as spoon-shaped process (*ssp*), projecting laterad (Fig. 2A–G). Dorsal portion of phallobase (*dpp*) with short, hooked process on each side, progressively narrowing from base to apex, strongly curved dorsad in distal portion and with apex pointing dorsad; directed straight, caudad in dorsal view (Fig. 2H–K). Ventral portion of phallobase (*vpp*) subrectangular with apical margin roundly bisinuate in dorsal view and about as long as phallus (*ph*) (Fig. 2H–I, K). Phallus dorsoventrally flattened, moderately elongate with lateral margins weakly diverging from base to apex and apical margin bisinuate (Fig. 2H–J). Connective (*cv*) elongate and narrow, without tectiductus (Fig. 2H–I).

**Female**

Generally similar to male, with tegmina missing the white triangle on costal margin on nodal line, but with narrowly white apical margin (sometimes missing); hind wings sometimes with narrow apical white marking (Fig. 3).

**Distribution and biology**

The species is currently recorded from a single location, Chillagoe in tropical Queensland, in the Einasleigh Upland Savanna bioregion (Fig. 6A). The specimens were collected in January, March, May, June and September, which may mean that the adults of this species can be found all year long. They are cryptic when sitting on the stems of their herbaceous host plants (Fig. 4).

The specimens collected in May 2022 were swept from three plant species belonging to the Fabaceae (*Neptunia major* (Benth.) Windler (Fig. 5A–C) and *Vigna vexillata* (L.) A.Rich. (Fig. 5D–F)) and to the Malvaceae (*Sida atherophora* Domin (Fig. 5G–I) in a widely open woodland area (Fig. 5J–K); these plants are regarded as host plants as nymphs were also found on them.

***Olonia aschei*** sp. nov.
urn:lsid:zoobank.org:act:8030AB10-1DED-494E-95C4-D0B168F48049
Figs 6B–10

**Diagnosis**

The species can be recognized by the following combination of characters:
(1) hind wings with orange marking moderate to absent (Figs 7E, 9E);
(2) pro- and mesofemora and tibiae largely dark brown (Figs 7A–B, 9A–B);
(3) anal tube of male spatulate with posterior margin rounded (Fig. 8E);
(4) centroventral part posteriorly narrowing into an elongate process sinuate (incurved) in ventral view, the distal half nearly straight in ventral view, with apical point gently curved posteroventrad (Fig. 8A–B);
(5) laterodorsal part of gonostyli strongly curved lateroventrad, reaching about half-length of centroventral part (Fig. 8A–C);
(6) medium size: 7–9 mm.

**Differential diagnosis**

The closest species is *O. lindae* sp. nov. from which *O. aschei* sp. nov. differs by the sinuate processes of the centroventral part of the gonostyli (straight in *O. lindae*) and the strongly curved processes of the laterodorsal part of the gonostyli, pointing laterad (moderately curved and directed posterolaterad in *O. lindae*).

**Etymology**

The species epithet is a patronym dedicated to Dr Manfred Asche who collected part of the paratypes series together with Dr Hannelore Hoch.

**Type material**

**Holotype**

AUSTRALIA • ♂; Queensland, Chillagoe; 17°08′55″ S, 144°31′43″ E; 7–11 May 2022; elev. 400–500 m; J. Constant and L. Semeraro leg.; Leopold III Funds exped.; QM.

**Paratypes**

AUSTRALIA – **Queensland** • 1 ♀; same data as for holotype; RBINS • 1 ♀; Chillagoe, around hospital; 12 Mar. 1997; M. Asche and H. Hoch leg.; Au97-35; MFNB • 1 ♀; Chillagoe Caves National Park, Haunted Tower; 12–13 Mar. 1997; M. Asche and H. Hoch leg.; Au97-36, 38; sweeping shrubs; MNFB • 1 ♀; Chillagoe, Royal Arch; 13 Jun. 1987; M. Asche and H. Hoch leg.; A17; MNFB • 1 ♀; same data as for preceding; RBINS.

**Description**

Measurements and ratios. LT: ♂ (n = 1): 7.1 mm; ♀ (n = 5): 8.0 mm (7.5–8.7); BV/LV = 4.3; BF/LF = 1.66; LP+LM/BT = 0.6; Ltg/BTg = 2.3; LW/BW = 1.75.

**Male**

Head (Fig. 7A–D). Vertex slightly concave with anterior and posterior margins parallel, curved; medium to dark brown; median carina absent. Posterior part of head with yellowish markings. Frons uniformly dark brown. Genae brown to black with yellowish markings along anterior margin behind lateral expansion of frons. Clypeus elongate, entirely medium to dark brown. Labium dark brown, surpassing mesocoxae. Antennae black-brown; scape short, ring-shaped; pedicel subcylindrical, slightly narrowing towards apex.

Thorax (Fig. 7A–D). Pronotum dark brown; slightly wrinkled; 2 small impressed points on disc slightly marked. Lateral fields of prothorax coloured as pronotum. Mesonotum dark brown; yellowish at apex of scutellum and in middle of anterior margin; median and peridiscal carinae weakly marked; median carina ending before scutellum; slight impression before scutellum. Red ventrally. Tegulae brown.

Tegmina (Fig. 7A, C). Medium to dark brown; yellowish marking on vein A1 at midlength of clavus; marked with dark brown or black along costal margin, more broadly so on posterior half and along posterior margin; darker, median, irregular marking at distal ⅔; triangular white marking on costal margin on nodal line; some small white spots at apicosutural angle. Costal and sutural margins subparallel; costal margin slightly sinuate; apical margin obliquely rounded.

Posterior wings (Fig. 7E). Dark brown, paler on anal area and progressively darker on apical half; orange-brown marking in middle portion between veins CuP and A1; triangular white marking at apicocostal angle, extending on 2 cells. Margin of anal area slightly sinuate; sutural margin with 1 slight cleft, cubital one nearly not marked.

Legs (Fig. 7A–D). Pro- and mesocoxae dark brown, paler apically. Pro- and mesofemora black variegated with yellowish brown, distal portion darker. Pro- and mesotibiae dark brown, with three obsolete, paler rings. Pro- and mesotarsi black-brown with basal half of third tarsomere paler. Metacoxae reddish; metafemora reddish, dark brown distally. Metatibiae brown, darker towards apex, with three lateral spines paler basally, and 9 apical black-brown spines. Metatarsi brown with a ventral row of 6 black spines on first tarsomere. Metatibiotarsal formula: (3) 9/6/0.

Abdomen. Bright red with genital segments black-brown.


**Fig. 7.** *Olonia aschei* sp. nov., holotype, ♂ (QM). **A**. Habitus, dorsal view. **B**. Habitus, ventral view. **C**. Habitus, lateral view. **D**. Habitus, perpendicular view of frons. **E**. Posterior wing.

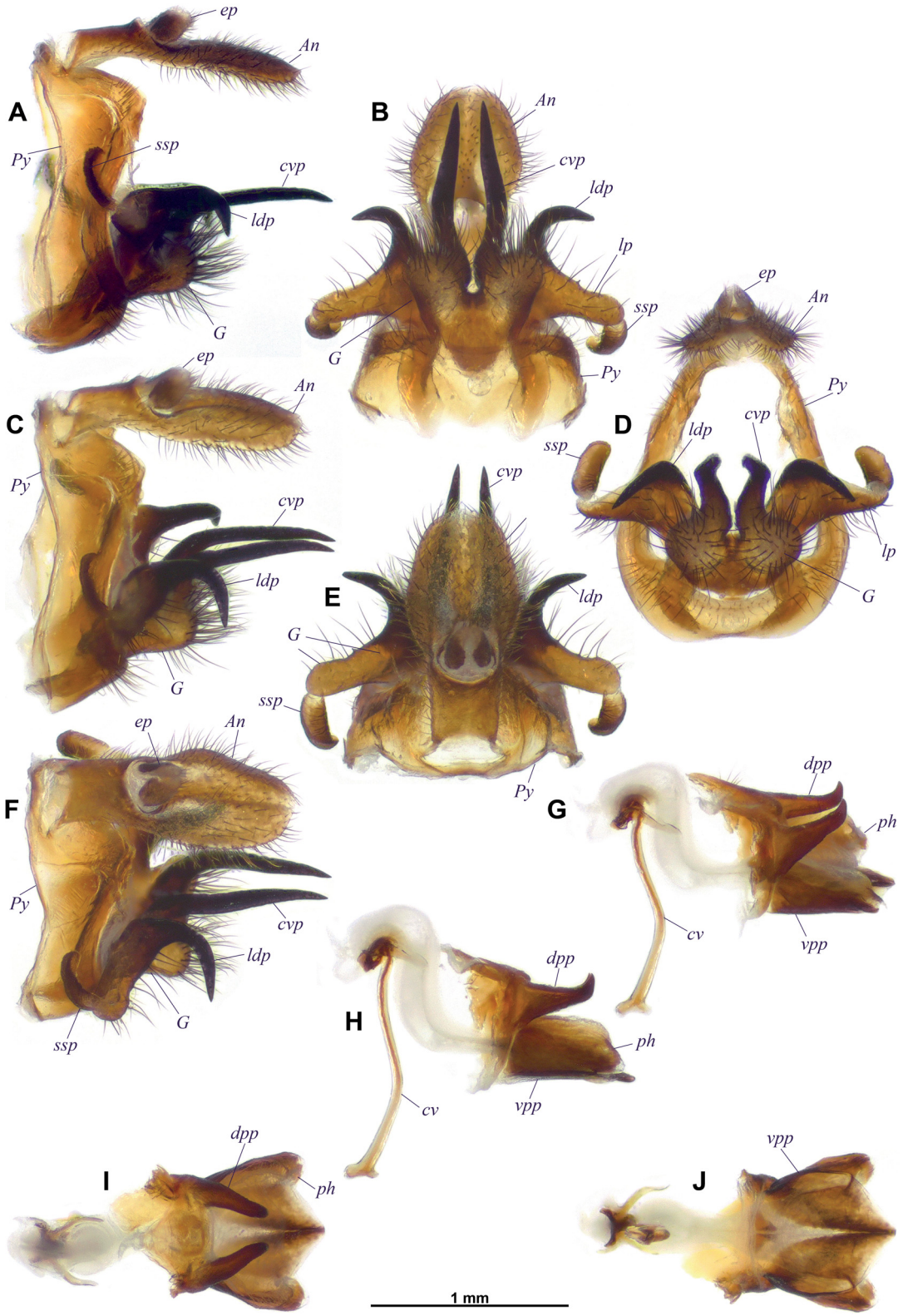


**Fig. 8.** *Olonia ashei* sp. nov., holotype, ♂ (QM), terminalia. **A–F**. Pygofer, anal tube and gonostyli. **A**. Left lateral view. **B**. Ventral view. **C**. Dorsolateral view. **D**. Caudal view. **E**. Dorsal view. **F**. Laterodorsal view. **G–K**. Aedeagus and connective. **G**. Laterodorsal view. **H**. Lateral view. **I**. Dorsal view. **J**. Ventral view. Abbreviations: see Material and methods.


**Fig. 9.** *Olonia ashei* sp. nov., paratype, ♀ (RBINS). **A–D**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Perpendicular view of frons. **E**. Posterior wing.


**Fig. 10.** *Olonia ashei* sp. nov., live specimens, habitat and host plant, Chillagoe, 8–10 May 2022. **A–B**. Male. **A**. Lateral view. **B**. Dorsal view. **C–D**. Female on stem of *Waltheria indica* L. (Malvaceae). **C**. Laterodorsal view. **D**. Lateroventral view. **E**. Habitat. **F**. *Waltheria indica*.

Male terminalia (Fig. 8). Posterior margin of pygofer (*Py*) in lateral view strongly sinuate, roundly projecting at dorsal ⅓, rather broad ventrally (Fig. 8A–B). Anal tube (*An*) spatulate, 2.0 times as long as broad, laterally constricted at level of epiproct (*ep*), slightly curved ventrally in lateral view; lateral margins slightly curved ventrally on apical ⅔; apical margin rounded (Fig. 8A–E). Gonostyli (*G*) fused on basal ¼ of length of centroventral part (*cvp*) and projecting posteriorly (Fig. 8A–F). Centroventral part of gonostyli moderately broad and dorsoventrally flattened on basal ¼, then bulged and strongly sinuate dorsad, then caudad in lateral view; narrowing into an elongate process sinuate (incurved) in ventral view, the distal half nearly straight in ventral view, with apex pointed and gently curved posteroventrad (Fig. 8A–B). Laterodorsal part (*ldp*) of gonostyli robust and strongly curved lateroventrad, reaching about half-length of centroventral part, with apex reaching under the level of centroventral part in lateral view; lateral process (*lp*) elongate, about as long as spoon-shaped process (*ssp*), projecting laterally and slightly curved anteriorly (Fig. 8B, D–E). Dorsal portion of phallobase (*dpp*) with hooked process on each side, directed mesocaudad in dorsal view, progressively narrowing from base to apex, straight in basal ⅔, then abruptly upcurved in lateral view and with apex pointing dorsally (Fig. 8G–I). Ventral portion of phallobase widening from base towards apex, trilobed in dorsal view, with median lobe surpassing phallus (Fig. 8I). Phallus dorsoventrally flattened, rather broad, with apical margin emarginate in middle (Fig. 8G–I). Connective (*cv*) elongate and narrow, without tectiductus (Fig. 8G–H).

**Female**

Similar to male but hind wings with orange-brown marking in middle portion between veins CuP and A1 absent or very weakly marked (Fig. 9).

**Distribution and biology**

The species is currently recorded from a single location, Chillagoe in tropical Queensland, in the Einasleigh Upland Savanna bioregion (Fig. 6B). The specimens were collected in March, May and June. They are cryptic when sitting on the stems of their herbaceous host plants (Fig. 10A–D).

The specimens collected in May 2022 were collected from a Malvaceae, *Waltheria indica* L. in open woodland area (Fig. 10E–F) and from sweeping an area covered in potential host plants belonging to the Fabaceae (*Neptunia major* (Fig. 5A–C) and *Vigna vexillata* (Fig. 5D–F)) and to the Malvaceae (*Sida atherophora* (Fig. 5G–I)), where specimens of *O. albomarginata* sp. nov. were also collected.

***Olonia guillaumei*** Constant, 2018
Figs 6A, 11

*Olonia guillaumei* Constant, 2018: 11 (listed), 12 (keyed), 21 (description), figs 3 (distribution map), 9–11 (male, female, male terminalia).

**Diagnosis**

The species can be recognized by the following combination of characters:
(1) hind wings with conspicuous orange marking (Constant 2018: figs 9e, 11e);
(2) pro- and mesofemora and tibiae largely brown (Constant 2018: figs 9a–d, 11a–d);
(3) anal tube of male oblong, with posterior margin rounded (Constant 2018: fig. 10b);
(4) centroventral part of gonostyli with long laminate process (Constant 2018: fig. 10a, c);
(5) laterodorsal part of gonostyli with hooked process directed lateroventrally (Constant 2018: fig. 10a, c–d);
(6) rather large size: 9.5–10 mm.


**Fig. 11.** *Olonia guillaumei* Constant, 2018, live specimens and habitat, Mareeba, Granite Gorge, 14 May 2022. **A–C**. Male. **A**. Dorsal view, on unidentified plant (not a host plant). **B–C**. On *Erythrophleum chlorostachys* (F.Muell.) Baillon, 1870 (Fabaceae). **B**. Dorsal view. **C**. Laterodorsal view. **D–F**. Female on *E. chlorostachys*. **D**. Anterolateral view. **E**. Laterodorsal view. **F**. Lateral view. **G**. Habitat.

**Material examined**

AUSTRALIA – **Queensland** • 1 ♂, 2 ♀♀; Mareeba, Granite Gorge;17°02′23″ S, 145°21′02″ E; 14 May 2022; elev. 550 m; J. Constant and L. Semeraro leg.; on *Erythrophleum chlorostachys*; Leopold III Funds exped.; QM • 2 ♂♂, 1 ♀; same data as for preceding; RBINS • 1 ♂; W of Dimbulah, Emu Creek; 17°19′58.3″ S, 144°56′57.5″ E; 21 Mar. 1997; M. Asche and H. Hoch leg.; Au97-65; MFNB.

**Distribution and biology**

This species is currently recorded from the Atherton Tablelands in North Queensland (Fig. 6A), in the Einasleigh Upland Savanna bioregion. The specimens were collected in January, March, May, June, August and November; hence, the species may be present all year long. In Mareeba, Granite Gorge, all the specimens were collected from small trunks of *Erythrophleum chlorostachys* Baill. (Fabaceae), which is the first recorded host plant of this species (Fig. 11).

***Olonia hochae*** Constant, 2018
Figs 12–13

*Olonia hochae* Constant, 2018: 11 (listed), 12 (keyed), 25 (description), figs 3 (distribution map), 12–14 (male, female, male terminalia).

**Diagnosis**

The species can be recognized by the following combination of characters:
(1) hind wings without orange marking (Constant 2018: figs 12e, 14e);
(2) pro- and mesofemora and tibiae largely black-brown (Constant 2018: figs 12a–d, 14a–d);
(3) anal tube of male oblong with posterior margin narrowly rounded (Constant 2018: fig. 13b);
(4) centroventral part of gonostyli with long laminate process concave on ventral margin (Constant 2018: fig. 13a, c);
(5) laterodorsal part of gonostyli with spinose process curved ventrally (Constant 2018: fig. 13a, c–d);
(6) rather large size: 9–10 mm.

**Material examined**

AUSTRALIA – **Queensland** • 3 ♂♂, 2 ♀♀, 1 nymph; Undara Volcanic National Park; 18°12′14″ S, 144°34′20″ E; 30 Apr.–4 May 2022; elev. 750–800 m; J. Constant and L. Semeraro leg.; on *Persoonia falcata* (Proteaceae); Leopold III Funds exped.; QM • 2 ♂♂, 1 ♀; same data as for preceding; RBINS • 1 ♂, 1 ♀; Undara Volcanic National Park, Undara Lava Lodge; 18°12′03.6″ S, 144°34′22.1″ E; 22 Mar. 1997; M. Asche and H. Hoch leg.; Au97-70; MFNB • 1 ♂, 1 ♀; Undara Volcanic National Park, near Bayliss Cave; 11 Jan. 1989; F.D. Stone leg.; MFNB.

**Distribution and biology**

The species was known from a series of ten specimens collected at Undara Volcanic National Park in North Queensland (Constant 2018: fig. 3), in the Einasleigh Upland Savanna bioregion. The additional material originates from the same locality and the adult and nymph specimens collected in May 2022 (Figs 12C–E, G–H, 13A–F) were all found on a single host tree species, *Persoonia falcata* R.Br. (Proteaceae) in a rocky zone around Rosella Lookout (Fig. 12A–B). Egg clutches were also found on the leaves of this plant (Fig. 12F). When disturbed, the very cryptic nymphs were waving their paired caudal waxy appendages, up and down (Fig. 12G–H).

Furthermore, trophobiosis between a female of *O. hochae* and several ants (Fig. 13A–F) belonging to an unidentified species of the genus *Camponotus* Mayr, 1861 (Hymenoptera: Formicidae) was observed (Fig. 13G–H); the behaviour of the ants included antennal, palps and prolegs contact/palpation (Fig. 13C–


**Fig. 12.** *Olonia hochae* Constant, 2018, live specimens, habitat, host plant and development, Undara National Park, 2 May 2022. **A**. General view of habitat. **B**. Host plant, *Persoonia falcata* R.Br. (Proteaceae). **C**. Male, dorsal view. **D**. Female, laterodorsal view. **E**. Nymph, laterodorsal view. **F**. Egg clutch on leaf of host plant. **G–H**. Nymph moving its caudal waxy appendages up and down.

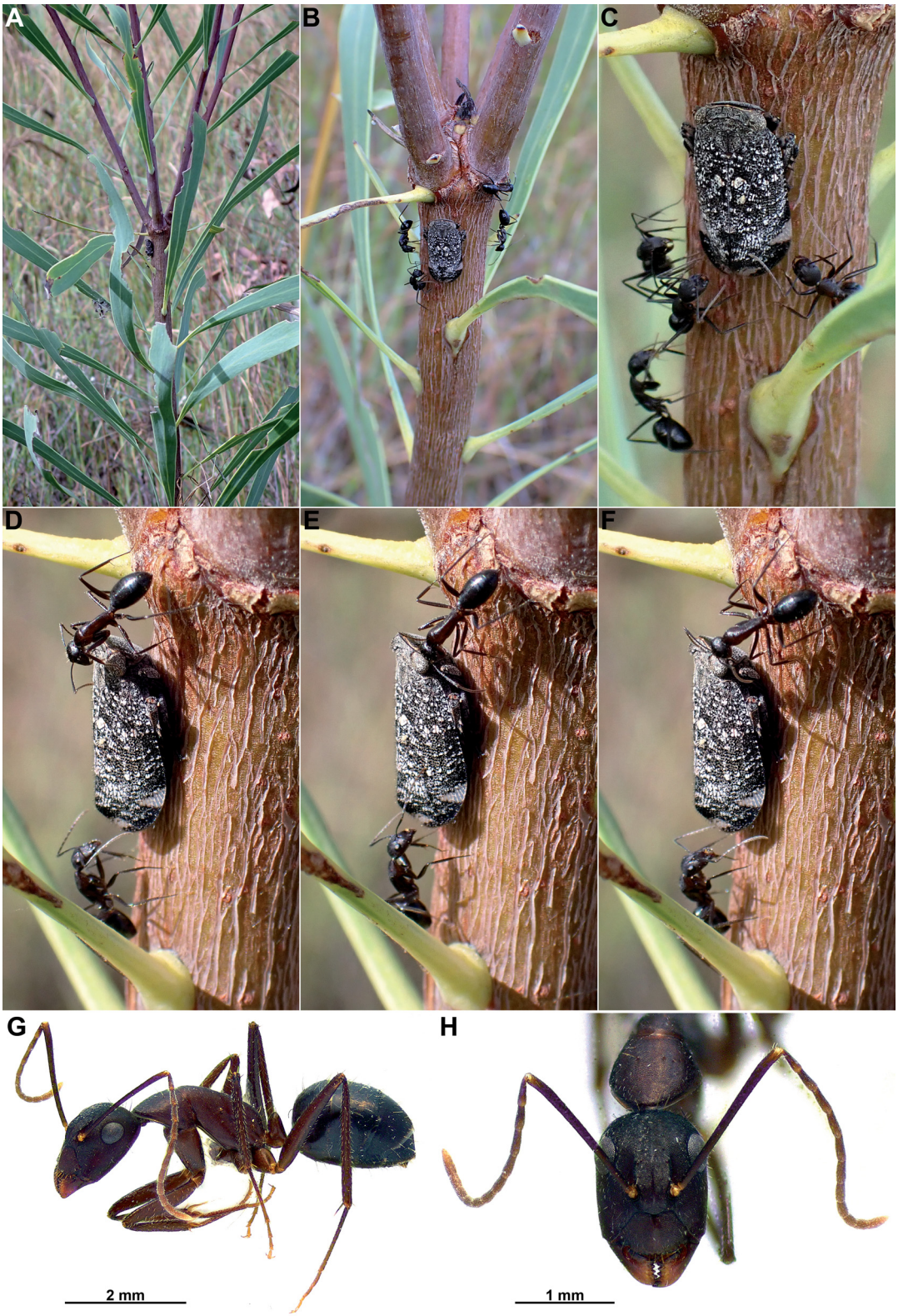


**Fig. 13.** Trophobiosis between female of *Olonia hochae* Constant, 2018 and *Camponotus* sp. (Formicidae), Undara National Park, 2 May 2022. **A**. General view of the specimen on its host plant, *Persoonia falcata* R.Br. (Proteaceae). **B**. Close-up. **C–F**. Details of the contact interactions including palpation with the legs and antennae. **G–H**. *Camponotus* sp. **G**. Habitus, lateral view. **H**. Head, frontal view.

F), which are regarded as a way to stimulate honeydew production by the planthopper (Bourgoin *et al*. 2023).

The specimens of this species were collected in January, March and May; as all stages, including the eggs, were observed in May, it is possible that adult specimens of the species are present all year long.

***Olonia jackiei*** sp. nov.
urn:lsid:zoobank.org:act:3AD1C2AF-F10C-43F0-83D8-F3A13FABD413
Figs 6B, 14–17

**Diagnosis**

The species can be recognized by the following combination of characters:
(1) hind wings with orange marking weakly marked or absent (Figs 14E, 16E);
(2) pro- and mesofemora and tibiae mostly blackish brown to black (Figs 14A–B, 16A–B);
(3) anal tube of male spatulate, constricted at anal opening and with posterior margin rounded (Fig. 15E);
(4) centroventral part of gonostyli narrowing into a straight elongate process with the distal ¼ slightly thicker in ventral view and apical short point curved lateroventrad (Fig. 15A–C);
(5) laterodorsal part of gonostyli directed dorsad then strongly curved ventrad with distal portion sinuate dorsad, slightly surpassing half-length of centroventral part (Fig. 15A–C);
(6) rather small size: 6.7–7.8 mm.

**Differential diagnosis**

The closest species is *O. lindae* sp. nov. from which *O. jackiei* sp. nov. differs by the distally sinuate processes of the laterodorsal part of the gonostyli (regularly curved in *O. lindae*), and directed mesocaudad in ventral view (curved and directed posterolaterad in *O. lindae*).

**Etymology**

The species epithet is a patronym dedicated to Dr Jackie Van Goethem (RBINS – Leopold III Funds) in acknowledgement for all his support to the work of the author over the years.

**Type material**

**Holotype**

AUSTRALIA • ♂; Queensland, Mareeba, Emerald Hill; 16°58′ S, 145°26′ E; 11–14 Apr. 2002; elev. 420 m; G.B. Monteith leg.; mv light; 10528; QM.

**Paratypes**

AUSTRALIA – **Queensland** • 1 ♂; Mareeba; 16°59′56″ S, 145°25′26″ E; Feb. 1979 [no day given]; K.W. Halfpapp leg.; on rice; QM • 1 ♂; Southedge-Lakes Road, 4.8 km NW of Lake Mitchell, stop 21; 16°46.208′ S, 145°23.137′ E; 27 Jul. 2018; D.C.F. Rentz leg.; MLM 02237; DIDPR • 1 ♀; same data as for preceding; MLM 02238; QM • 1 ♀; same data as for preceding; MLM 02230; RBINS • 1 ♂; Millstream, Gigliotti Road; 17°38′22″ S, 145°24′04″ E; 5 May 2022; elev. 780 m; J. Constant and L. Semeraro leg.; Leopold III Funds exped.; RBINS • 1 ♂; Pinnacle Creek, W of Dimbulah; 17°13′06.6″ S, 145°00′24.1″ E; 1 Sep. 2005; L.J. Cookson leg.; MVMA • 1 ♂; Atherton Tableland, Dimbulah; [17°08′56″ S, 145°06′39″ E]; Aug. 1962; R. O'Brien leg.; on Asteraceae; ex J.W. Evans Collection Donated 1986; MJF collection, MJF003336; ASCU • 1 ♂; Hot Springs; [17°40′21″ S, 145°14′31″ E; 11 Jan. 1962; Carne and Britton leg.; ANIC • 1 ♂; Atherton Road, 4 km S of Mareeba; [17°03′36″ S, 145°26′01″ E]; 7 Feb. 1965; J.G. Brooks leg.; ANIC.

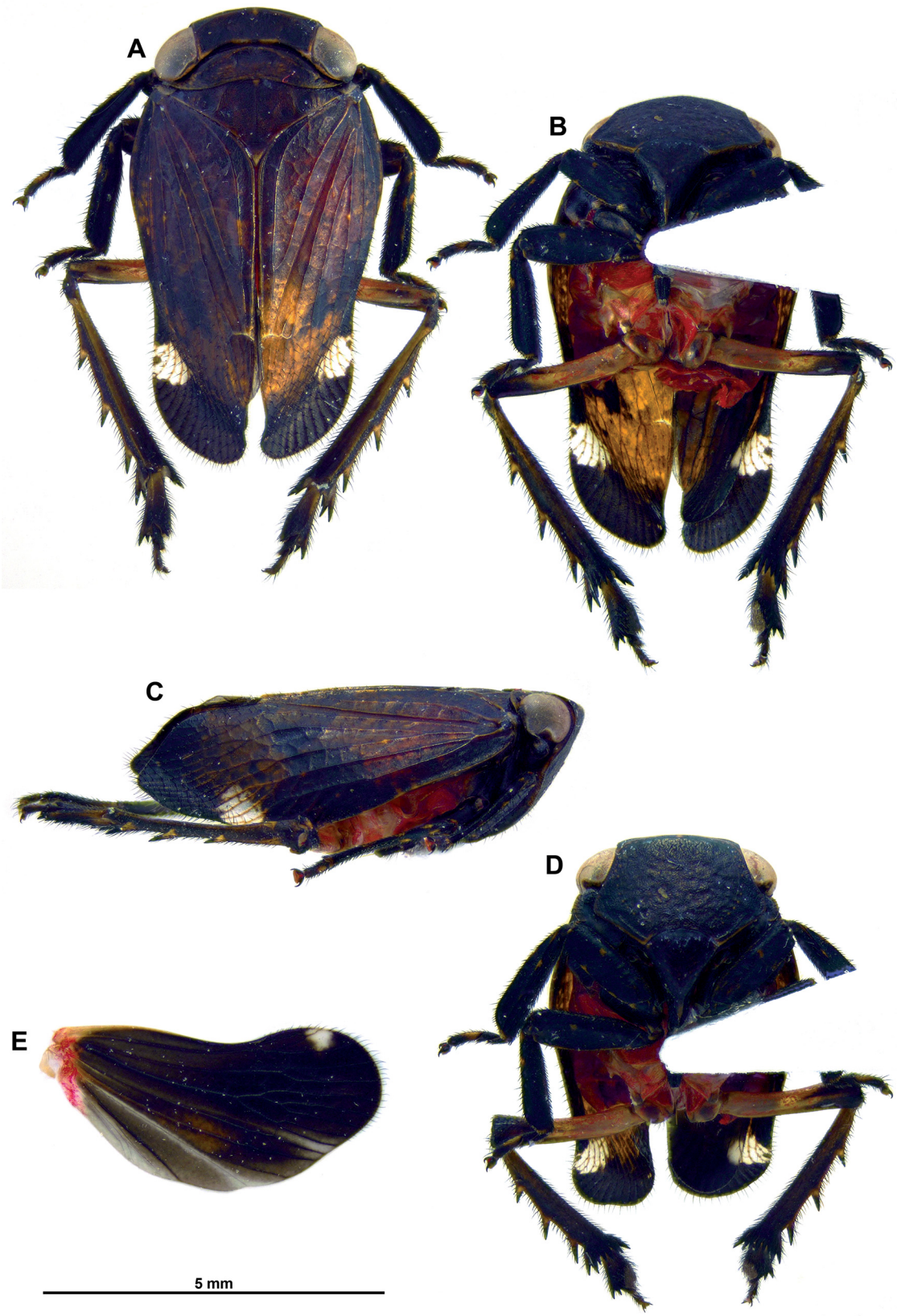


**Fig. 14.** *Olonia jackiei* sp. nov., paratype, ♂ (RBINS). **A–D**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Perpendicular view of frons. **E**. Posterior wing.

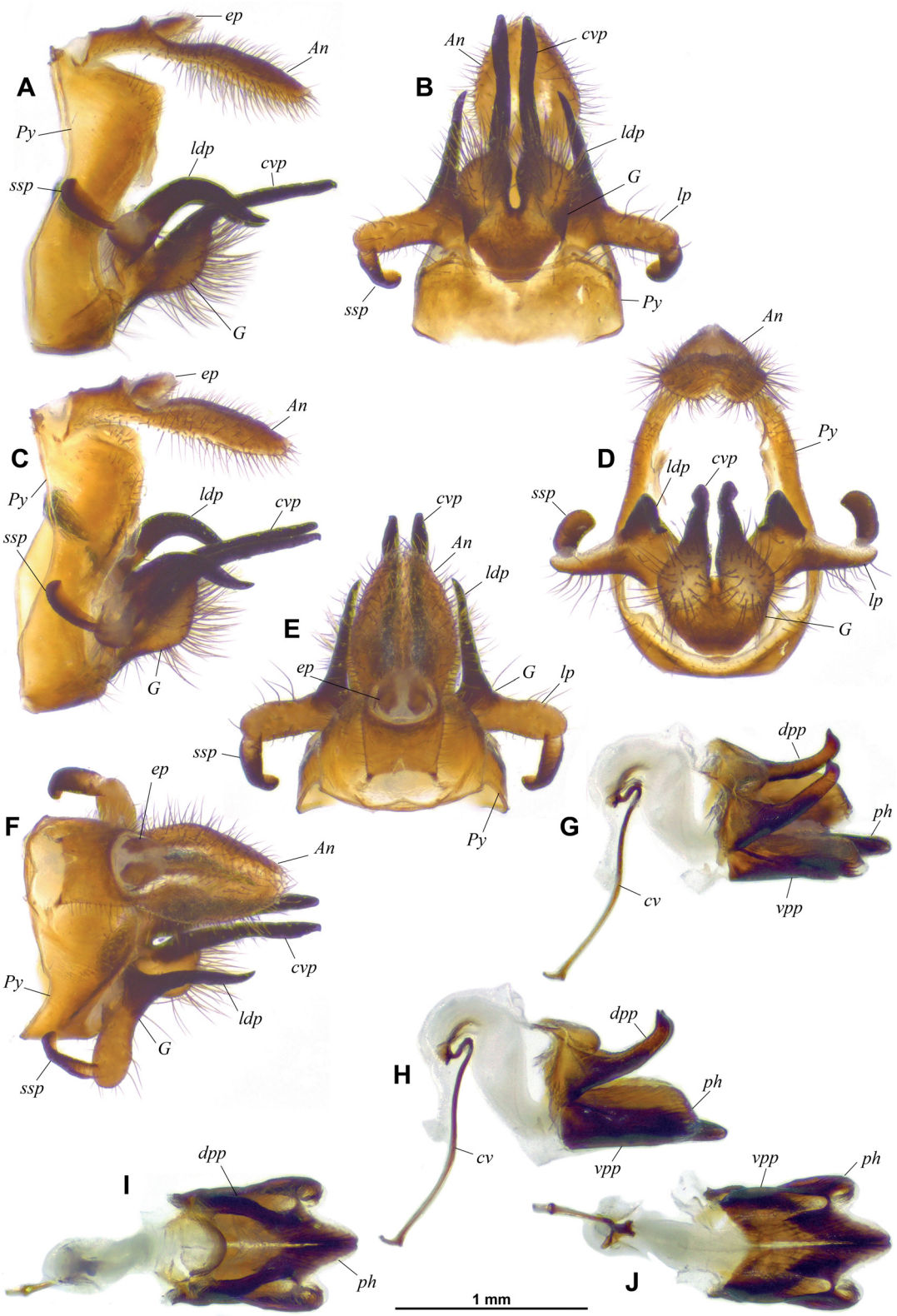


**Fig. 15.** *Olonia jackiei* sp. nov., paratype, ♂ (RBINS), terminalia. **A–F**. Pygofer, anal tube and gonostyli. **A**. Left lateral view. **B**. Ventral view. **C**. Dorsolateral view. **D**. Caudal view. **E**. Dorsal view. **F**. Laterodorsal view. **G–J**. Aedeagus and connective. **G**. Laterodorsal view. **H**. Lateral view. **I**. Dorsal view. **J**. Ventral view. Abbreviations: see Material and methods.

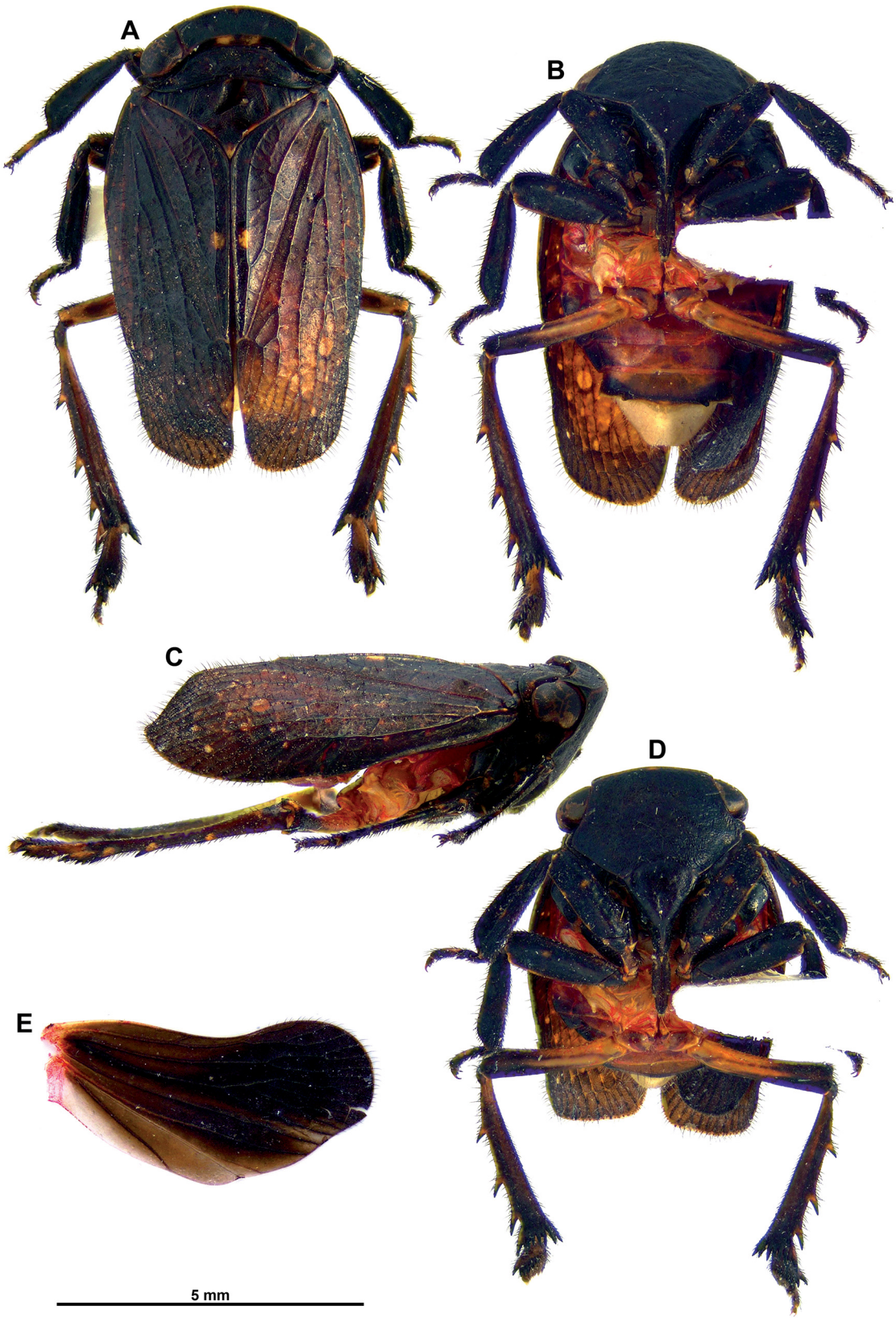


**Fig. 16.** *Olonia jackiei* sp. nov., paratype ♀ (RBINS). **A**. Habitus, dorsal view. **B**. Habitus, ventral view. **C**. Habitus, lateral view. **D**. Habitus, perpendicular view of frons. **E**. Posterior wing.

**Additional material examined**

AUSTRALIA – **Queensland** • 6 nymphs; Millstream, Gigliotti Road; 17°38′22″ S, 145°24′04″ E; 5 May 2022; elev. 780 m; J. Constant and L. Semeraro leg.; Leopold III Funds exped.; QM • 5 nymphs; same data as for preceding; RBINS.

**Description**

Measurements and ratios. LT: ♂ (n = 7): 7.0 mm (6.7–7.8); ♀ (n = 2): 7.6 mm (7.3–7.8); BV/LV = 3.8; BF/LF = 1.82; LP+LM/BT = 0.63; Ltg/BTg = 2.48; LW/BW = 1.98.

**Male**

Head (Fig. 14A–D). Vertex slightly concave with anterior and posterior margins parallel, curved; dark brown; median carina obsolete or absent. Posterior part of head with yellowish markings. Frons uniformly black-brown. Genae dark brown with paler markings along anterior margin behind lateral expansion of frons. Clypeus elongate, entirely black-brown. Labium dark brown, surpassing mesocoxae. Antennae black-brown; scape short, ring-shaped; pedicel subcylindrical, slightly narrowing towards apex.

Thorax (Fig. 14A–D). Pronotum dark brown; slightly wrinkled; two small impressed points on disc slightly marked. Lateral fields of prothorax coloured as pronotum. Mesonotum dark brown; yellowish at apex of scutellum and in middle of anterior margin; median and peridiscal carinae weakly marked; median carina ending before scutellum; slight impression before scutellum. Red ventrally. Tegulae brown.

Tegmina (Fig. 14A, C). Rather dark brown; yellowish marking on vein A1 at midlength of clavus; marked with black along costal margin, more broadly so on posterior half and along posterior margin; darker, median, irregular marking at distal ⅔; conspicuous triangular white marking on costal margin on nodal line; sometimes, some small white spots at apicosutural angle. Costal and sutural margins subparallel; costal margin slightly sinuate; apical margin obliquely rounded with preapical oblique depression.

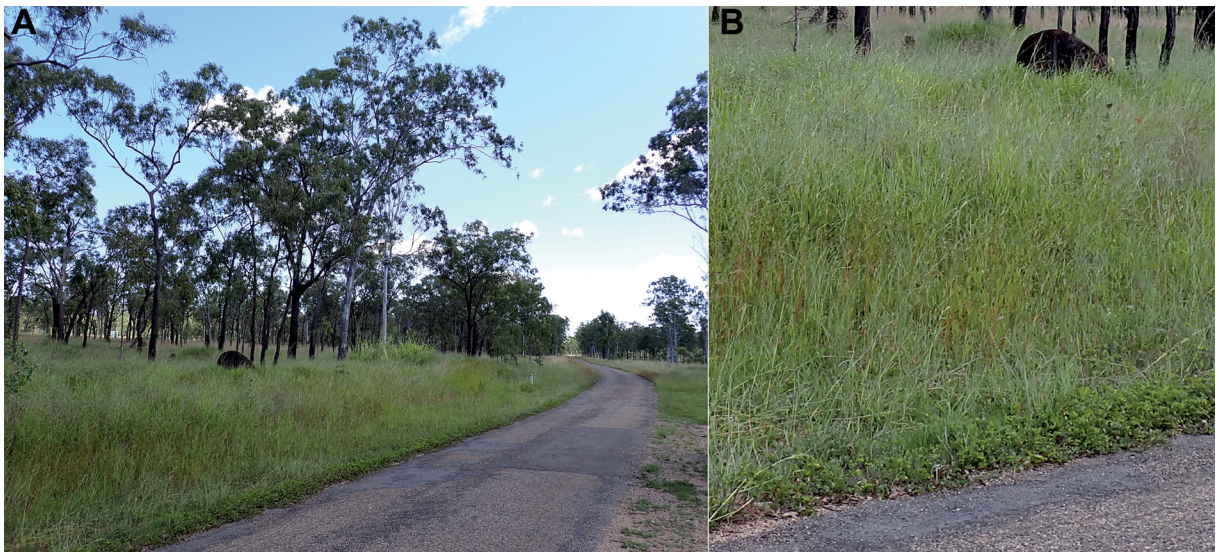


**Fig. 17.** Habitat of *Olonia jackiei* sp. nov., Millstream, 5 May 2022. **A**. General view. **B**. Close-up of the zone where the specimens were collected.

Posterior wings (Fig. 14E). Black, paler on anal area; rather weak orange-brown marking in middle portion between veins CuP and A1; triangular white marking at apicocostal angle, extending on 1–2 cells. Margin of anal area slightly sinuate; sutural margin with two clefts, cubital one weakly marked.

Legs (Fig. 14A–D). Pro- and mesocoxae dark brown. Pro- and mesofemora and corresponding tibiae black with few small yellowish brown markings. Pro- and mesotarsi black-brown with basal half of third tarsomere paler. Metacoxae reddish brown; metafemora reddish, black-brown distally. Metatibiae dark brown, darker towards apex, with three lateral spines paler basally, and 9 apical black spines. Metatarsi brown with a ventral row of 6–8 black spines on first tarsomere. Metatibiotarsal formula: (3) 9/6–8/0.

Abdomen. Bright red with genital segments black-brown.

Male terminalia (Fig. 15). Posterior margin of pygofer (*Py*) in lateral view rather strongly sinuate, roundly projecting at dorsal ¼, moderately broad ventrally (Fig. 15A–B). Anal tube (*An*) spatulate, 2.1 times as long as broad, laterally rather strongly constricted at level of epiproct (*ep*), slightly curved ventrally in lateral view; lateral margins slightly curved ventrally on distal ⅔; apical margin rounded (Fig. 15A–E). Gonostyli (*G*) fused on basal ¼ of length of centroventral part (*cvp*) and projecting posteriorly (Fig. 15A–F). Centroventral part of gonostyli moderately broad and dorsoventrally flattened on basal ¼, then bulged and strongly sinuate dorsad, then caudad in lateral view, then further narrowing into an elongate process nearly straight in ventral as well as in lateral view, with the distal ¼ slightly thicker in ventral view; apex with short point curved lateroventrad (Fig. 15A–C). Laterodorsal part (*ldp*) of gonostyli robust and directed dorsad in basal half in lateral view, then strongly curved ventrad with distal portion sinuate, slightly recurved dorsad, slightly surpassing half-length of centroventral part, with apex reaching under the level of centroventral part in lateral view; in ventral view nearly straight, slightly directed mesad towards the apex; lateral process (*lp*) elongate, about as long as spoon-shaped process (*ssp*), projecting laterally and slightly curved anteriorly (Fig. 15A–E). Dorsal portion of phallobase (*dpp*) with elongate process on each side, directed mesocaudad in dorsal view, in lateral view gently upcurved, then abruptly hooked dorsad near apex; hook in lateral view pointing dorsally with posterior margin sinuate (Fig. 15G–I). Ventral portion of phallobase widening from base towards apex, trilobed in dorsal view, with median lobe surpassing phallus (Fig. 15I). Phallus dorsoventrally flattened, rather broad, with apical margin emarginate in middle (Fig. 15G–I). Connective (*cv*) elongate and narrow, without tectiductus (Fig. 15G–H).

**Female**

Similar to male but darker, without triangular white marking on costal margin on nodal line of tegmina, and posterior wings with orange-brown marking in middle portion between veins CuP and A1, as well as white marking at apicocostal angle, absent or very weakly marked (Fig. 16).

**Distribution and biology**

This species is currently recorded from the Atherton Tablelands in North Queensland (Fig. 6B), in the Einasleigh Upland Savanna bioregion. The specimens were collected in January, February, May, July, August and September. One specimen from Mareeba in QM was collected from rice (*Oryza sativa* L., Poaceae), one in ASCU, from unidentified Asteraceae Bercht. & J.Presl and another one in QM, attracted to a light trap. From these, it is very unlikely that rice could actually be a host plant of the species, as no monocot is recorded as a host plant for a Eurybrachidae so far (Bourgoin 2023). In Millstream in May 2022, the species was collected in open Eucalyptus woodland by sweeping unidentified short, yellow-flowered Fabaceae in a recently mown zone along the road (Fig. 17); numerous nymphs were found together with a single adult male.

***Olonia lindae*** sp. nov.
urn:lsid:zoobank.org:act:D1AD7411-52D4-4DD7-A16F-3614F1C16D26
Figs 6A, 18–23

**Diagnosis**

The species can be recognized by the following combination of characters:
(1) hind wings black without orange-brown marking in middle or white marking at apicocostal angle (Figs 18E, 20E) except some paler specimens with orange-brown marking in middle portion and white marking at apicocostal angle extending over 1–3 cells;
(2) pro- and mesofemora and tibiae largely black-brown (Figs 18A–D, 20A–D);
(3) anal tube of male spatulate, constricted at anal opening and with posterior margin rounded (Fig. 19E);
(4) centroventral part of gonostyli with an elongate process nearly straight caudad and apically pointed and slightly curved laterad (Fig. 19A–C);
(5) laterodorsal part of gonostyli pointed apically and moderately curved posteroventrad, gently tapering from base towards apex, slightly surpassing half-length of centroventral part (Fig. 19A–C);
(6) rather small to medium size: 6.8–8.4 mm.

**Differential diagnosis**

The closest species are *O. aschei* sp. nov. and *O. jackiei* sp. nov., from which *O. lindae* sp. nov. differs by the processes of the laterodorsal part of the gonostyli moderately curved and directed posterolaterad (strongly curved and pointing laterad in *O. aschei*; distally sinuate and directed mesocaudad in ventral view in *O. jackiei*).

**Etymology**

The species epithet is a patronym dedicated to my wonderful partner Linda Semeraro who found all the adult specimens from Undara during our 2022 expedition.

**Type material**

**Holotype**

AUSTRALIA • ♂; Queensland, Undara Volcanic National Park, Kalkani Crater; 18°13′11″ S, 144°40′02″ E; 3 May 2022; elev. 900–950 m; J. Constant and L. Semeraro leg.; Leopold III Funds exped.; QM.

**Paratypes**

AUSTRALIA – **Queensland** • 1 ♂, 1 ♀; same data as for holotype; QM • 1 ♂, 1 ♀; same data as for holotype; RBINS • 2 ♂♂; Forty Mile Scrub National Park; 18°06′36″ S, 144°49′31″ E; 4–5 May 2022; elev. 800 m; J. Constant and L. Semeraro leg.; Leopold III Funds exped.; QM • 1 ♂, 1 ♀; same data as for preceding; RBINS • 1 ♂; Talaroo Station, about 30 km from homestead, Van Lee Road, stop 13; 18°1.198′ S, 143°48.004′ E; 25 Apr. 2018; elev. 406 m; D. Rentz leg.; near pond; MLM 02246; DPIRD • 1 ♂; Talaroo Station, boundary fence line, 0.7 km E from road, stop 14; 18°9.063′ S, 143°57.534′ E; 26 Apr. 2018; elev. 367 m; D. Rentz leg.; MLM 02228; DPIRD • 2 ♂♂; Undara Lava flow, between Mt Garnet and Mt Surprise, Rosella Plains Station, surface around Bayliss Cave; [18°13′58.4″ S, 144°33′42.6″ E]; 17 Jan. 1989; M. Asche and H. Hoch leg.; Au23; MFNB.

**Additional material examined**

AUSTRALIA – **Queensland** • 7 nymphs; Undara Volcanic National Park, Kalkani Crater; 18°13′11″ S, 144°40′02″ E; 3 May 2022; elev. 900–950 m; J. Constant and L. Semeraro leg.; Leopold III Funds exped.; QM • 6 nymphs; same data as for preceding; RBINS • 8 nymphs; Forty Mile Scrub National Park; 18°06′36″ S, 144°49′31″ E; 4–5 May 2022; elev. 800 m; J. Constant and L. Semeraro leg.; Leopold III Funds exped.; QM • 7 nymphs; same data as for preceding; RBINS.

**Description**

Measurements and ratios. LT: ♂ (n = 9): 7.2 mm (6.8–7.7); ♀ (n = 3): 8.4 (8.2–8.6) mm; BV/LV = 4.12; BF/LF = 1.70; LP+LM/BT = 0.63; Ltg/BTg = 2.23; LW/BW = 2.15.

**Male**

Head (Fig. 18A–D). Vertex slightly concave with anterior and posterior margins parallel, curved; black-brown; median carina obsolete. Posterior part of head with yellowish markings. Frons uniformly black-brown. Genae black-brown with paler markings along anterior margin behind lateral expansion of frons. Clypeus elongate, entirely black-brown. Labium black-brown, surpassing mesocoxae. Antennae black-brown; scape short, ring-shaped; pedicel subcylindrical, slightly narrowing towards apex.

Thorax (Fig. 18A–D). Pronotum black-brown; slightly wrinkled; two small impressed points on disc slightly marked. Lateral fields of prothorax coloured as pronotum. Mesonotum black-brown; yellowish brown at apex of scutellum and in middle of anterior margin; median and peridiscal carinae weakly marked; median carina ending before scutellum; slight impression before scutellum. Red ventrally. Tegulae brown.

Tegmina (Fig. 18A, C). Dark brown with main veins slightly reddish, sometimes slightly paler in middle portion; yellowish brown marking on vein A1 at midlength of clavus; black area along costal margin, broader on posterior half and along posterior margin; triangular white marking on costal margin on nodal line either present, extending over 2–7 cells, or (often) missing; specimens with well developed white triangle often with some small white spots at apicosutural angle. Costal and sutural margins subparallel; costal margin slightly sinuate; apical margin obliquely rounded with preapical oblique depression.

Posterior wings (Fig. 18E). In darker specimens, black, slightly paler on anal area; no orange-brown marking in middle portion; no white marking at apicocostal angle. In paler specimens (with well developed white triangle on tegmina), orange-brown marking in middle portion between veins CuP and A1; white marking at apicocostal angle extending over 1–3 cells. Margin of anal area slightly sinuate; sutural margin with two clefts, cubital one weakly marked.

Legs (Fig. 18A–D). Pro- and mesocoxae dark brown. Pro- and mesofemora and corresponding tibiae black with few small reddish brown markings. Pro- and mesotarsi black-brown with basal half of third tarsomere slightly paler. Metacoxae red; metafemora reddish brown, black-brown distally. Metatibiae dark brown to reddish brown (in paler specimens), darker towards apex, with three lateral spines, and 9 apical black spines. Metatarsi brown with a ventral row of 6–8 black spines on first tarsomere. Metatibiotarsal formula: (3) 9/6–8/0.

Abdomen. Bright red with genital segments black-brown.

Male terminalia (Fig. 19). Posterior margin of pygofer (*Py*) in lateral view sinuate, moderately roundly projecting at dorsal ¼, moderately broad ventrally (Fig. 19A–B). Anal tube (*An*) spatulate, 2.2 times as long as broad, laterally constricted at level of epiproct (*ep*), very slightly curved ventrally in lateral view; lateral margins slightly curved ventrally on distal ⅔; apical margin rounded (Fig. 19A–E). Gonostyli (*G*) fused on basal 1/5 of length of centroventral part (*cvp*) and projecting posteriorly (Fig. 19A–F). Centroventral part of gonostyli moderately broad and dorsoventrally flattened on basal ¼, then bulged and strongly sinuate dorsad, then caudad in lateral view, narrowing into an elongate process nearly straight in ventral as well as in lateral view, regularly gently tapering towards apex; apex pointed and slightly curved laterad (Fig. 19A–C). Laterodorsal part (*ldp*) of gonostyli robust, pointed apically and moderately curved posteroventrad in lateral view, gently tapering from base towards apex, slightly surpassing half-length of centroventral part, with apex reaching under the level of centroventral part in lateral view; in ventral view, directed mesad in basal portion, then distal portion curved laterad; lateral process (*lp*) elongate, about as long as spoon-shaped process (*ssp*), projecting laterally and slightly curved

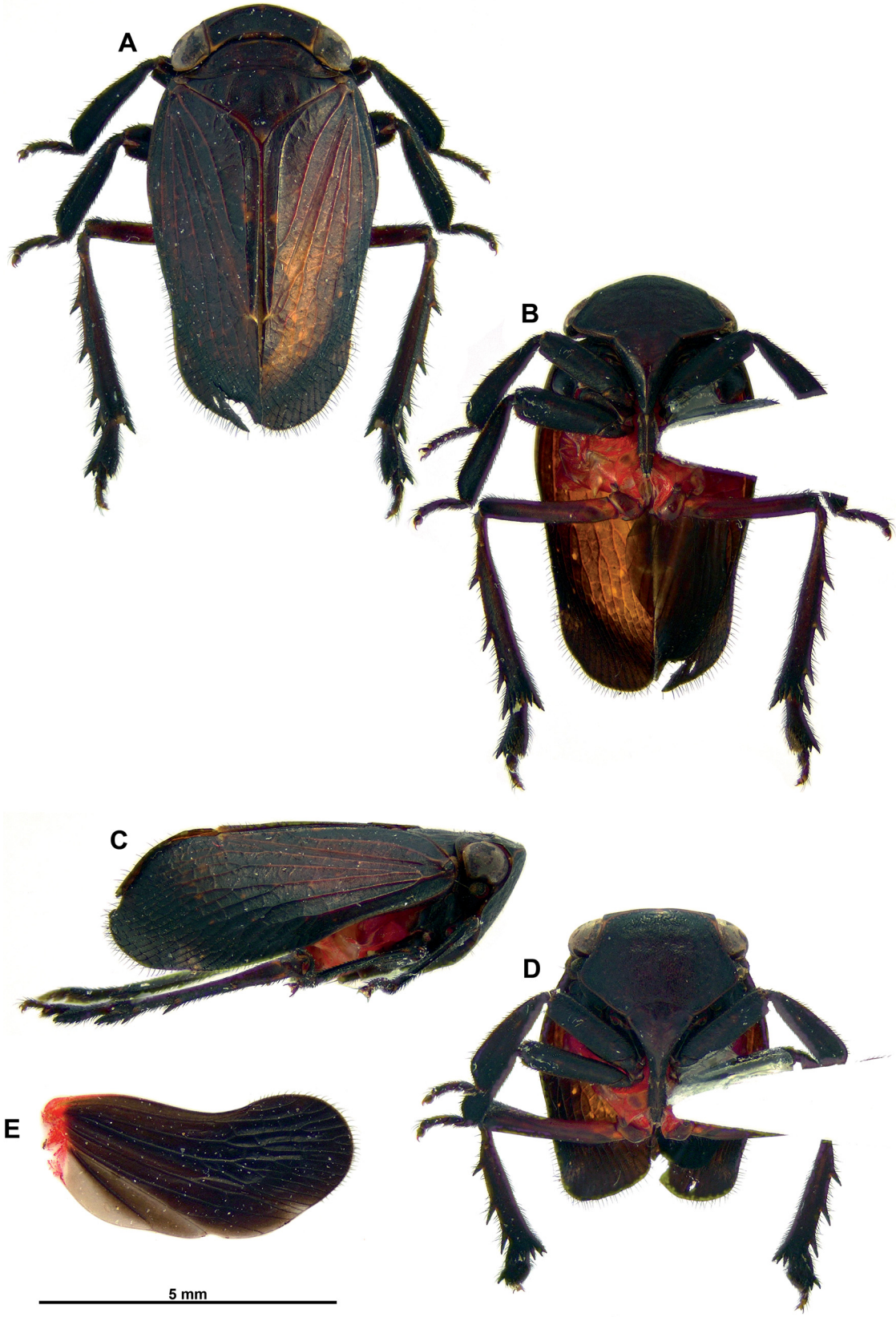


**Fig. 18.** *Olonia lindae* sp. nov., holotype, ♂ (QM). **A–D**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Perpendicular view of frons. **E**. Posterior wing.

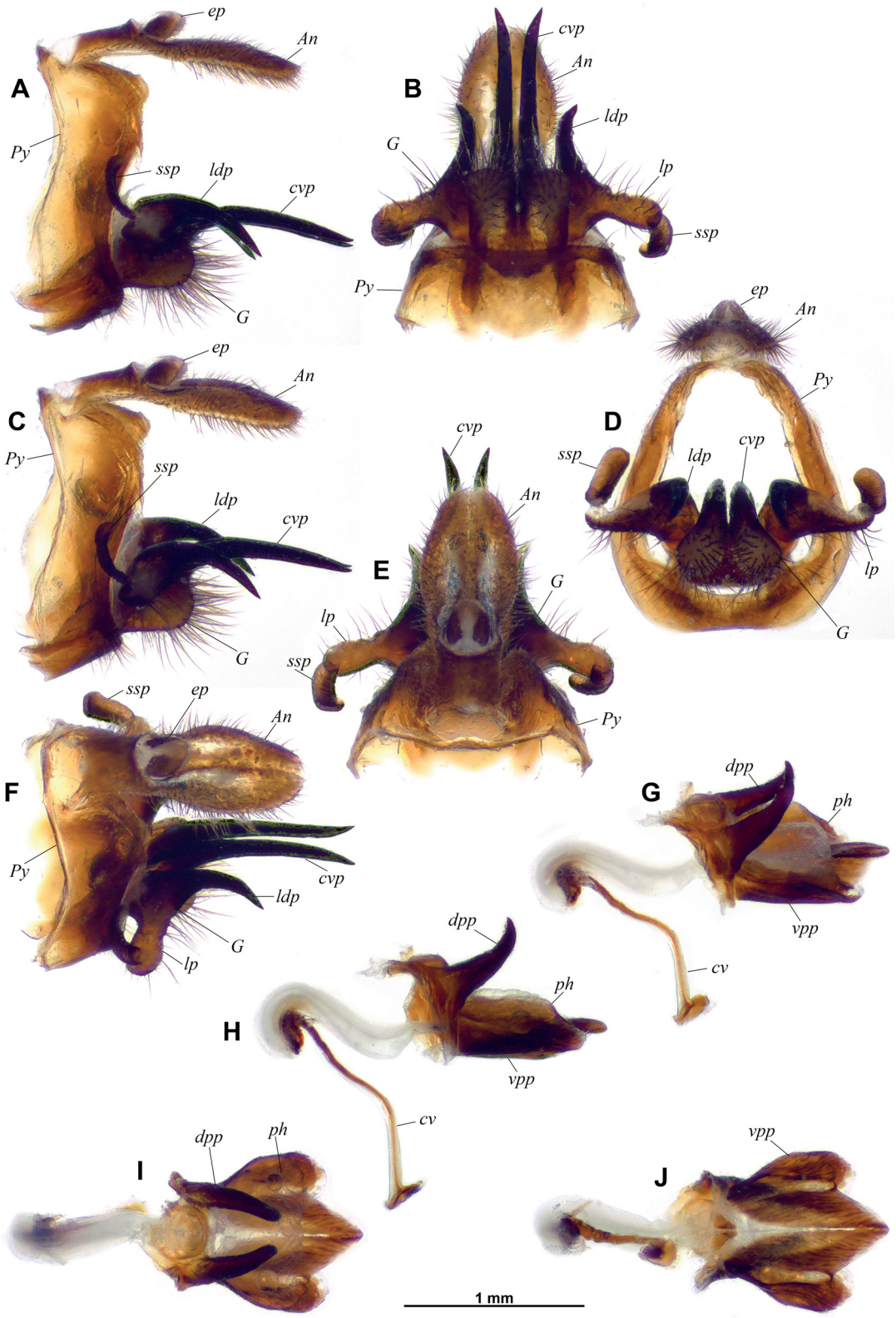


**Fig. 19.** *Olonia lindae* sp. nov., holotype, ♂ (QM), terminalia. **A–F**. Pygofer, anal tube and gonostyli. **A**. Left lateral view. **B**. Ventral view. **C**. Dorsolateral view. **D**. Caudal view. **E**. Dorsal view. **F**. Laterodorsal view. **G–J**. Aedeagus and connective. **G**. Laterodorsal view. **H**. Lateral view. **I**. Dorsal view. **J**. Ventral view. Abbreviations: see Material and methods.

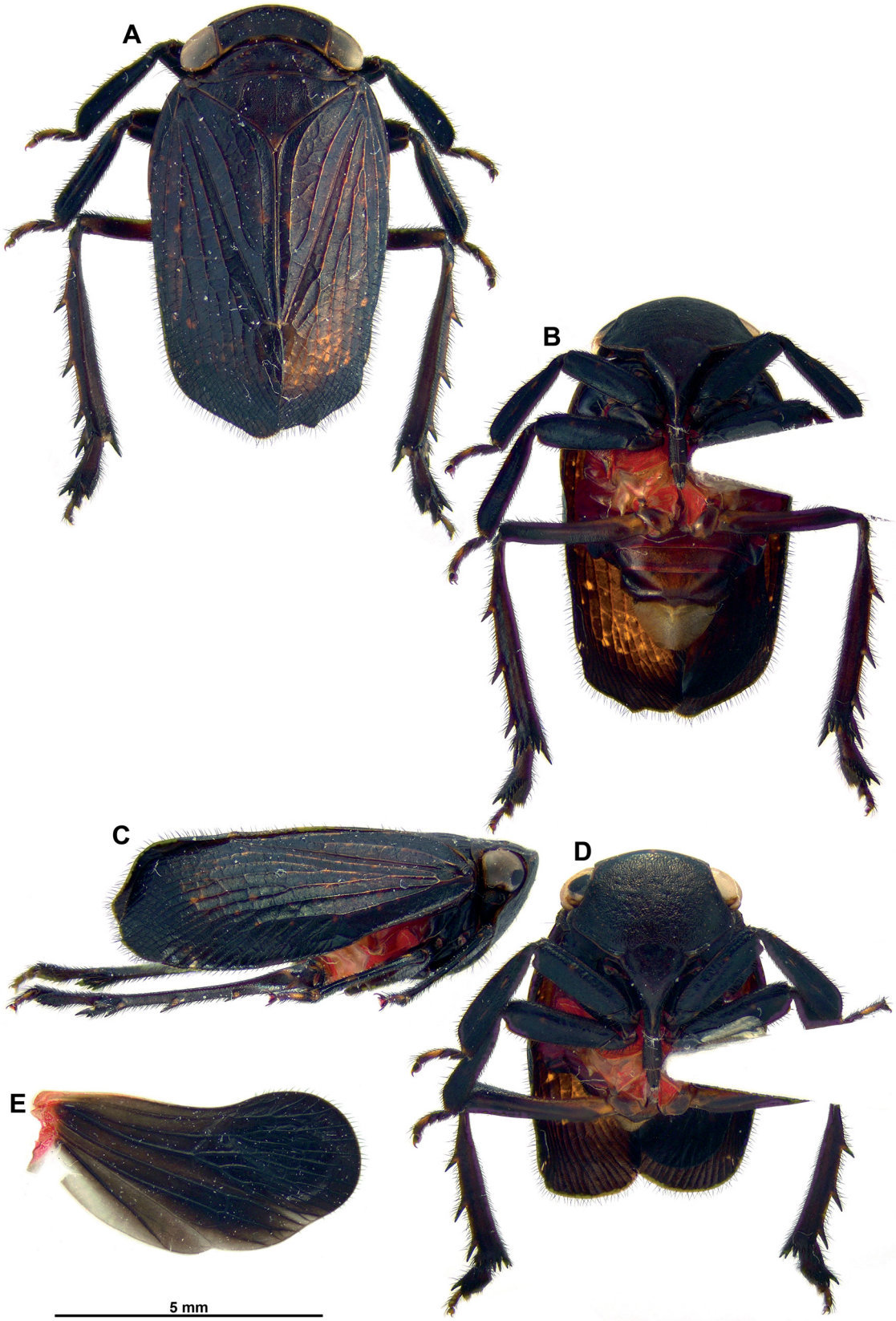


**Fig. 20.** *Olonia lindae* sp. nov., paratype, ♀ (QM). **A–D**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Perpendicular view of frons. **E**. Posterior wing.

anteriorly (Fig. 19A–E). Dorsal portion of phallobase (*dpp*) with elongate process on each side, curved mesocaudad in dorsal view, in lateral view gently tapering from base to apex, directed posterodorsad with distal portion curved dorsad, forming a moderate hook (Fig. 19G–I). Ventral portion of phallobase strongly widening from base towards apex, trilobed in dorsal view, with median lobe surpassing phallus (Fig. 19I). Phallus dorsoventrally flattened, rather broad, with apical margin emarginate in middle (Fig. 19G–I). Connective (*cv*) elongate and narrow, without tectiductus (Fig. 19G–H).

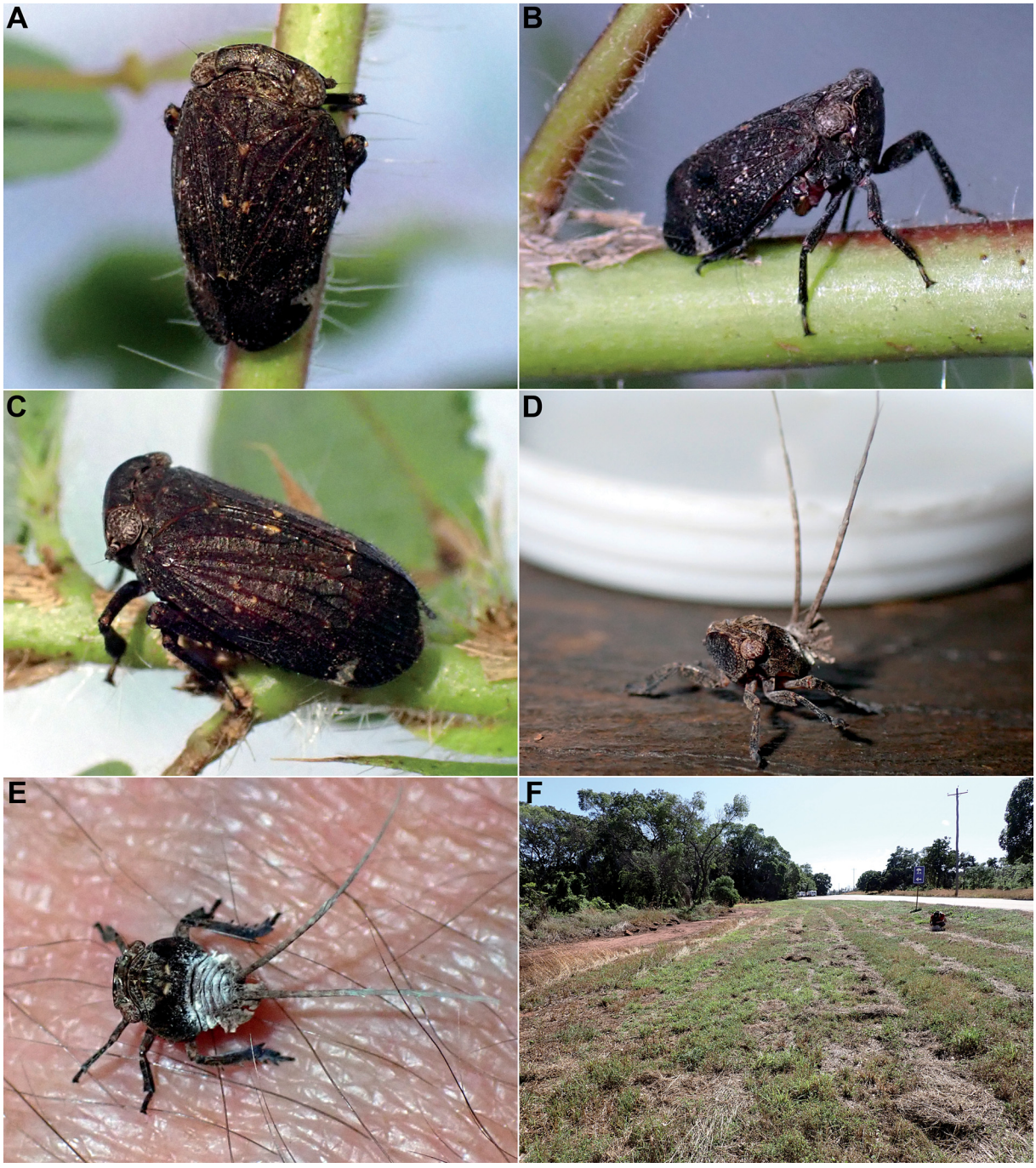


**Fig. 21.** *Olonia lindae* sp. nov., Forty Mile Scrub National Park, 5 May 2022. **A**. Male, dorsal view. **B**. Male, lateral view. **C**. Female, laterodorsal view. **D**. Nymph, anterolateral view. **E**. Nymph, dorsal view. **F**. Habitat.

**Female**

Similar to darker males, with small triangular white marking on costal margin on nodal line of tegmina, often absent; posterior wings without orange-brown marking in middle portion between veins CuP and A1, and white marking at apicocostal angle, absent or very weakly marked (Fig. 20).


**Fig. 22.** *Olonia lindae* sp. nov., Undara Volcanic National Park. **A**. Habitat, 30 April 2022. **B**. Pair (male on the left, female on the right) on young stem of *Eucalyptus* sp. (Myrtaceae). **C**. View of the young stem on the corresponding trunk.

Paler forms might exist but were not observed in this study.

**Distribution and biology**

The species is known from a few localities in North Queensland, in the Einasleigh Upland Savanna bioregion (Fig. 6A). In Undara National Park, two adults and numerous nymphs were collected near Kalkani Crater, by sweeping herbaceous plants in open *Eucalyptus* L'Hér. woodland (Fig. 22A) while a pair was found on a young stem of a *Eucalyptus* tree (Fig. 22B–C); they were not observed feeding. In Forty Mile Scrub National Park, males, females and nymphs (Fig. 21A–E) were collected by sweeping a large mown area along the main road, where the following four host plants were identified, all in the family Fabaceae: *Stylosanthes scabra* Vogel (Fig. 23A–C), *Chamaecrista rotundifolia* (Pers.) Greene (Fig. 23D–G), *Rhynchosia minima* (L.) DC. var. *minima* (Fig. 23H–J), and *Indigofera hirsuta* L. (Fig. 23K–M).

The specimens of this species were collected in January, April and May; nymphs at all stages were observed in May.


**Fig. 23.** Host plants (all Fabaceae) of *O. lindae* sp. nov. in Forty Mile Scrub National Park, 5 May 2022. **A–C**. *Stylosanthes scabra* Vogel. **A**. General view. **B**. Flower. **C**. Leaves. **D–G**. *Chamaecrista rotundifolia* (Pers.) Greene. **D**. General view. **E**. Flower. **F**. Leaves. **G**. Seedpods. **H–J**. *Rhynchosia minima* (L.) DC. var. *minima*. **H**. General view. **I**. Flower. **J**. Leaf. **K–M**. *Indigofera hirsuta* L. **K**. General view. **L**. Leaves. **M**. Seedpods.

***Olonia picea*** Kirkaldy, 1906
Figs 6B, 24

*Olonia picea* Kirkaldy, 1906: 445 (described; compared with *O. rubicunda*, *O. transversa* and *O. apicalis*).

*Olonia picea* – Kershaw & Muir 1922: 208 (note on male terminalia). — Muir 1923: 231, pl. 5 fig. 12 (male terminalia described and illustrated). — Jacobi 1928 (synonymized under *O. transversa* (erroneous!). — Metcalf 1956: 66 (catalogued, under *O. transversa* (erroneous!)). — Constant 2005b: 66 (removed from synonymy with *O. transversa*); 2018: 11 (listed, keyed), 63 (description), figs 3 (distribution map), 40–43 (type, male, female and male terminalia illustrated).

**Diagnosis**

The species can be recognized by the following combination of characters:
(1) hind wings without orange marking (Constant 2018: figs 41e, 43e);
(2) pro- and mesofemora and tibiae largely black-brown (Constant 2018: figs 41a–d, 43a–d);
(3) anal tube of male obovate, narrowing at basal ⅓ (Constant 2018: fig. 42b);
(4) centroventral part of gonostyli with strong, elongate process curved laterally and pointed apically (Constant 2018: fig. 42a, c);
(5) laterodorsal part of gonostyli strongly bifid with dorsal and ventral processes, together forming a C-shape (Constant 2018: fig. 42a, c–d);
(6) rather small size: 6.5–7.5 mm.

**Material examined**

AUSTRALIA – **Queensland** • 1 ♂, 4 ♀♀, 1 nymph; Trinity Beach; 16°46′46″ S, 145°41′49″ E; 13 May 2022; elev. 2 m; leg. J. Constant and L. Semeraro; Leopold III Funds exped.; on *Canavalia rosea* (Fabaceae); QM • 2 ♂♂, 2 ♀♀, 1 nymph; same data as preceding; RBINS.

**Distribution and biology**

The species was known from Cairns and a few localities nearby (Constant 2018). The new record from Trinity Beach fits the known distribution of the species and, being end of May, fills the gap in the known phenology between April and July. *Canavalia rosea* (Sw.) DC. (Fabaceae) is the first host plant recorded for this species.

***Olonia rubicunda*** (Walker, 1851)
Figs 6A, 25

*Eurybrachys rubicunda* Walker, 1851: 391 (described).

*Olonia rubicunda* – Stål 1862: 488 (transferred to *Olonia*). — Distant 1906: 206 (type-species of *Olonia*). — Metcalf 1956: 65 (catalogued). — Constant 2018: 69 (description), figs 3 (distribution map), 44 (type illustrated). — Constant & Semeraro 2020: 6 (keyed), 7 (redescribed, compared with *O. picea*, biology), figs 1–7 (male, female, male terminalia, host plants, habitat, distribution map).
*Eurybrachys rubicunda* – Kirkaldy 1906: 445 (listed as belonging to *Olonia*).

non *Olonia rubicunda* – Jacobi 1928: 4 ((re)described from Kimberley district (erroneous, based on misidentified specimens!)). — Lallemand 1935: 675 (mentioned from Northern Territory (erroneous, based on misidentified specimens!)).

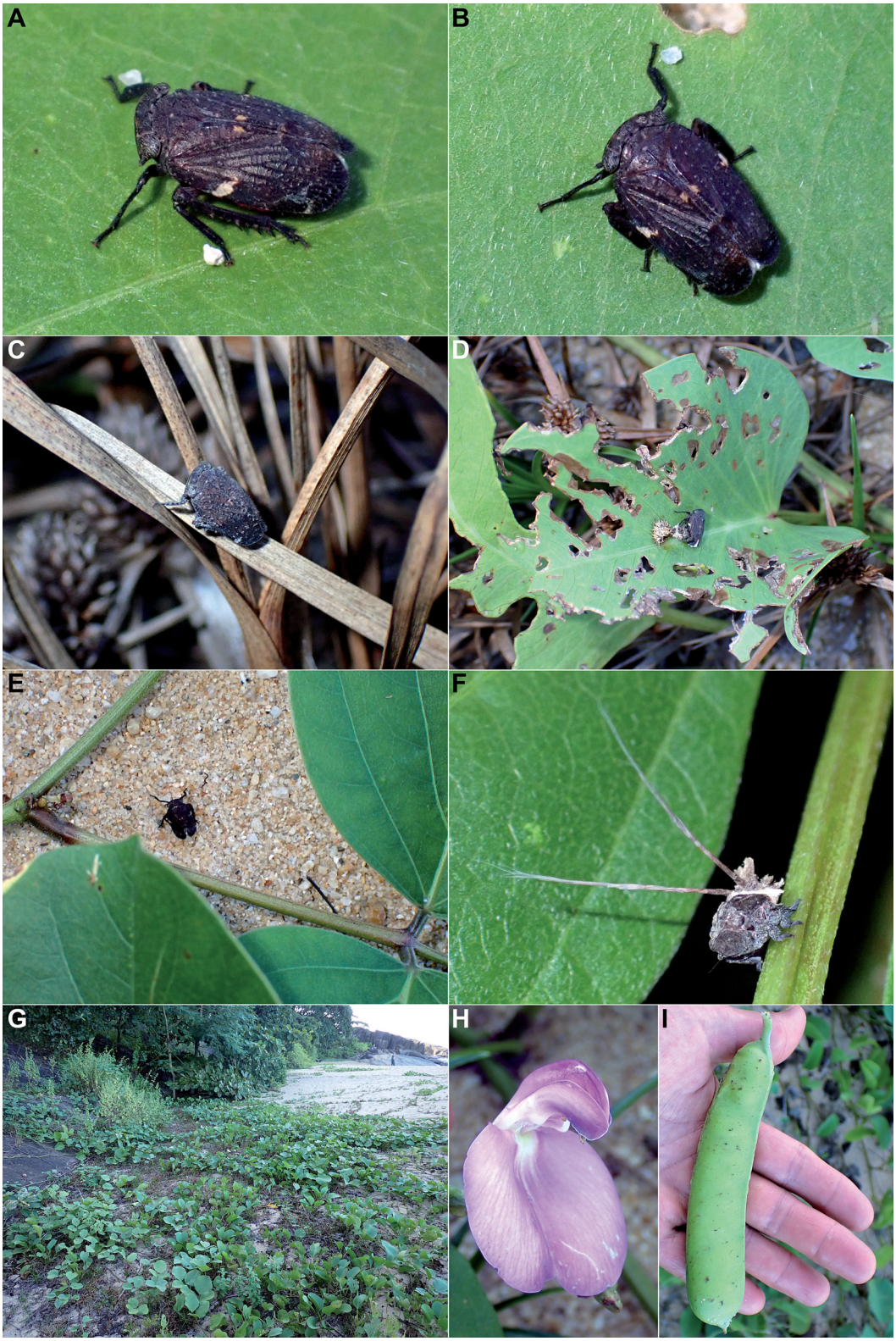


**Fig. 24.** *Olonia picea* Kirkaldy, 1906, Trinity Beach, 13 May 2022, on *Canavalia rosea* (Sw.) DC. (Fabaceae). **A**. Female, laterodorsal view. **B**. Female, dorsal view. **C**. Male, laterodorsal view. **D**. Adult sitting on leaf. **E**. Adult on the sand. **F**. Nymph, anterolateral view. **G**. General view of habitat. **H**. Flower of *C. rosea*. **I**. Seedpod of *C. rosea*.

### Diagnosis

The species can be recognized by the following combination of characters:
(1) disc of hind wings without orange marking but sometimes with a yellow-brown marking on disc (Constant & Semeraro 2020: figs 1e, 2e);
(2) pro- and mesofemora and tibiae largely black-brown (Constant & Semeraro 2020: figs 1a–d, 2a–d);
(3) anal tube of male obovate, narrowing at basal ⅓ (Constant & Semeraro 2020: fig. 3e);
(4) centroventral part of gonostyli with strong, elongate process curved lateroventrally and pointed apically (Constant & Semeraro 2020: fig. 3a–b);
(5) laterodorsal part of gonostyli strongly bifid, with processes in a nearly horizontal plane, and projecting posteroventrally under the centroventral part in lateral view (Constant & Semeraro 2020: fig. 3a–b);
(6) medium size: 6.1–9.3 mm.

### Material examined

AUSTRALIA – **Queensland** • 3 ♂♂, 1 ♀, 2 nymphs; Macrossan Park Camping Area; 20°0′06″ S, 146°26′20″ E; 19–20 Apr. 2022; elev. 250 m; J. Constant and L. Semeraro leg.; Leopold III Funds


**Fig. 25.** Habitat and host plants of *Olonia rubicunda* (Walker, 1851). **A–D**. Macrossan Park, 19 Apr. 2022. **A**. General view of habitat. **B–D**. *Indigofera australis* Willd (Fabaceae). **B**. Entire plant. **C**. Seedpods. **D**. Leaves. **E–G**. Dalrymple National Park, 20 Apr. 2022. **E**. General view of habitat. **F–G**. *Crotalaria novae-hollandiae* DC. (Fabaceae). **F**. Flowers. **G**. Seedpods.

exped.; on *Indigofera australis* (Fabaceae); QM • 2 ♂♂, 2 nymphs; same data as preceding; RBINS • 1 ♂; Dalrymple N.P.; 19°48′30″ S, 146°05′25″ E; 20–21 Apr 2022; elev. 300 m; J. Constant and L. Semeraro leg.; Leopold III Funds exped.; on *Crotalaria novae-hollandiae* (Fabaceae); QM.

**Distribution and biology**

*Olonia rubicunda* was known from several coastal localities in the southern half of Queensland, where host plants were recorded in the families Convolvulaceae (*Ipomoea pes-caprae* (L.) R.Br.), Fabaceae (*Canavalia rosea* (Sw.) DC., *Canavalia sericea* A.Gray, *Clitoria ternatea* L.) and possibly Euphorbiaceae Juss. (*Euphorbia heterophylla* var. *cyathophora* (Murray)) and Lamiaceae Martinov (*Vitex trifolia* L.) (Constant & Semeraro 2020). The species distribution is here expanded inland to the west of the Great Dividing Range, and to the north to Dalrymple National Park (Fig. 6A). Two additional host plants are recorded in the family Fabaceae: *Indigofera australis* Willd. and *Crotalaria novae-hollandiae* DC. (Fig. 25). As adults and nymphs at all stages were found at the end of April, adding to similar records in December and March, it makes it even more likely that adults of the species can be found all year round.

***Olonia soulierae*** Constant, 2018
Figs 26–27

*Olonia soulierae* Constant, 2018: 11 (listed), 12 (keyed), 75 (description), figs 3 (distribution map), 47–49 (male, female, male terminalia).

**Diagnosis**

The species can be recognized by the following combination of characters:
(1) hind wings with orange marking (Constant 2018: figs 47e, 49e);
(2) pro- and mesofemora and tibiae largely black-brown (Constant 2018: figs 47a–d, 49a–d);
(3) anal tube of male narrow and parallel-sided on basal ⅓, then ovate with posterior margin notched (Constant 2018: fig. 48b);
(4) centroventral part of gonostyli with long and narrow process, slightly sinuate basally and with apical hook pointing dorsally (Constant 2018: fig. 48a, c);
(5) laterodorsal part of gonostyli with hooked process curved lateroventrally (Constant 2018: fig. 48a, c–d);
(6) large size: 9.4–11.2 mm.

**Material examined**

AUSTRALIA – **Queensland** • 2 ♂♂, 8 ♀♀, 1 nymph; Chillagoe; 17°08′55″ S, 144°31′43″ E; 7–11 May 2022; elev. 400–500 m; J. Constant and L. Semeraro leg.; Leopold III Funds exped.; QM • 2 ♂♂, 7 ♀♀; same data as for preceding; RBINS • 21 ♂♂, 16 ♀♀, 4 nymphs; same data as for preceding; on *Erythrophleum chlorostachys* (Fabaceae); QM • 21 ♂♂, 16 ♀♀, 4 nymphs; same data as for preceding; RBINS • 1 ♂, 1 ♀; same data as for preceding; on *Crotalaria medicaginea* (Fabaceae); QM • 1 ♂; same data as for preceding; RBINS • 3 ♂♂, 2 ♀♀, 1 nymph; same data as for preceding; on *Sesbania cannabina* (Fabaceae); QM • 2 ♂♂, 1 ♀, 1 nymph; same data as for preceding; RBINS • 4 ♂♂, 1 ♀; same data as for preceding; on *Albizia* sp. (Fabaceae); QM • 3 ♂♂; same data as for preceding; RBINS • 1 ♂, 1 ♀, 1 nymph; same data as for preceding; on *Alstonia actinophylla* (Apocynaceae); QM • 1 ♂, 1 nymph; same data as for preceding; RBINS • 2 ♂♂, 2 ♀♀; Chillagoe, surface around Ryan Creek Tower; 17°08′14.7″ S, 144°26′41.7″ E; 14 Jun. 1987; M. Asche and H. Hoch leg.; A15; MFNB • 7 ♂♂, 4 ♀♀; Chillagoe Caves National Park, turnoff to Royal Arch Cave; 20 Mar. 1997; M. Asche and H. Hoch leg.; Au97-49, 60, 63; MFNB • 1 ♂, 2 ♀♀; same data as for preceding; 17 Mar. 1997; MFNB • 2 ♀♀; same data as for preceding; 19 Mar. 1997; MFNB • 3 ♂♂, 2 ♀♀; S of Chillagoe, Walkunder Towers, surface; 18 Mar. 1997; M. Asche and H. Hoch leg.; Au97-54; MFNB • 1 ♂, 1 ♀; Chillagoe, around hospital; 12 Mar. 1997; M. Asche and H. Hoch leg.; Au97-35; MFNB • 2 ♂♂, 3 ♀♀; Chillagoe

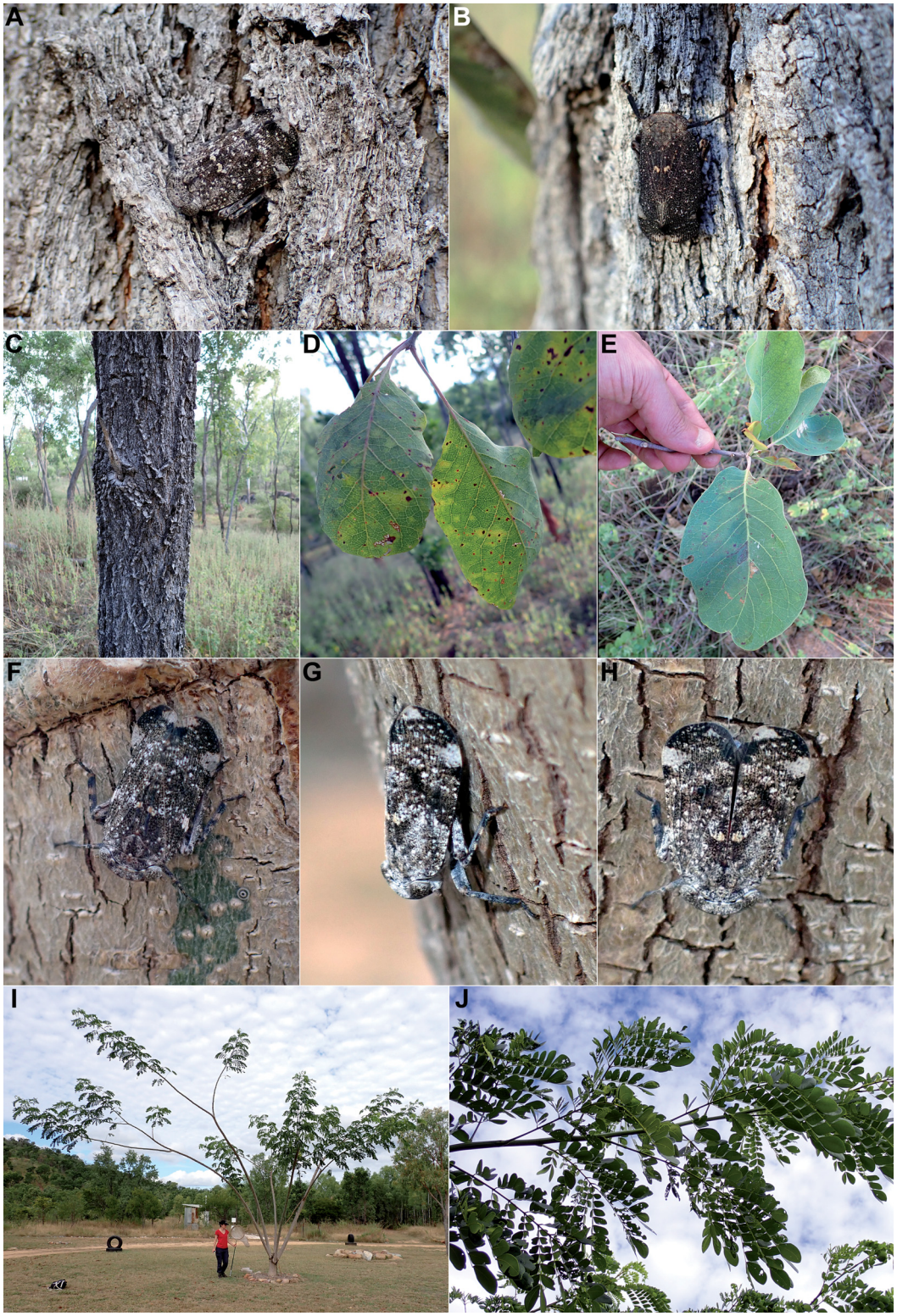


**Fig. 26.** *Olonia soulierae* Constant, 2018, live specimens, habitat and host plants, Chillagoe, 7 May 2022. **A–E**. Host plant: *Erythrophleum chlorostachys* (F.Muell.) Baillon, 1870 (Fabaceae). **A**. Male, dorsal view. **B**. Female, dorsal view. **C**. Habitat and close-up of trunk. **D**. Leaves, underside. **E**. Leaves, upper side. **F–J**. Host plant: *Albizia* sp. (Fabaceae). **F–H**. Male on stem. **I**. Habitat and general view of tree. **J**. Leaves.

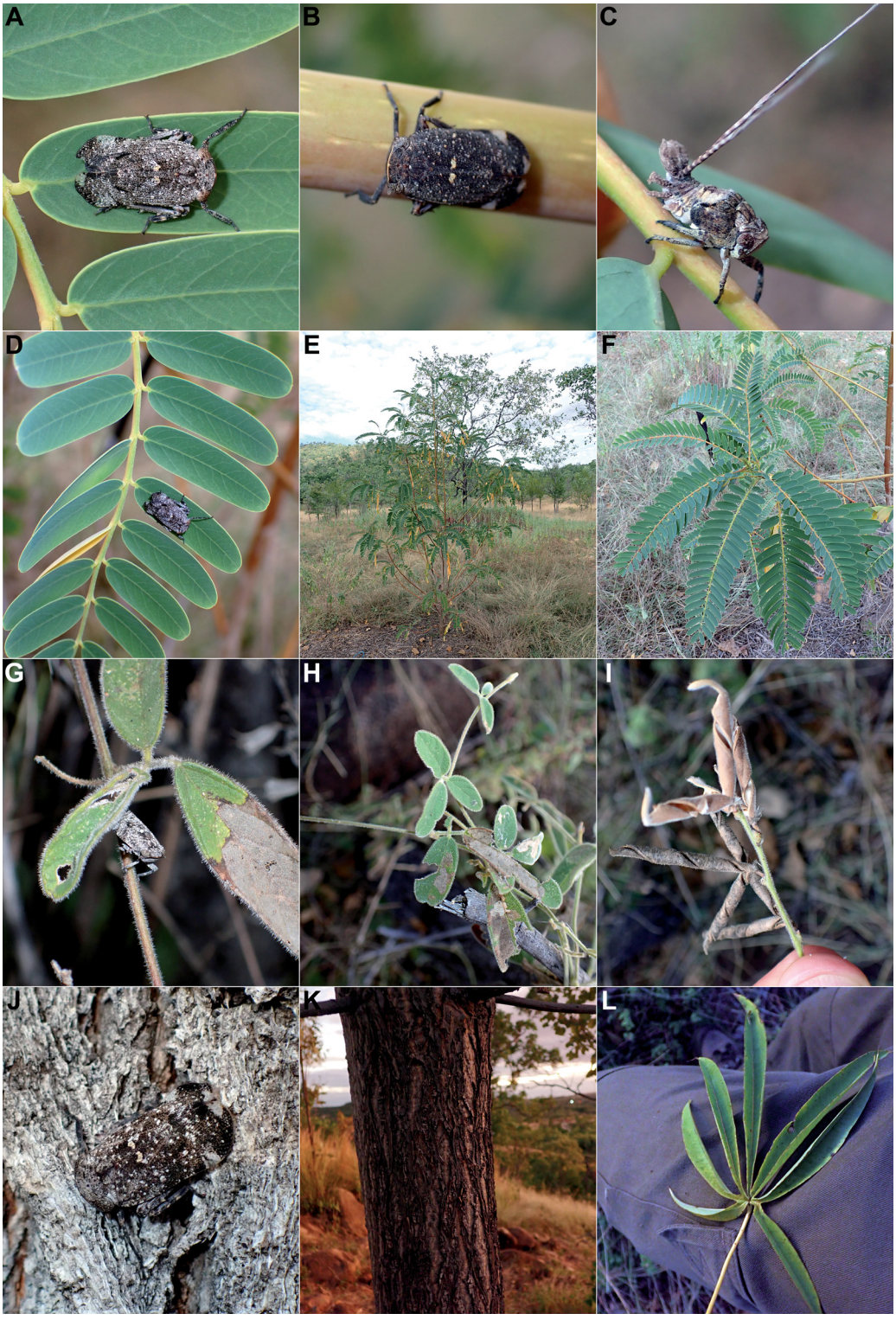


**Fig. 27.** *Olonia soulierae* Constant, 2018, live specimens, habitat and host plants, Chillagoe, 7 May 2022. **A–F**. Host plant: *Sesbania cannabina* (Retz.) Poir. (Fabaceae). **A**. Male, dorsal view. **B**. Female, dorsal view. **C**. Nymph, lateral view. **D**. Male on leaf. **E**. Habitat and general view of tree. **F**. Leaves. **G–I**. Host plant: *Crotalaria medicaginea* Lam. (Fabaceae). **G**. Male on stem. **H**. Leaves. **I**. Seedpods. **J–L**. Host plant: *Alstonia actinophylla* (A.Cunn.) K.Schum. (Apocynaceae). **J**. Male on trunk. **K**. Detail of trunk. **L**. Leaf.

Caves National Park, Hounted Tower; 12–13 Mar. 1997; M. Asche and H. Hoch leg.; Au97-36, 38; sweeping shrubs; MFNB • 1 ♀; Chillagoe, Mungana Caves National Park, surface around Carpentaria Cave; [17°05′31.4″ S, 144°23′51.4″ E]; 12 Jun. 1987; M. Asche and H. Hoch leg.; A12; MFNB • 1 ♂; Chillagoe, around caravan park; 2–7 Jan. 1989; M. Asche and H. Hoch leg.; Au6,8,9,11; at light; MFNB • 1 ♂, 1 ♀; Chillagoe Caves National Park, Royal Arch area, Bluff Lookout; 17 Mar. 1997; M. Asche and H. Hoch leg.; Au97-48; MFNB • 1 ♀; Chillagoe Caves National Park, Royal Arch area, fossil site; 19 Mar. 1997; M. Asche and H. Hoch leg.; Au97-57; MFNB.

**Distribution and biology**

The species was found in numbers in Chillagoe, which is its type locality (Constant 2018). The specimens were collected from a number of host plants in the families of the Fabaceae (*Erythrophleum chlorostachys*, *Crotalaria medicaginea* Lam., *Sesbania cannabina* (Retz.) Poir. and *Albizia* sp.) and Apocynaceae Juss. (*Alstonia actinophylla* (A.Cunn.) K.Schum.) (Figs 26–27). *Erythrophleum chlorostachys* seems to be a main host of this species: many more specimens were observed but not collected, and during the field work, the tree species was nicknamed the "*Olonia* tree". The species is clearly polyphagous as nymphs were observed on all of the listed plant species. Nymphs at all stages were observed together with the adults, which may mean that adults of the species are present all year long.

## Discussion

With four new species in the present study, there are now 16 species described in the genus *Olonia* which becomes the most speciose genus of Eurybrachidae in Australia. The country now counts 67 species in this family with a total of 14 species added in the last few months (Constant 2023).

In terms of the host plants of *Olonia*, 18 plant species were added, belonging to 6 botanical families: Fabaceae (12 species), Malvaceae (2), Proteaceae (1), Apocynaceae (1), Asteraceae (1, unidentified) and Poaceae (1). Five of those families, namely Apocynaceae, Asteraceae, Malvaceae, Poaceae and Proteaceae are recorded as host plants for *Olonia* for the first time; one, Poaceae, needs to be confirmed and might represent an accidental record as all other known hosts are dicots. The family Fabaceae is by far the most represented with 16 species out of a total of 32 host plants for the genus (Table 1), and *Erythrophleum chlorostachys* was clearly the main host of *Olonia soulierae* and *O. guillaumei*, while *Canavalia rosea*, already recorded as an important host plant of *O. rubicunda* by Constant & Semeraro (2020), was the only observed host of *O. picea*. Herbaceaous as well as ligneous Fabaceae were recorded. However, one species, *O. hochae*, was found at all stages, only on a species of Proteaceae, *Persoonia falcata*, while extensive search on the different species of Fabaceae present in the same habitat failed to provide specimens of *Olonia*.

*Olonia hochae* furthermore provided the first record of trophobiosis interaction between an Australian Eurybrachidae and ants (Hymenoptera, Formicidae), in this case a species of the genus *Camponotus*. Only one case of trophobiosis, involving *Gelastopsis insignis* Kirkaldy, 1906 with an unidentified Blattodea, was recorded so far for an Australian Eurybrachidae (Bourgoin *et al*. 2023).

This new observation also raises some questions which remain unanswered: (1) why, out of five males, three females and one nymph observed at the same moment, in the same habitat, on the same host plant species in 2022, was only one female involved in trophobiosis? (2) why was the phenomenon never observed with any of the hundreds of specimens of *Olonia* observed during the expeditions in 2019–2022, even in species close to *O. hochae*, found in very similar habitat conditions, like *O. soulierae* (100+ specimens observed on *Erythrophleum chlorostachys* in Chillagoe) and *O. guillaumei* (six specimens on *E. chlorostachys* in Granite Gorge, Mareeba)?

**Table 1** (continued on next page). Host plants of the species of the genus *Olonia* Stål, 1862.

| | | *O. albomarginata* sp. nov. | *O. aschei* sp. nov. | *O. bourgoini* Constant, 2018 | *O. danielsi* Constant, 2018 | *O. guillaumei* Constant, 2018 | *O. hochae* Constant, 2018 | *O. jackiei* sp. nov. | *O. lindae* sp. nov. | *O. marginata* Distant, 1906 | *O. maura* (Fabricius, 1775) | *O. monteithi* Constant, 2018 | *O. nobilis* (Stål, 1863) | *O. picea* Kirkaldy, 1906 | *O. rubicunda* (Walker, 1851) | *O. rylandae* Constant, 2018 | *O. soulierae* Constant, 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apocynaceae | *Alstonia actinophylla* | | | | | | | | | | | | | | | | ■ |
| Asteraceae | Asteraceae sp. | | | | | | | ■ | | | | | | | | | |
| Bursaceae | *Canarium australianum* | | | | | | | | | ■ | | | | | | | |
| Convolvulaceae | *Ipomoea pes-caprae* | | | | | | | | | ■ | | | ■ | | ■ | | |
| Euphorbiaceae | *Euphorbia heterophylla* var. *cyathophora* | | | | | | | | | | | | | | ■ | | |
| Fabaceae | *Albizia* sp. | | | | | | | | | | | | | | | | ■ |
| | *Canavalia rosea* | | | | | | | | | | | | | ■ | ■ | | |
| | *Canavalia sericea* | | | | | | | | | | | | | | ■ | | |
| | *Chamaecrista rotundifolia* | | | | | | | | ■ | | | | | | | | |
| | *Clitoria ternatea* | | | | | | | | | | | | | | ■ | | |
| | *Crotalaria novae-hollandiae* | | | | | | | | | | | | | | ■ | | |
| | *Crotalaria medicaginea* | | | | | | | | | | | | | | | | ■ |
| | *Erythrophleum chlorostachys* | | | | | ■ | | | | | | | | | | | ■ |
| | Fabaceae sp. | | | | | | | ■ | | | | | | | | | |
| | *Indigofera hirsuta* | | | | | | | | ■ | | | | | | | | |
| | *Indigofera australis* | | | | | | | | | | | | | | ■ | | |
| | *Neptunia major* | ■ | ■ | | | | | | | | | | | | | | |
| | *Rhynchosia minima* var. *minima* | | | | | | | | ■ | | | | | | | | |
| | *Sesbania cannabina* | | | | | | | | | | | | | | | | ■ |
| | *Stylosanthes scabra* | | | | | | | | ■ | | | | | | | | |
| | *Vigna vexillata* | ■ | ■ | | | | | | | | | | | | | | |
| Lamiaceae | *Vitex trifolia* | | | | | | | | | | | | | | ■ | | |
| Malvaceae | *Sida atherophora* | ■ | ■ | | | | | | | | | | | | | | |
| | *Waltheria indica* | | ■ | | | | | | | | | | | | | | |

**Table 1** (continued). Host plants of the species of the genus *Olonia* Stål, 1862.

| | | *O. albomarginata* sp. nov. | *O. aschei* sp. nov. | *O. bourgoini* Constant, 2018 | *O. danielsi* Constant, 2018 | *O. guillaumei* Constant, 2018 | *O. hochae* Constant, 2018 | *O. jackiei* sp. nov. | *O. lindae* sp. nov. | *O. marginata* Distant, 1906 | *O. maura* (Fabricius, 1775) | *O. monteithi* Constant, 2018 | *O. nobilis* (Stål, 1863) | *O. picea* Kirkaldy, 1906 | *O. rubicunda* (Walker, 1851) | *O. rylandae* Constant, 2018 | *O. soulierae* Constant, 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Myrtaceae | *Corymbia tessellaris* | | | | | | | | | | | | | | | | |
| | *Eucalyptus* sp. | | | | | | | | | | | | | | | | |
| | *Melaleuca quinquenervia* | | | | | | | | | | | | | | | | |
| Poaceae | *Oryza sativa* | | | | | | | ?? | | | | | | | | | |
| Proteaceae | *Persoonia falcata* | | | | | | | | | | | | | | | | |
| Solanaceae | *Solanum tubiflorum* | | | | | | | | | | | | | | | | |
| Urticaceae | *Pipturus argenteus* | | | | | | | | | | | | | | | | |
| Vitaceae | *Vitis vinifera* | | | | | | | | | | | | | | | | |

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