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Annales de la Société entomologique de France (N.S.)
International Journal of Entomology

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/tase20

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To cite this article: Niko Kasalo & Josip Skejo (19 Aug 2024): The smallest Australian Tetrigidae (Orthoptera): taxonomic revision of *Peraxelpa* Sjöstedt, 1932 with the descriptions of three new genera and eleven new species, Annales de la Société entomologique de France (N.S.), DOI: 10.1080/00379271.2024.2366405

To link to this article: https://doi.org/10.1080/00379271.2024.2366405

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The smallest Australian Tetrigidae (Orthoptera): taxonomic revision of *Peraxelpa* Sjöstedt, 1932 with the descriptions of three new genera and eleven new species

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(Accepté le 5 juin 2024 ; publié en ligne le 19 août 2024)

Summary. Eastern Australia is a rich biodiversity hotspot that had continuous rainforest cover during the existence of Gondwana but which today is quite fragmented. A large part of Australian rainforest biodiversity remains undescribed. In this study, we present the results of our examination of a part of the Queensland Museum Tetrigidae collection. We describe two new tribes: Echopraxiini **n. trib.** and Quasimodini **n. trib.**; three new genera: *Echopraxia* **n. gen.** (Echopraxiini), *Quasimodo* **n. gen.**, and *Seraph* **n. gen.** (both Quasimodini); and 11 new species: *Echopraxia cooki* **n. sp.**, *E. hasenpuschi* **n. sp.**, *Peraxelpa bogdanovici* **n. sp.**, *P. oankali* **n. sp.**, *P. subedi* **n. sp.**, *P. thompsoni* **n. sp.**, *P. wrightae* **n. sp.**, *Quasimodo janetzkae* **n. sp.**, *Q. kochae* **n. sp.**, *Q. yeatesi* **n. sp.**, and *Seraph maestus* **n. sp.** These taxa cannot be satisfyingly classified in the higher taxonomy due to the unclear placement of the key Cladonotinae genera, namely *Cladonotus*, *Trusmaditetrix*, *Gestroana* and *Potua*. Both tribes are left without subfamilial classification until Cladonotinae can be thoroughly revised.

Résumé. Les plus petits Tetrigidae (Orthoptera) australiens : révision taxonomique de *Peraxelpa* Sjöstedt, 1932 avec les descriptions de trois nouveaux genres et onze nouvelles espèces. L'est de l'Australie est un point chaud de biodiversité qui possédait une couverture forestière continue pendant l'existence du Gondwana, mais celle-ci est aujourd'hui assez fragmentée. Une grande partie de la biodiversité de la forêt tropicale australienne n'est toujours pas décrite. Dans cette étude, nous présentons les résultats de notre examen d'une partie de la collection Tetrigidae du Queensland Museum. Nous décrivons deux nouvelles tribus : Echopraxiini **n. trib.** et Quasimodini **n. trib.** ; trois nouveaux genres : *Echopraxia* **n. gen.** (Echopraxiini), *Quasimodo* **n. gen.**, et *Seraph* **n. gen.** (tous deux Quasimodini) ; et 11 nouvelles espèces : *Echopraxia cooki* **n. sp.**, *E. hasenpuschi* **n. sp.**, *Peraxelpa bogdanovici* **n. sp.**, *P. oankali* **n. sp.**, *P. subedi* **n. sp.**, *P. thompsoni* **n. sp.**, *P. wrightae* **n. sp.**, *Quasimodo janetzkae* **n. sp.**, *Q. kochae* **n. sp.**, *Q. yeatesi* **n. sp.**, et *Seraph maestus* **n. sp.** Ces taxons ne peuvent pas être classés de manière satisfaisante dans la taxonomie supérieure en raison du placement peu clair des genres-clés de Cladonotinae, à savoir *Cladonotus*, *Trusmaditetrix*, *Gestroana* et *Potua*. Les deux nouvelles tribus restent donc sans assignation sub-familiale jusqu'à ce que les Cladonotinae puissent être complètement révisés.

https://zoobank.org/References/F553FF10-BEE7-4E1B-9DD4-9D379373F829

Keywords: biodiversity; Caelifera; taxonomy; morphology

Eastern Australia is a rich biodiversity hotspot that had continuous rainforest cover during the existence of Gondwana, but which has since then undergone numerous contractions and expansions. In recent times, it has become highly fragmented, especially during the Quaternary (Byrne et al. 2011). These rainforests are patchy in modern times as more than 70% of the ancestral natural areas have been degraded (Egerton & Lochman 2009; Williams et al. 2011). These isolated rainforest fragments are similar to islands and their biota may be particularly vulnerable to extinction (Brühl et al. 2003), but mosaics of heterogeneous habitats may also defy the simple assumption of the species-area relationship (Lomolino & Perault 2001). There is still a lot of research to be done into species distribution ranges and the diversity of each area.

The Australian fauna of pygmy grasshoppers (Orthoptera: Tetrigidae) up to now consisted of only 37 species, most of which were described very early in the history of research on this group (Bolívar 1887; Rehn 1952). A recent paper on some peculiar Australian tetrigids

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Published online 19 Aug 2024

concluded that there are still large gaps in the knowledge of this group and that the systematic position of its members remains an open question (Skejo et al. 2020a). Australian collections harbor a large number of specimens gathered over the years, which allows the currently overlooked diversity to be described, thus paving the way for future *in situ* research (Kasalo et al. 2023).

Recently, Storozhenko (2023) described a new tribe, Trusmaditetrigini Storozhenko, 2023, and classified it under Cladonotinae. This new tribe includes species from SE Asia, New Guinea, and New Caledonia, as well as one Australian species, *Tepperotettix* Rehn, 1952. The establishment of this group is an important step in elucidating the evolution and distribution of the mostly flightless genera in this region, but a lot of taxonomic work is still necessary to explore the relationships between taxa at all taxonomic levels.

Alongside *Tepperotetix*, the only Australian genus traditionally classified under Cladonotinae is *Peraxelpa* Sjöstedt, 1932. Until now, *Peraxelpa* included only a single species, *Peraxelpa monstrosa* Sjöstedt, 1932, with few published localities and no studies reassessing its taxonomic position. In order to properly classify *Peraxelpa* in light of recent advances in Tetrigidae systematics, we acquired a loan of the collection kept in the Queensland Museum in Brisbane, which houses a large number of specimens of this genus. Following the examination, we describe more species within the genus *Peraxelpa* and three genera potentially related to it. Based on new data, we propose changes to the higher taxonomy of the family Tetrigidae and identify further research goals.

Materials and methods

Composition of the paper

For each genus and species, a literature review is presented with the main topic of each reference briefly explained. If some of the presented issues warrant further development, those are noted under Notes and are expanded upon in Discussion. Each genus section contains the diagnosis and data on type species, composition, and distribution. Each species section contains the diagnosis and data on the type specimen, type locality, and distribution. To reduce repetition, the new genera are described by listing all the characters shared by the species contained within it, and those species are then defined by only their diagnostic properties. Photographs of entire type series are provided.

Museum abbreviation

QM: Queensland Museum, Brisbane, Australia.

Material

The specimens reported here were collected between 1968 and 2019 during many expeditions to various parts of eastern Australia led by Geoff Monteith and are deposited at QM. The "Material examined" sections include the data on how each specimen was collected. The type specimens of previously described species are available on the Orthoptera Species File website (OSF). All museum specimen records are shown on the map in Figure 1. Some additional specimens were found on iNaturalist and are listed in Table 1.

Taxonomy

Taxonomy follows the OSF (Cigliano et al. 2024).

Equipment and software

The specimens were examined and photographed using the Leica S9D stereomicroscope with a Flexacam C3 12 MP microscope camera. The measurements were made using the ImageJ 1.53t software. The maps were made using the QGIS 3.26.3 software. The final illustrations were made and post-processed for contrast and brightness using Microsoft PowerPoint 2010.

Morphology and measurements

Morphological terminology follows Tumbrinck (2014). Measurements follow Tumbrinck (2014). The following measurements (presented in Tables 2 and 3) were taken: body length (BL), pronotum length (PL), pronotum width (between shoulders) (PWS), pronotum width (maximal) (PWM), infrascapular area length (IAL), infrascapular area width (IAW), pronotum height (maximal) (PHM), vertex width (VW), compound eye width (CEW), antennal groove width (AGW), scutellum width (SW), fore femur length (FFL), fore femur width (FFW) mid femur length (MFL), mid femur width (MFW), hind femur length (HFL), hind femur width (HFW). The way these measurements were taken is presented in Figure 2.

Results

Following our examination of the QM collection, we describe two new tribes, three new genera, and 11 new species. In addition, we report many new records of *P. monstrosa*. These taxa cannot currently be classified under any of the described subfamilies primarily due to the unresolved status of the subfamily Cladonotinae. We provide an identification key to the herein-covered taxa and place them into the biogeographic context of Australia.

Family Tetrigidae Rambur, 1838
Subfamily uncertain

Tribe Echopraxiini n. trib.

Diagnosis

Medial carina visible in anterior third between eyes. Frontal costa bifurcation at lower quarter of eye height. Scutellum short (distance from bifurcation to median ocellus similar to eye height). Paired ocelli at level of ventral margin of eyes. Antennal grooves below level of ventral margin of eyes. Antennae filiform, composed of 11–15 visible segments. Vertex a little incurved in dorsal

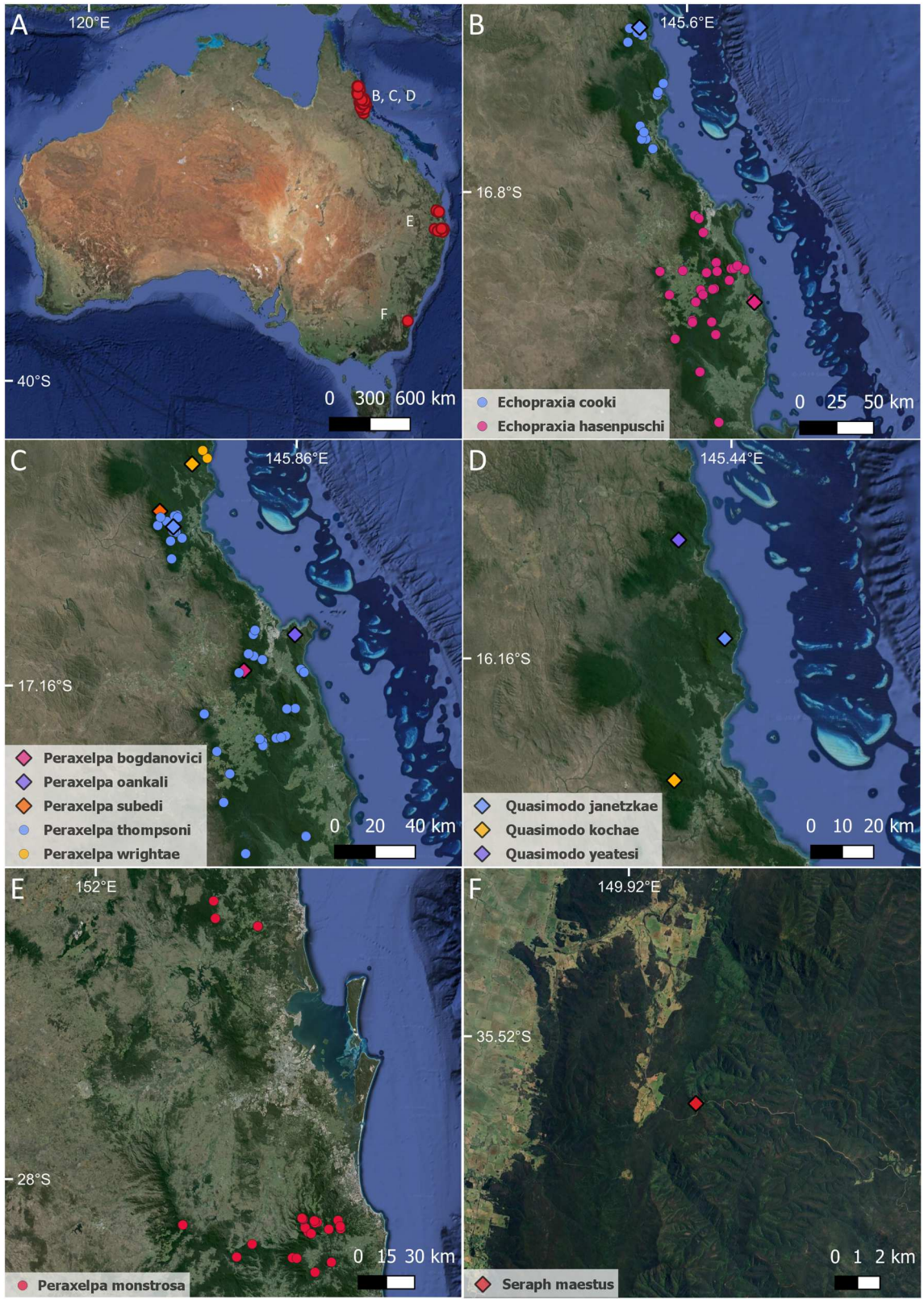

Figure 1. Distribution map of the examined specimens. Localities marked by diamond shapes represent type localities. A diamond shape in the legend indicates that the species is known only from the type locality. **A,** Map of Australia showing the general placement of the localities. **B,** Distribution of *Echopraxia* species. **C,** Distribution of northeastern *Peraxelpa* species. **D,** Distribution of *Quasimodo* species. **E,** Distribution of *Peraxelpa monstrosa*. **F,** Locality of the only *Seraph maestus* specimen.

Table 1. The records of *Echopraxia cooki* available on iNaturalist.

iNaturalist ID	Date observed	Observer	Locality	Species
41216323	11.III.2020	Damon Tighe	Daintree	*Echopraxia cooki*
124096779	18.VI.2022	Elliot Peters	Cape Tribulation	*Echopraxia cooki*
153736212	5.IV.2023	Christopher Mitchell	Cape Tribulation	*Echopraxia cooki*
185245629	28.IX.2023	Kai Squires	Candlenut	*Echopraxia cooki*
178584048	14.VIII.2023	Kai Squires	Candlenut	*Echopraxia cooki*
183405992	14.IX:2023	Kai Squires	Candlenut	*Echopraxia cooki*
177764924	9.VIII.2023	Dean Lyons	Daintree	*Echopraxia cooki*
177718578	10.VIII.2023	Kai Squires	Candlenut	*Echopraxia cooki*
176656554	3.VIII.2023	Kai Squires	Candlenut	*Echopraxia cooki*
164775013	25.V.2023.	Thomas Mesaglio	Douglas	*Echopraxia cooki*
164775049	25.V.2023.	Thomas Mesaglio	Cape Tribulation	*Echopraxia cooki*
184383390	22.IX.2023	Matthew Borella	Wooroonooran	*Echopraxia* sp.
149028458	14.II.2023.	tjeales	Speewah	*Echopraxia cooki*

Table 2. The measurements of the Echopraxiini members. Abbreviations: body length (BL), pronotum length (PL), pronotum width (between shoulders) (PWS), pronotum width (maximal) (PWM), infrascapular area length (IAL), infrascapular area width (IAW), pronotum height (maximal) (PHM), vertex width (VW), compound eye width (CEW), antennal groove width (AGW), scutellum width (SW), fore femur length (FFL), fore femur width (FFW) mid femur length (MFL), mid femur width (MFW), hind femur length (HFL), hind femur width (HFW). holotype (HT), paratype (PT), not a type (noT).

	Echopraxiini													
	Echopraxia				*Peraxelpa*									
	cooki		*hasenpuschi*		*bogdanovici*	*monstrosa*		*oankali*	*subedi*		*thompsoni*		*wrightae*	
	HT ♀	PT ♀	HT ♀	PT ♂	HT ♀	noT ♀	noT ♂	HT ♂	HT ♀	PT ♂	HT ♀	PT ♂	HT ♀	PT ♂
BL	7.20	7.80	6.35	5.60	6.65	8.15	6.75	8.05	8.90	8.30	8.80	5.95	8.85	7.30
PL	4.60	4.80	3.80	3.80	4.00	3.55	3.50	6.00	6.15	6.55	5.25	4.40	5.05	4.55
PWS	2.40	2.45	2.20	2.25	2.25	2.20	1.80	2.70	2.75	2.85	2.60	1.90	2.65	2.10
PWM	4.10	4.20	3.55	3.75	3.20	3.85	3.50	4.05	4.15	4.20	4.10	3.35	4.30	3.90
IAL	2.40	2.35	2.25	1.95	2.10	1.90	2.00	3.20	3.20	3.20	2.55	2.30	2.50	2.00
IAW	0.75	0.80	0.65	0.70	0.70	0.65	0.85	0.70	0.75	0.75	0.75	0.70	0.75	0.60
PHM	2.00	2.00	1.60	1.75	1.80	1.85	2.05	1.95	2.60	2.35	2.45	1.70	2.40	1.85
VW	0.55	0.70	0.65	0.55	0.85	0.85	0.90	0.80	0.95	0.95	0.85	0.90	0.90	0.80
CEW	0.40	0.50	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.45	0.40	0.40	0.40	0.40
AGW	0.20	0.20	0.25	0.15	0.25	0.20	0.25	0.25	0.25	0.25	0.20	0.25	0.25	0.25
SW	0.30	0.35	0.30	0.30	0.40	0.40	0.40	0.35	0.45	0.45	0.40	0.40	0.40	0.35
FFL	1.80	1.75	1.45	1.40	1.40	1.80	1.65	2.10	1.80	1.80	1.90	1.60	1.85	1.85
FFW	0.55	0.55	0.40	0.45	0.45	0.55	0.45	0.60	0.50	0.50	0.55	0.45	0.60	0.60
MFL	2.05	2.15	1.75	1.65	1.55	2.10	1.85	2.15	2.20	2.00	2.15	1.65	2.00	2.10
MFW	0.50	0.50	0.45	0.45	0.45	0.55	0.60	0.55	0.50	0.55	0.65	0.50	0.60	0.50
HFL	4.15	4.35	3.30	3.15	3.80	4.00	3.90	4.60	4.00	3.80	4.50	3.75	4.40	3.90
HFW	1.60	1.60	1.45	1.55	1.55	1.60	1.75	1.85	1.65	1.60	1.80	1.50	1.45	1.35

Note: All measurements are in millimeters (mm).

view. Anterior margin of pronotum straight. Median carina elevated in anterior part, forming crest of various sizes. Strongly tuberculated femora. First segment of anterior tarsus slightly elongated, third segment of hind tarsus shorter than first.

Type genus

Echopraxia **n. gen.**

Composition

Echopraxia **n. gen.**, *Eurymorphopus* Hancock, 1907; *Peraxelpa* Sjöstedt, 1931; *Planotettix* Tumbrinck, 2014.

Distribution

Australia, New Guinea, New Caledonia.

Table 3. The measurements of the Quasimodini members. Abbreviations: body length (BL), pronotum length (PL), pronotum width (between shoulders) (PWS), pronotum width (maximal) (PWM), infrascapular area length (IAL), infrascapular area width (IAW), pronotum height (maximal) (PHM), vertex width (VW), compound eye width (CEW), antennal groove width (AGW), scutellum width (SW), fore femur length (FFL), fore femur width (FFW) mid femur length (MFL), mid femur width (MFW), hind femur length (HFL), hind femur width (HFW). holotype (HT), paratype (PT).

	Quasimodini				
	Quasimodo				*Seraph*
	janetzkae		*kochae*	*yeatsi*	*maestus*
	HT ♀	PT ♂	HT ♀	HT ♀	HT ♂
BL	8.00	6.85	7.70	8.05	5.55
PL	5.80	4.90	5.60	6.10	4.15
PWS	2.55	1.95	2.55	2.60	2.20
PWM	3.65	3.00	3.35	3.70	3.35
IAL	3.00	2.90	2.80	3.30	2.45
IAW	0.70	0.65	0.75	0.90	0.70
PHM	2.95	1.85	2.35	2.40	2.35
VW	0.70	0.75	0.75	0.75	0.70
CEW	0.45	0.40	0.40	0.45	0.40
AGW	0.25	0.20	0.25	0.20	0.25
SW	0.35	0.30	0.35	0.30	0.30
FFL	1.60	1.35	1.40	1.55	1.35
FFW	0.50	0.40	0.50	0.60	0.50
MFL	1.75	1.45	1.40	1.80	1.55
MFW	0.50	0.40	0.50	0.60	0.50
HFL	4.25	3.70	3.80	4.60	3.70
HFW	1.90	1.70	1.80	1.90	1.55

Note: All measurements are in millimeters (mm).

Note

Recently, Storozhenko (2023) described a new tribe, Trusmaditetrigini. Its type species is strongly flattened, and in that regard resembles *Eurymorphopus* and *Planotettix*. On the other hand, *Tepperotettix* and *Devriesetettix* Tumbrinck, 2014 were also included; they are not as flattened but their facial morphology resembles that of *Trusmaditetrix* Storozhenko, 2023 more than that of the aforementioned genera. The final genus assigned to this tribe is *Ichikawatettix* Tumbrinck, 2014, which cannot be easily compared to any of the mentioned genera but seems related to them. With the discovery of *Echopraxia* in Australia, some differences in facial morphology have become apparent. Most notably, the members of Echopraxiini have their facial features (i.e. frontal costa bifurcation, ocelli, antennal grooves) shifted towards the ventral margin of the head. This is consistent even when the lowering of the vertex in some species is taken into account, i.e. the frontal costa measured from base of vertex to bifurcation is longer in Echopraxiini than in Trusmaditetrigini. Another strong character is the scutellum, which is short in Echopraxiini (as long as the eye height in anterior view) and extremely long in Trusmaditetrigini (as long as one and a half of the eye height). This is consistent even in *Tepperotettix*, *Devriesetettix* and *Ichikawatettix* which are wider and less flattened than *Trusmaditetrix*. Besides these characters, the femora in Echopraxiini seem to be more strongly tuberculated and the length of the medial carina of vertex seems to be longer than in the other tribe. Further investigation of this group is required to identify clearer synapomorphies; it is possible that these tribes encompass more different groups. See the discussion on Cladonotinae below.

Genus *Echopraxia* n. gen.

Diagnosis

Antennae filiform, with 11–12 visible antennomeres. Vertex approximately 1.5 times wider than an eye. In anterior part of pronotum, median carina in shape of small angular backward-pointing crest. Femora strongly tuberculated. Third tarsal segment of hind leg short.

Description

Frontal costa bifurcation at ventral quarter of eye height. Scutellum vase-shaped. Paired ocelli at level of ventral margin of eyes. Antennal grooves below ventral margin of eyes. Antennae filiform. Vertex approximately 1.5 times wider than eye. In anterior view, base of vertex below level of margin of eyes; vertex crown-like due to

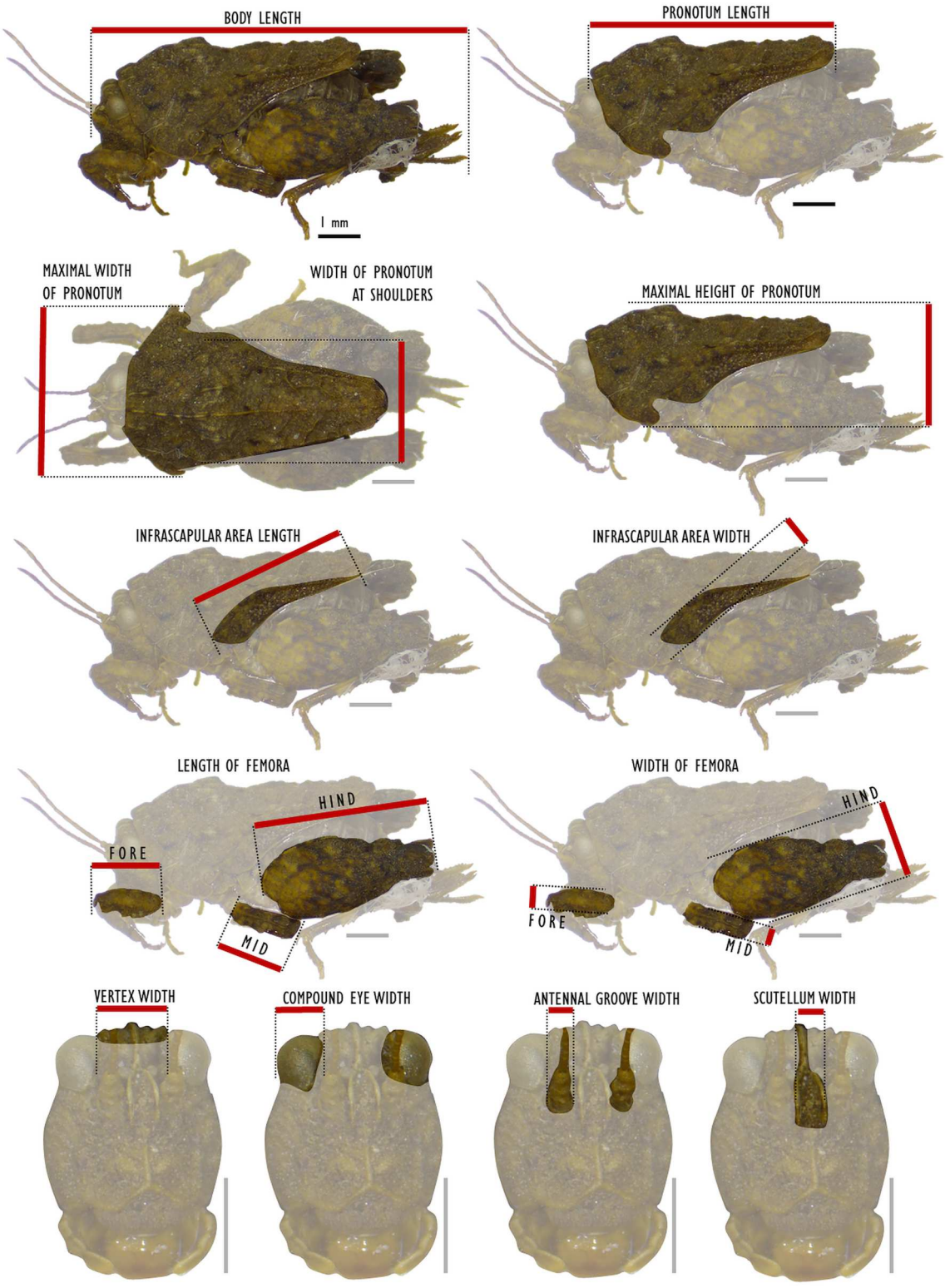

Figure 2. Illustration of the taken measurements. The way in which key characters are measured is shown on the example of *Quasimodo janetzkae* holotype.

slightly elevated carinae. In dorsal view, anterior margin of vertex not reaching anterior margin of eyes; slightly narrowing anteriorly. Medial carina visible in anterior third between eyes, projected anteriorly. Lateral carinae U-shaped, visible in anterior third between eyes, slightly projected anteriorly. Anterior margin of pronotum straight.

Prozonal carinae parallel, incurved caudally. Median carina distinct and elevated throughout its length, forming small hump above lateral lobes. Lateral lobes projecting outwards, slightly bilobate, serrated. Ventral sinus blunt. Tegminal sinus absent. Infrascapular area wide above middle femur, narrowing towards pronotal apex but terminating before apex. Humeral angles blunt. Pronotal apex wide. Tegmina and wings absent. Anterior femur serrated; dorsal margin with three teeth; ventral margin with two teeth. Anterior tibia a little expanded in middle. First segment of anterior tarsus short. Middle femur serrated; dorsal margin with 3 teeth; ventral margin with four teeth. Middle tibia expanded throughout its length. Hind femur robust, with protrusions and lappets. Hind tibia straight and smooth with small teeth in distal two thirds. First tarsal segment as long as third. Distal pulvillus rounded, middle pulvillus sharp, proximal pulvillus sharp and barely distinct.

Type species

Echopraxia cooki **n. sp.**

Composition

Echopraxia cooki **n. sp.**, *Echopraxia hasenpuschi* **n. sp.**

Distribution

Northeastern Australia.

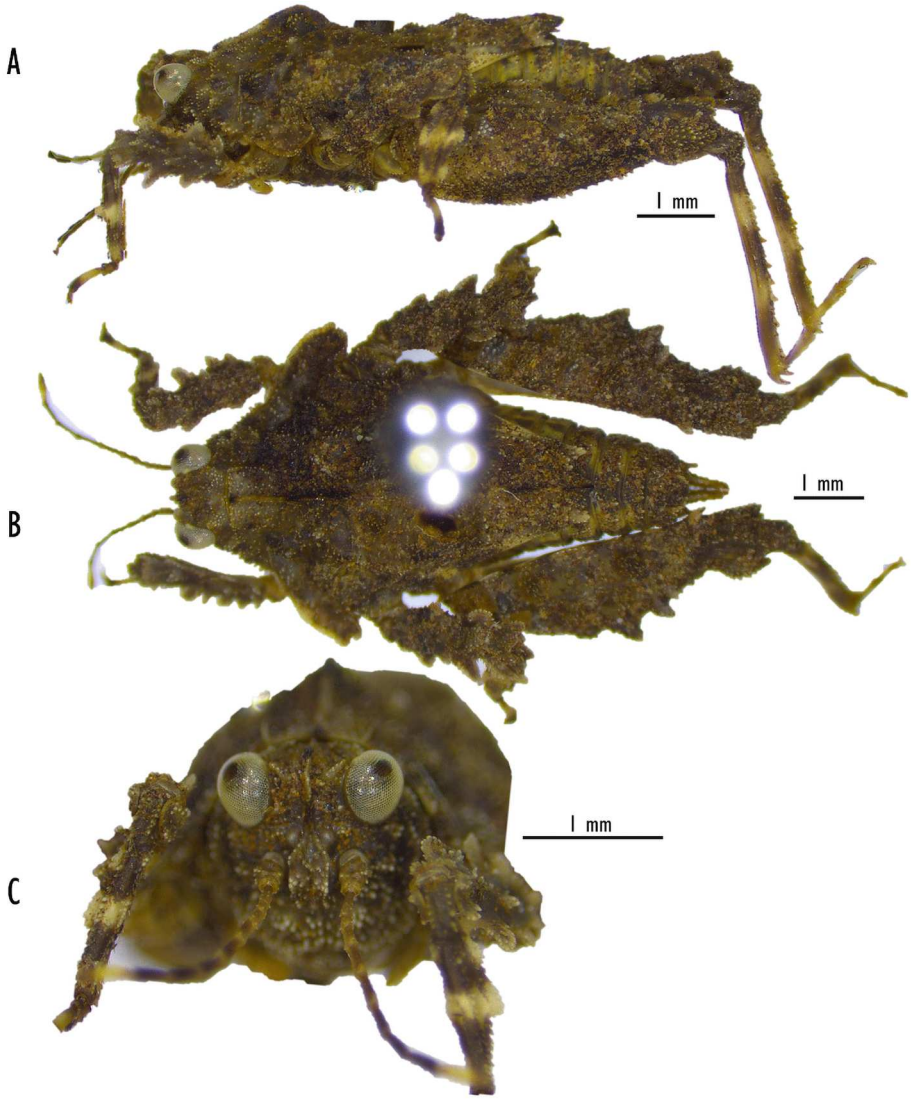

Figure 3. *Echopraxia cooki* **n. gen., n. sp.** (Echopraxiini **n. trib.**), holotype ♀. **A,** Left lateral view. **B,** Dorsal view. **C,** Head in frontal view. Scale bar: 1 mm.

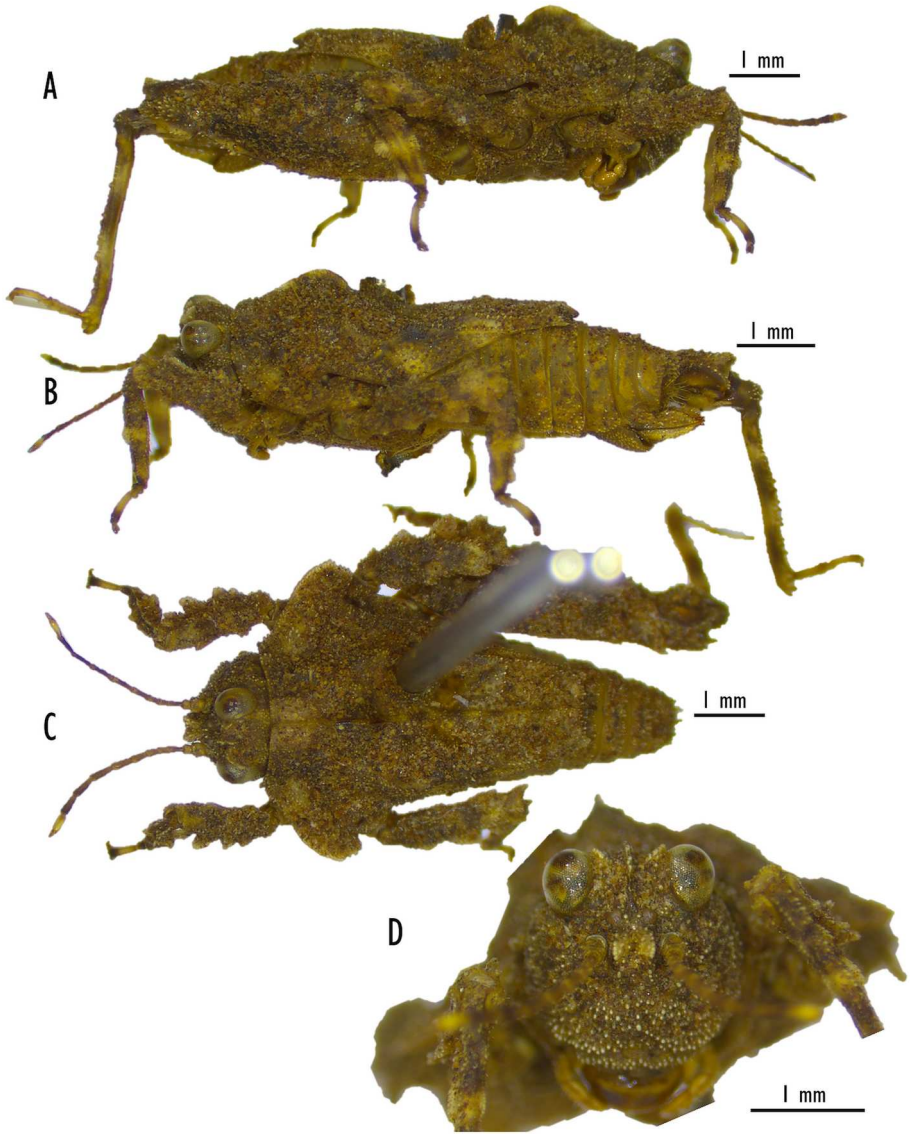

Figure 4. *Echopraxia cooki* **n. gen., n. sp.** (Echopraxiini **n. trib.**), paratype ♀. **A,** Right lateral view. **B,** Left lateral view. **C,** Dorsal view. **D,** Head in frontal view. Scale bar: 1 mm.

Etymology

Refers to the phenomenon of the involuntary repetition of the observed movements of another as well as to the excellent novel by Peter Watts. The genus name is of feminine gender.

Echopraxia cooki n. sp. (Figures 3–5)

Type series

Holotype. ♀, Australia. Bloomfield Road; −15.785, 145.296; 20–27.VII.1974; Monteith, Cook leg.; QM Reg No T258410.

Paratype. 1♀, *idem*; QM Reg No T258411.

Additional material

Australia. 1♀, 1♂; Bloomfield Road; −15.785, 145.296; 20–27.VII.1974; Monteith, Cook leg. – 1♂; *idem*; 100 m asl; 8–9.V.1970.; Monteith leg. – 1♀; Shiptons Flat; −15.792, 145.232; 20–27.VII.1974; Monteith, Cook leg. – 1♂; *idem*; 6.XII.1990–19.I.1991; QM and ANZSES leg.; Flight intercept. – 1♂; Mt Misery Road; −15.877, 145.221; 1–3.I.1991; ANZSES expedition leg. – 2♀; Mt McMillan; −15.835, 145.313; 11–13.I.1991; ANZSES expedition leg. – 1♀; Mt Finnigan; −15.819, 145.282; 3–5.XII.1990; Monteith, Thompson, Cook, Sheridan, Roberts leg. – 1♂;

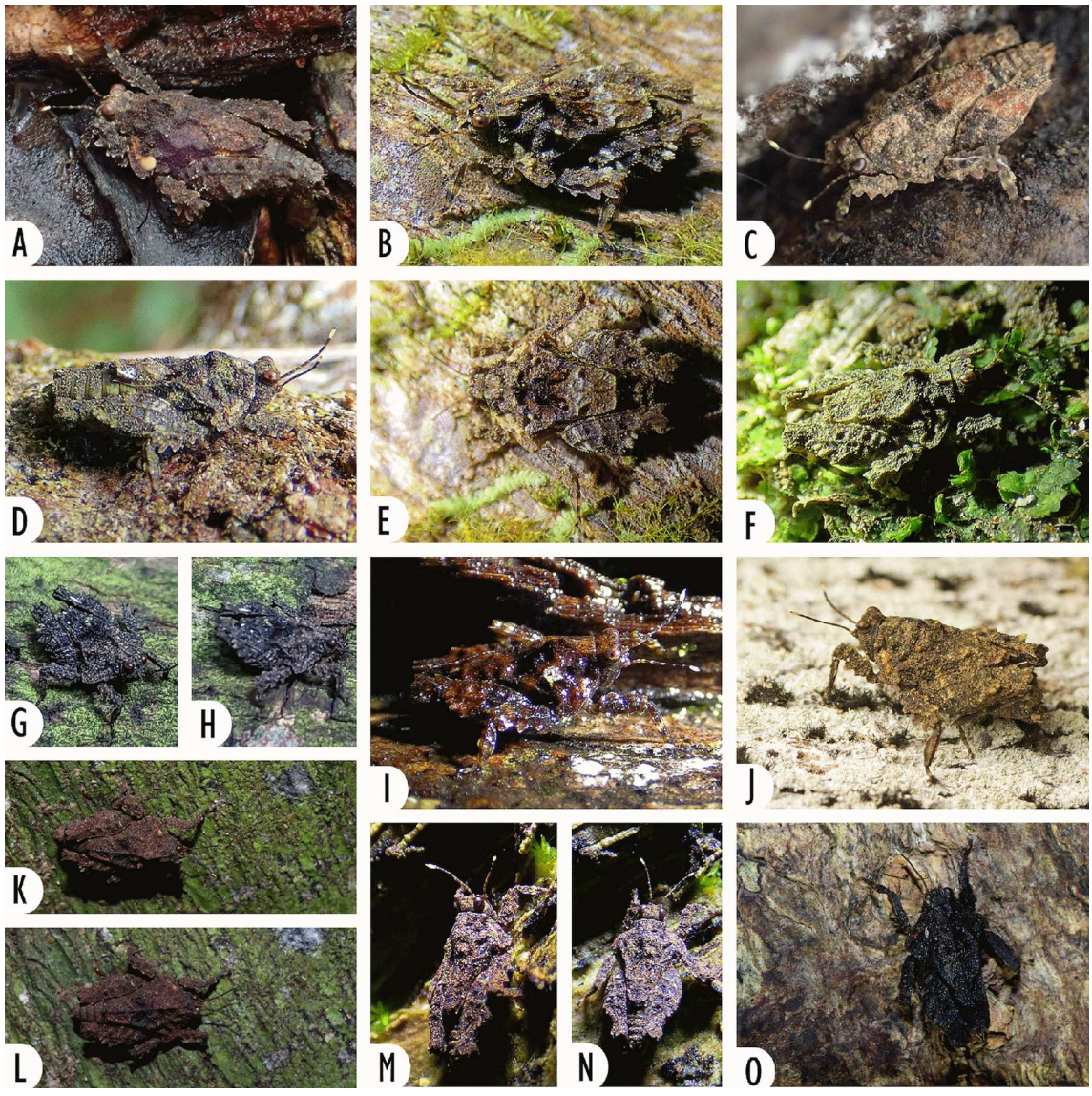

Figure 5. *Echopraxia cooki* **n. gen., n. sp.**, specimens in their natural habitat. (Photo credits: A, Damon Tighe; B, D, E, F, I, M, N, Kai Squires; C, Dean Lyons; J, tjeales; G, H, Christopher Mitchell; K, L, O, Thomas Mesaglio).

Daintree, Lync Haven; −16.203, 145.409; 2–11.XII-2012.; Monteith leg. – 1♂; Daintree, Candlenut Road; −16.184, 145.415; 2–11.XII-2012.; Monteith, Turco leg. – 1♀, 1♂, 1 N; Daintree, Cooper Creek; −16.132, 145.448; 21–22.VI.1969; Monteith leg. – 3♂; Mossman Bluff Track 360 m Site 3; −16.473, 145.316; 1–16.I.1989; Monteith, Thompson, ANZSES leg.; Pitfall. – 1♂; *idem*; 20.XII.1989–15.I.1990; Monteith, Thompson, ANZSES leg. – 1♂; *idem*; 16–30.XII.1988; Monteith, Thompson, ANZSES leg.; Flight intercept. – 1♀; Mossman Bluff Track 480 m Site 4; −16.475, 145.310; 16.XII.1988; Motheith, Thompson leg.; Pyrethrum – logs and trees. – 1♀, 1♂; Mossman Bluff Track 300 m Site 2; −16.471, 145.317; 20.XII.1989–15.I.1990; Monteith, Thompson, ANZSES leg.; Flight intercept. – 1♂; *idem*; 1–16.I.1989; Monteith, Thompson, ANZSES leg.; Flight intercept. – 1♂; *idem*; 16–30.XII.1988; Monteith, Thompson, ANZSES leg.; Flight intercept. – 1♂; Mossman Bluff Track 250 m Site 1; −16.469, 145.316; 20.XII.1989–15.I.1990; Monteith, Thompson, ANZSES leg.; Flight intercept. – 1♀; Mossman Gorge; 9.VIII.1966.; Monteith leg. – 1♀; Mossman Bluff Track 480 m Site 4; −16.475, 145.310; 1–16.I.1989; Monteith, Thompson, ANZSES leg. – 2♂; Karnak-Devils Thumb Site 4300 m; 26.XII.1989–15.I.1990.; ANZSES expedition leg.; Flight intercept. – 1♂; Rex Range, summit; 18.V.1998; Monteith leg.; Pyrethrum – trees. – 2♂; O'Donoghue's Falls; −16.432, 145.324; 15.V.1995; Monteith leg.; Pyrethrum – logs and trees.

Diagnosis

Antennae filiform, composed of 11 visible segments. Posthumeral spots present. Pronotal apex wide, three-spined. Hind femur robust with two strong lateral protrusions; ventral margin serrated; dorsal margin with two lappets; small antegenicular and genicular tooth.

Distribution

North of Cairns.

Etymology

Named for Doug Cook, master bushman, who guided many of the Queensland Museum collecting groups into remote mountain areas before the invention of modern GPS navigation. The specific epithet is a Latinized noun in genitive.

Living representatives

This is the only species for which we have *in situ* photographs. As can be seen in Figure 5, there is a large variability in coloration which is likely cryptic. Some observers noted that specimens of this species are usually observed immobile on the tree trunks.

Echopraxia hasenpuschi n. sp. (Figures 6, 7)

Type series

Holotype. ♀, Australia. Polly Creek; −17.477, 146.032; 13.I–4.II.2010; Hasenpusch leg.; QM Reg No T258412. **Paratype.** 1♂, *idem*; QM Reg No T258413.

Additional material

Australia. 2♀, 2♂, 1 N; Polly Creek; −17.477, 146.032; 13.I–4.II.2010; Hasenpusch leg. – 1♀, 1 N; *idem*; 25.XI.1994–10.1.1995; Monteith, Hasenpusch leg.; Flight intercept. – 1♀; Graham Range; −17.276, 145.970; 8–9.XII.1995; Monteith, Thompson, Cook leg.; Pyrethrum – logs and trees. – 1♂; Stone Creek; −17.459, 146.019; 1.XI.1995–6.II.1996; Hasenpusch leg.; Flight intercept. – 1♂, 1 N; Kearney's Falls, Upper Mulgrave; −17.233, 145.787; 10.XII.1988; Monteith, Thompson leg. – 2♂; Mt Father Clancy; −17.588, 145.634; 6.XII.1988; Monteith, Thompson leg. – 1♀; Mt Bartle Frere track, 700 m; −17.393, 145.775; 8.XII.1988; Monteith, Thompson leg. – 1♂; Downey Creek; −17.674, 145.784; 7.XII.1988; Monteith, Thompson leg.; Pyrethrum – logs and trees. – 1♂; Baldy Mtn Road; −17.288, 145.427; 10.X.1980; Monteith leg. – 1♂; Kirrama Range; −18.210, 145.804; 2–3.X.1980; Monteith leg. – 2♀; Gadgarra; −17.295, 145.725; 9–31.XII.1989; Monteith, Thompson, Janetzki. – 1♀; Zillie Falls; −17.475, 145.656; 1.I.1990; Monteith leg. – 1♀; Upper Isley Creek; −17.049, 145.704; 750 m asl; 29.XII.1993; Monteith, Janetzki leg. – 1♂; Bellenden Ker, Tower 6; −17.270, 145.883; 17–24.X.1981; Earthwatch, QM leg.; Sieved litter. – 1♂; Bellenden Base Station; −17.269, 145.900; 17.X–9.XI.1981; Earthwatch, QM leg. – 3♂; Curtain Fig Tower; −17.283, 145.573; 25.XII.1989; Monteith leg.; Pyrethrum – logs. – 1♂; Bartle Frere, west base; −17.396, 145.764; 25.XI.1994–10.I.1995; Monteith, Hasenpusch leg.; Flight intercept. – 1♀; Charmillin Creek; −17.701, 145.524; 1.XII.1997; Monteith leg.; Pyrethrum – logs and trees. – 1♂; *idem*; 8.XII.1989–5.I.1990; Monteith, Thompson, Janetzki leg. – 4♂; Mt Kooroomool summit; −17.902, 145.683; 4.XII.1998; Monteith leg.; Pyrethrum – logs and trees. – 2♀, 1♂; Topaz, PEI Road; −17.400, 145.687; 6.XII.1993–25.II.1994; Monteith, Cook, Janetzki leg. – 2♂, 1 N; Topaz, Hughes Road; −17.430, 145.702; 6.XII.1993–25.II.1994; Monteith, Cook, Janetzki leg. – 1♂; Crater Nat. Park; −17.431, 145.487; 9.VIII.1968; Cantrell leg. – 2♀, 1 N; Palmerston NP; −17.599, 145.635; 7–8.VIII.1968; Cantrell leg. – 1♂; Palmerston; Henrietta Creek; −17.597, 145.758; 29.XII.1964; Monteith leg. – 1♂; *idem*; 5.XII.1965; Monteith leg. – 1♀, 1♂; Babinda, The Boulders; −17.342, 145.871; 7.VIII.1966; Monteith leg. – 1 N; *idem*; 15.XII.1966; Cantrell leg. – 1♀; Crystal Cascades; −16.963, 145.677; 9.XII.1964; Monteith leg. – 1♀; *idem*; 8.VIII.1966; Monteith leg. – 2♂; 6 km N of Babinda; −17.252, 145.923; 7.VIII.1966; Monteith leg. – 1♂; Upper Mulgrave River; −17.287, 145.793; 15.VIII.1966; Monteith leg. – 1♀; *idem*; 26–27.XII.1967; Monteith leg. – 1♂; Chujeba Peak, west slope; −16.944, 145.650; 14.XII.1989; Monteith, Thompson leg.; Pyrethrum – logs and trees.

Diagnosis

Antennae filiform, composed of 12 visible segments. Posthumeral spots present. Pronotal apex wide, rounded. Hind femur robust with one strong lateral protrusion; ventral margin serrated; dorsal margin with two slight lappets; very large antegenicular and small genicular tooth.

Distribution

South of Cairns.

Etymology

Named for Jack Hasenpusch, who collected the type series of this species. The specific epithet is a Latinized noun in genitive.

Genus *Peraxelpa* Sjöstedt, 1931

Peraxelpa Sjöstedt 1931, p. 4 (original description of the genus, monotypic); Sjöstedt 1935, p. 6 (included in a key); Günther

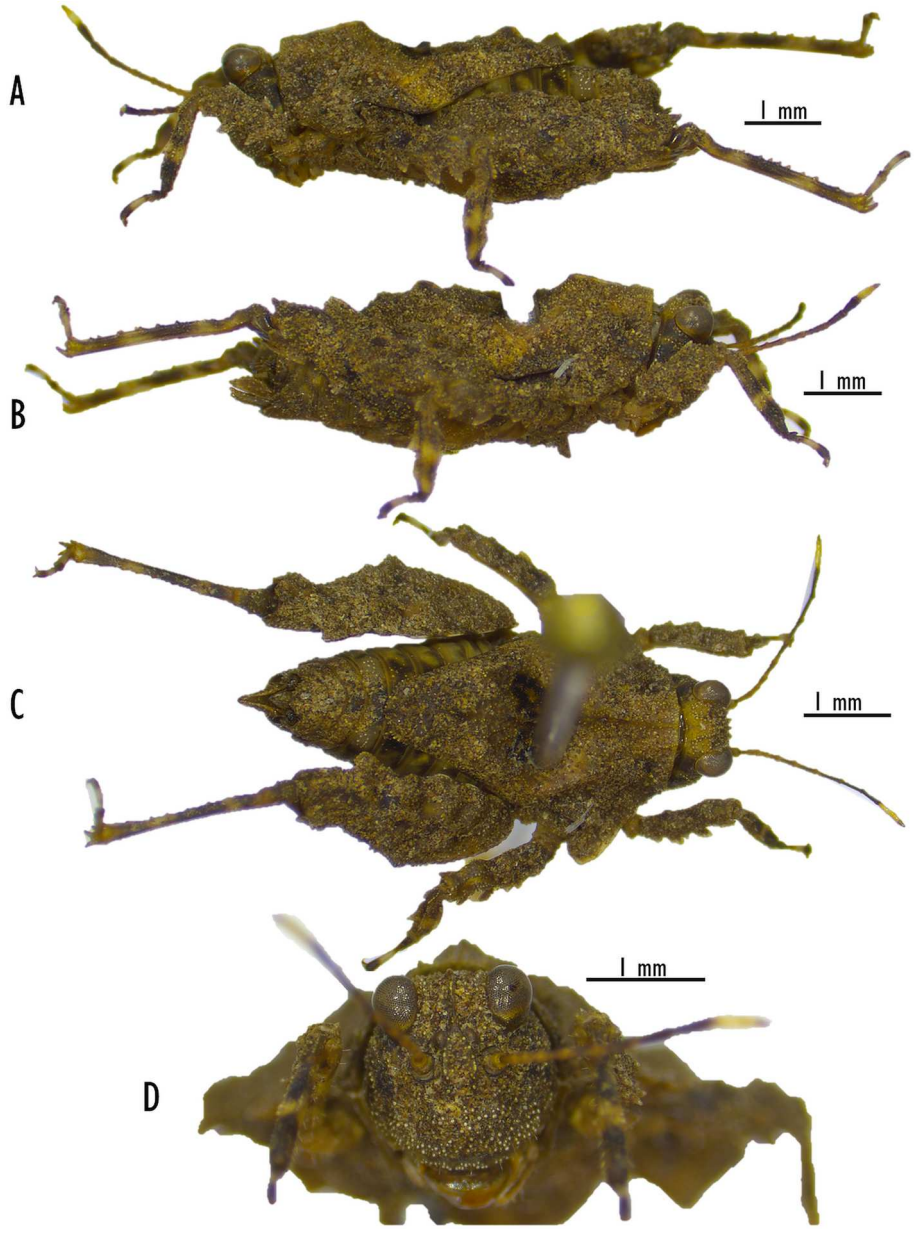

Figure 6. *Echopraxia hasenpuschi* **n. gen., n. sp.** (Echopraxiini **n. trib.**), holotype ♀. **A,** Left lateral view, **B,** Right lateral view, **C,** Dorsal view, **D,** Head in frontal view. Scale bar: 1 mm.

1938, p. 313 (included in a key); Rehn 1952, p. 29 (redescription and detailed examination of the genus); Steinmann 1970, p. 157 (included in a catalog); Yin et al. 1996, p. 533 (included in a catalog); Otte 1997, p. 25 (included in a catalog); Tumbrinck 2014, p. 351 (note that the correct authorship is "Sjöstedt, 1931").

Diagnosis

Antennae with proximal segments expanded in various ways. Vertex more than two times wider than eye. Median carina with distinct elevations. Lateral lobes projecting laterally.

Description

Frontal costa bifurcation slightly below middle of eye height. Scutellum widening ventrad, as wide as antennal groove at widest part. Paired ocelli a little above ventral margin of eyes. Antennal grooves below ventral margin of eyes. Antennae with proximal segments expanded in various ways. Vertex more than two times wider than eye in frontal view. In dorsal view, anterior margin of vertex reaching anterior margin of eyes; slightly narrowing anteriorly; middle part incurved. Medial carina barely distinct in anterior third between eyes. Lateral carinae U-shaped, visible in anterior third between eyes, slightly projected anteriorly. Anterior

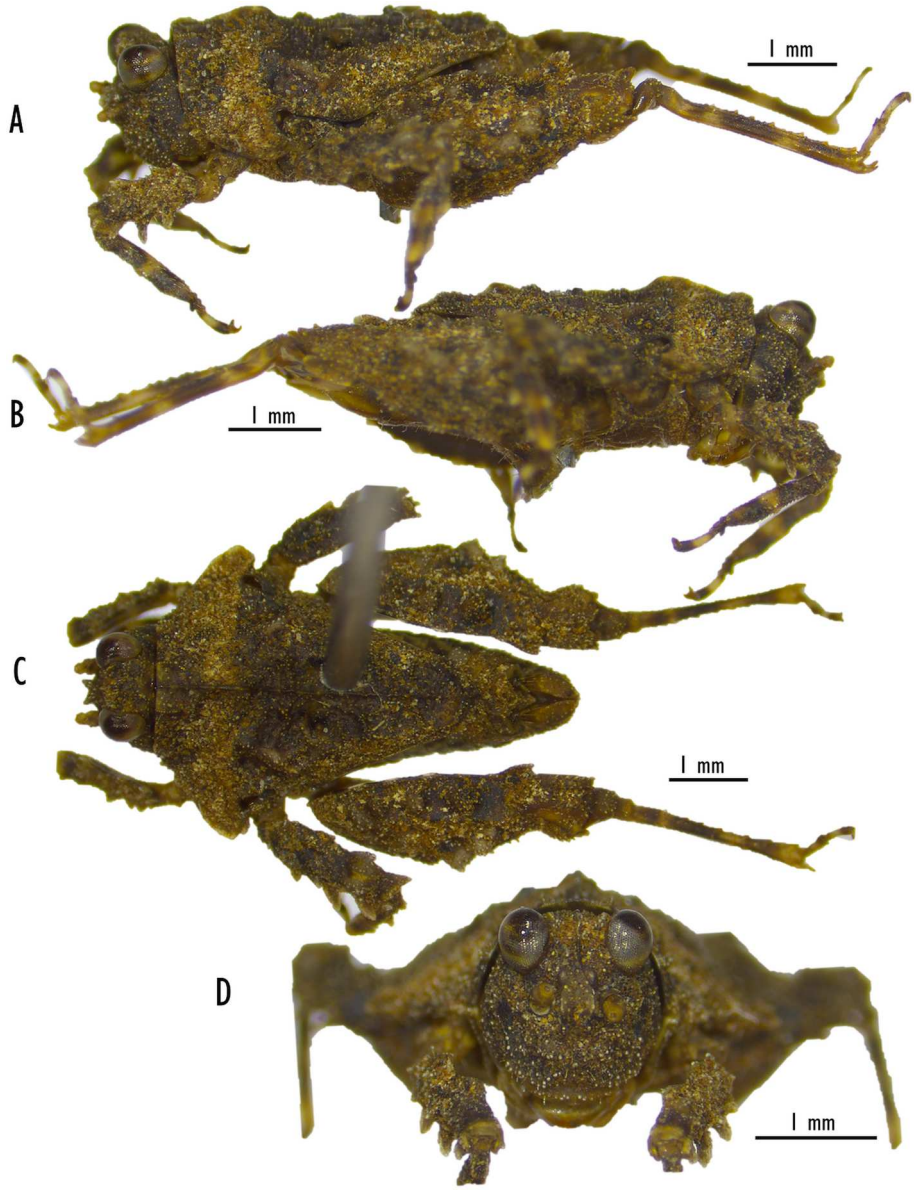

Figure 7. *Echopraxia hasenpuschi* **n. gen., n. sp.** (Echopraxiini **n. trib.**), paratype ♂. **A,** Left lateral view, **B,** Right lateral view, **C,** Dorsal view, **D,** Head in frontal view. Scale bar: 1 mm.

margin of pronotum straight. Median carina with distinct elevations. Lateral lobes projecting laterally. Ventral sinus blunt. Tegminal sinus absent. Infrascapular area wide above middle femur, narrowing towards pronotal apex. Humeral angles blunt. Posthumeral spots present. Pronotal apex wide, rounded with slightly bilobate tip. Tegmina and wings absent. Anterior femur serrated; dorsal margin with three teeth; ventral margin with two teeth. Anterior tibia expanded throughout its length with two tubercles. First segment of anterior tarsus short. Middle femur serrated; dorsal margin with three teeth; ventral margin with four teeth. Middle tibia expanded throughout its length with two tubercles. Hind femur robust with numerous lateral protrusions; ventral and dorsal margins with numerous lappets; large antegenicular and genicular tooth. Hind tibia straight and smooth with small teeth in distal two thirds. First tarsal segment longer than third. Pulvilli equally long, sharp, barely distinct.

Type species

Peraxelpa monstrosa Sjöstedt, 1931, by original monotypy.

Composition

Peraxelpa monstrosa, *P. wrightae* **n. sp.**, *P. thompsoni* **n. sp.**, *P. bogdanovici* **n. sp.**, *P. subedi* **n. sp.**, *P. oankali*.

Distribution

Northeastern and eastern Australia.

Note

The authorship of the genus and the species is commonly cited as "Sjöstedt, 1932", but the original description was published in 1931 and is cited as such in Sjöstedt (1936) and Rehn (1952).

Note

This genus appears somewhat similar to the members of *Potua* genus group, but differs in the way the pronotal crest develops, and by the reduced number of antennomeres, which resembles the Australian members of Echopraxiini. It differs from both by the shape of the pronotal crest and the somewhat elevated vertex in anterior view (but this is also present in *Eurymorphopus bolivariensis* Tumbrinck, 2014). The genus is tentatively placed in Echopraxiini, but further research is necessary to determine just how ancient the separation between these taxa is.

Peraxelpa bogdanovici n. sp. (Figure 8)

Type specimen

Holotype. ♀, Australia. Mt Edith Road; −17.093, 145.613; 30.V.2008; Monteith leg.; Pyrethrum – logs and trees; QM Reg No T258418.

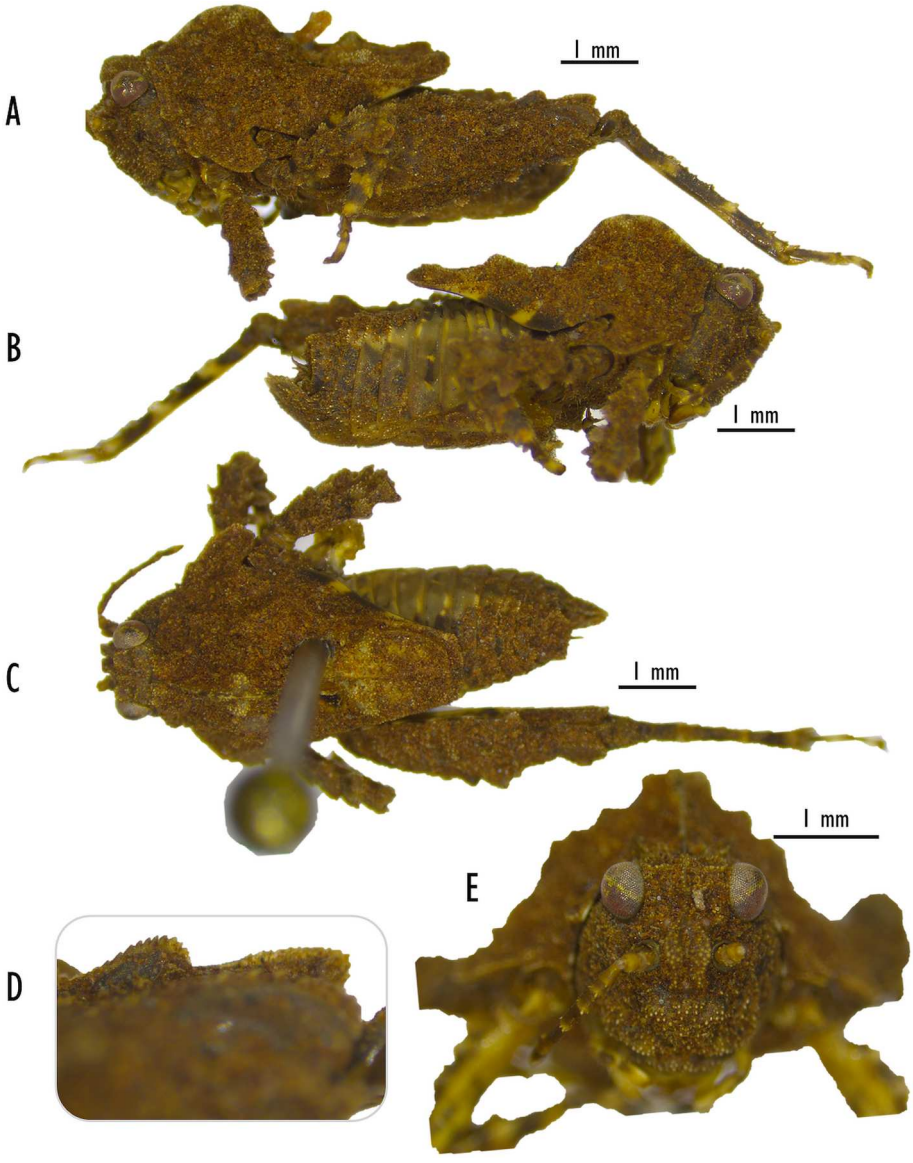

Figure 8. *Peraxelpa bogdanovici* **n. sp.**, holotype ♀. **A,** Left lateral view. **B,** Right lateral view. **C,** Dorsal view. **D,** Hind knee. **E,** Head in frontal view. Scale bar: 1 mm.

Diagnosis

Antennae filiform, composed of eight visible segments. In anterior view, base of vertex at level of margin of eyes; vertex crown-like due to slightly elevated carinae. Prozonal carinae slightly diverging caudally. Median carina distinct and elevated throughout its length, forming large hump above lateral lobes and very small hump near pronotal apex. Lateral lobes projecting outwards, slightly bilobate, serrated.

Distribution

Known only from the type locality.

Etymology

Named for Dr. Sandro Bogdanović, who provided the space where this research was conducted. The specific epithet is a Latinized noun in genitive.

Peraxelpa monstrosa Sjöstedt, 1931 (Figures 9, 10)

Peraxelpa monstrosa Sjöstedt 1932 p. 6 (original description of the species); Sjöstedt 1935 p. 7 (included in a key); Rehn 1952, p. 29 (redescription and detailed examination of the species); Steinmann 1970, p. 157 (included in a catalog); Yin et al. 1996, p. 533 (included in a catalog); Otte 1997, p. 25 (included in a catalog); Tumbrinck 2014, p. 378 (note that the correct authorship is "Sjöstedt, 1931").

Type specimen

Holotype. ♂, Australia. Queensland, Mt. Tambourine; [−27.9725, 153.1977]; 28.X.1912; H. Hacker leg.; QM.

Additional material

Australia. 1♀; Lamington Nat. Park. (1965); −28.200, 153.188; 17–21.V.1964.; Monteith leg. – 1♀; *idem*; XI.1964; Monteith leg. – 1♀, 1♂; *idem*; 17.VIII.1965;

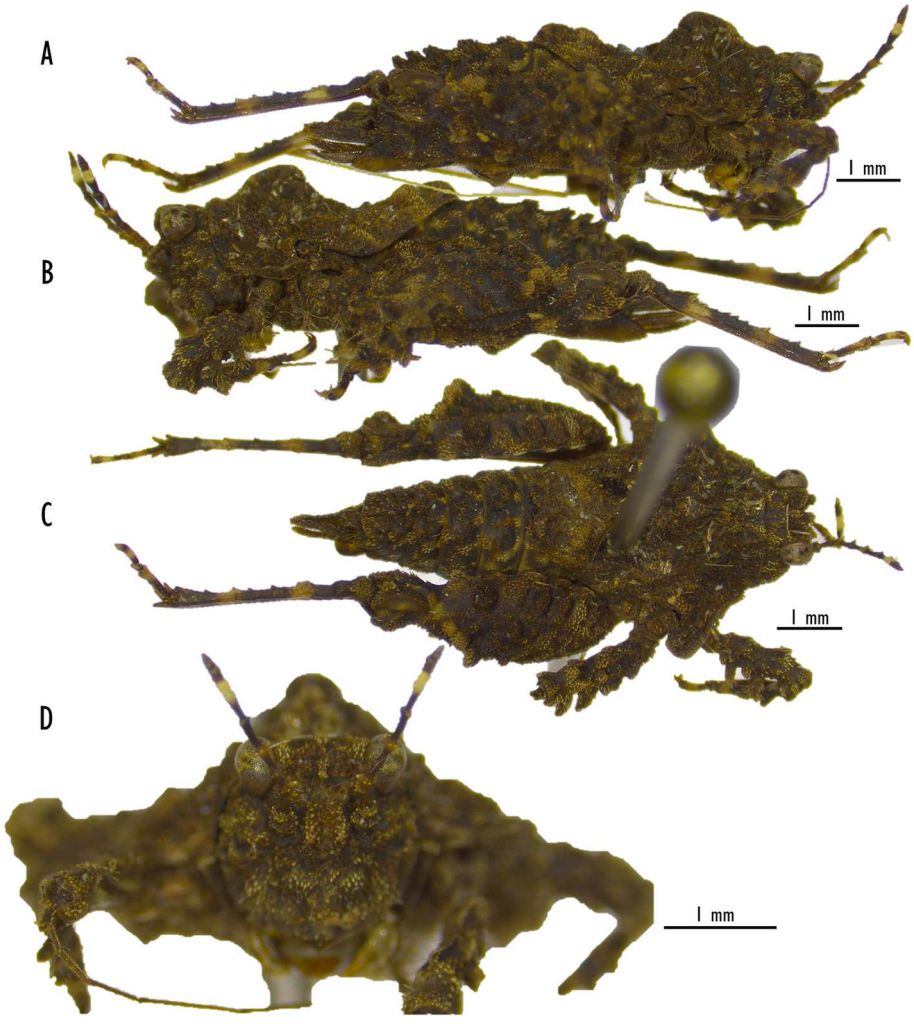

Figure 9. *Peraxelpa monstrosa* Sjöstedt (Echopraxiini **n. trib.**), ♀, not a type. **A,** Right lateral view. **B,** Left lateral view. **C,** Dorsal view. **D,** Head in frontal view. Scale bar: 1 mm.

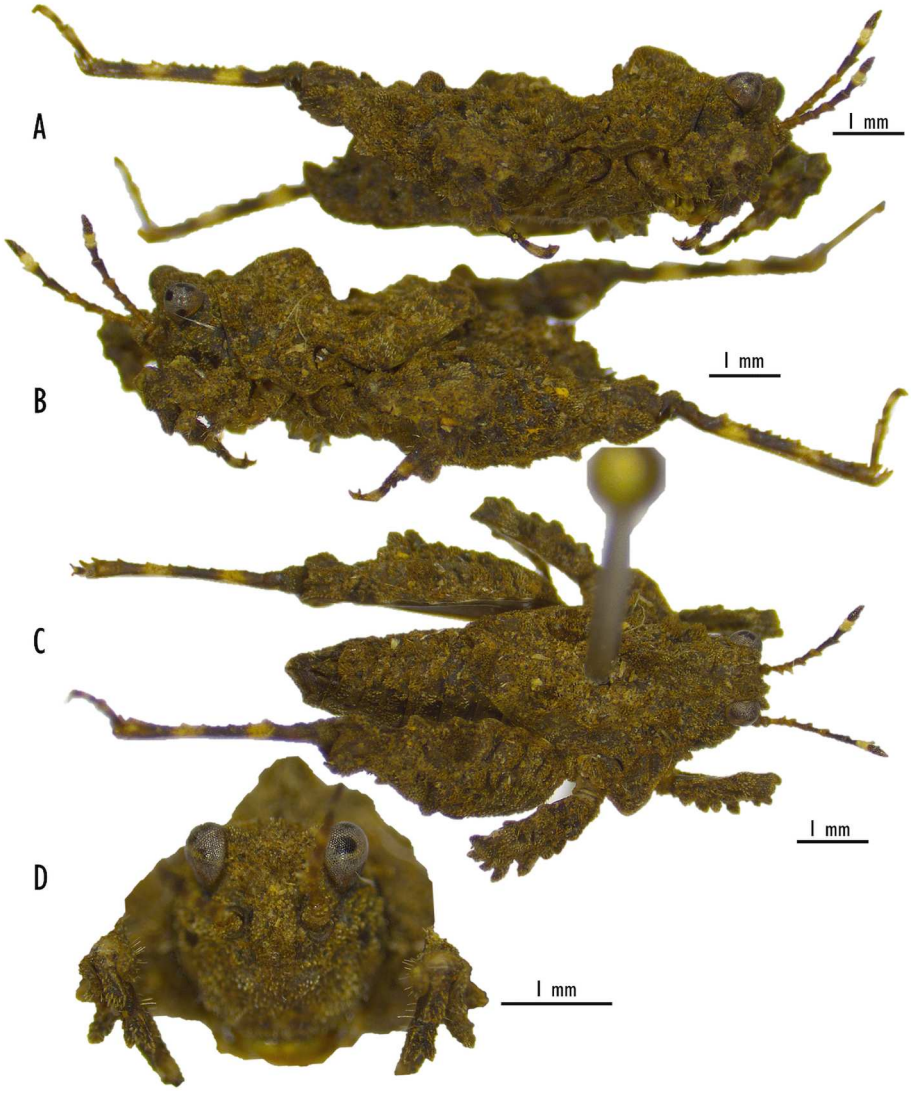

Figure 10. *Peraxelpa monstrosa* Sjöstedt (Echopraxiini **n. trib.**), ♂, not a type. **A,** Right lateral view. **B,** Left lateral view. **C,** Dorsal view. **D,** Head in frontal view. Scale bar: 1 mm.

Monteith leg. – 1♀, 4♂; *idem*; 17–24.V.1965; Monteith leg. – 1♂; Mary Cairncross Park; −26.778, 152.881; 10.IV.1965; Monteith leg. – 1♂; *idem*; 4.XII.1966; Monteith leg. – 1♀, 3♂; *idem*; 12.II.2019; Monteith leg. – 1♀; *idem*; 1.X.1965; E.C. Dahms leg. – 2♀, 2♂; Levers Plateau; −28.312, 152.850; 18.IV.1964; Monteith leg. – 1♀; Springbrook Repeater; −28.241, 153.267; 22.V.1965; Monteith leg. – 1♂; *idem*; 22.VII.2004; Monteith leg. – 1♂; Mt Superbus; −28.220, 152.473; 14.X.1964; Monteith leg. – 1♀; *idem*; 20.VI.1965; Monteith leg. – 1 N; Mt Cougal; −28.238, 153.331; 20.X.1989; Monteith leg. – 1♀; Conondale; −26.740, 152.650; 29.XI.1974; Monteith leg. – 1♀; Binna Burra; −28.200, 153.188; 13.III.1997; Monteith, Russell leg. – 1♂; Mt Bithongabel; −28.262, 153.171; 8.X.1979; Monteith leg. – 2♀, 2♂, 1 N; *idem*; 4.XI.1989; Monteith leg. – 1♀; Tullawallal; −28.210, 153.192; 14.III.2013; Monteith leg.; Bark spray. – 1♀; Booloomba Creek; −26.655, 152.641; 8.I–2.III.1992; Cook leg. – 1♀, 2♂, 3 N; Mt Gannon; −28.198, 153.317; 29.XI.2010; Monteith leg. – 1♂; O'Reillys Border Track; −28.255, 153.156; 8.X.1979; Monteith leg. – 1♂; O'Reillys Guesthouse; −28.233, 153.138; 27.XII.1981–15.I.1982; Monteith leg. – 1♀, 2♂; Lamington IBISCA 700A; −28.188, 153.121; 16.XII.2008–6.I.2009; Monteith leg.; Malaise. – 1♀, 1♂; *idem*; 9.XI–2.XII.2008; Monteith leg.; Malaise. – 1♂; *idem*; 6–22.I.2009; Monteith leg.; Malaise. – 1♂; *idem*, 153.121; 23.I–3.II.2009; Monteith, Turco leg.; Malaise. – 1♀; Lamington IBISCA 700B; −28.192, 153.124; 9.XII.2007; Monteith leg.; Pyrethrum – logs. – 2♀, 1♂; *idem*; Turco leg.; Malaise. – 1♀; *idem*; Monteith, Turco leg.; Malaise. – 1♀; *idem*; 2–16.XII.2008; Monteith leg.;

Malaise. 2♀; *idem*; 16.XII.2008–6.I.2009; Monteith leg.; Malaise. – 1♂; Lamington IBISCA 700C; 23.I–3.II.2009; Monteith, Turco leg.; Malaise. – 1♀; *idem*; 9.XI–2.XII.2008; Monteith leg.; Malaise. – 1♂; Lamington IBISCA 1100C; −28.260, 153.167; 23.III–2.IV.2007; Monteith, Menendez leg.; Flight intercept. – 3♀, 4♂, 1N; Upper Tallebudgera Creek; −28.227, 153.329; 20.VII.1984; Monteith leg. – 3♀, 3♂; Lower Ballunjui Falls; −28.208, 153.204; 3.XII.1995; Monteith; Pyrethrum – dead stump. – 1♀, 1♂; Brindle Creek; −28.378, 153.069; 14.XII.2008; Monteith leg.; Pyrethrum – logs and trees. – 1♂; Upper Brindle Creek, Wiangaree; −28.380, 153.093; 15.XII.2008; Monteith; Stick brushing. 1♀, 1♂; Mt Warning Base; −28.399, 153.281; 1.II.2008; Monteith leg.; Pyrethrum – trees. – 1♂; Byrill Creek; −28.447, 153.192; 1.II.2008; Monteith leg.; Pyrethrum – trees. – 1♀; Mt Glennie; –28.374, 152.766; 24.XI.1982; Monteith, Yeates, Cook leg. – 1♂; *idem*; 25.XI.1982–3.II.1983; QM expedition leg.; Flight intercept.

Diagnosis

In anterior view, base of vertex at level of margin of eyes; vertex crown-like due to slightly elevated carinae. Prozonal carinae parallel. Median carina distinct and elevated throughout its length, forming medium-sized hump above lateral lobes and a low one near pronotal apex. Lateral lobes projecting outwards, rectangular.

Distribution

Eastern Australia.

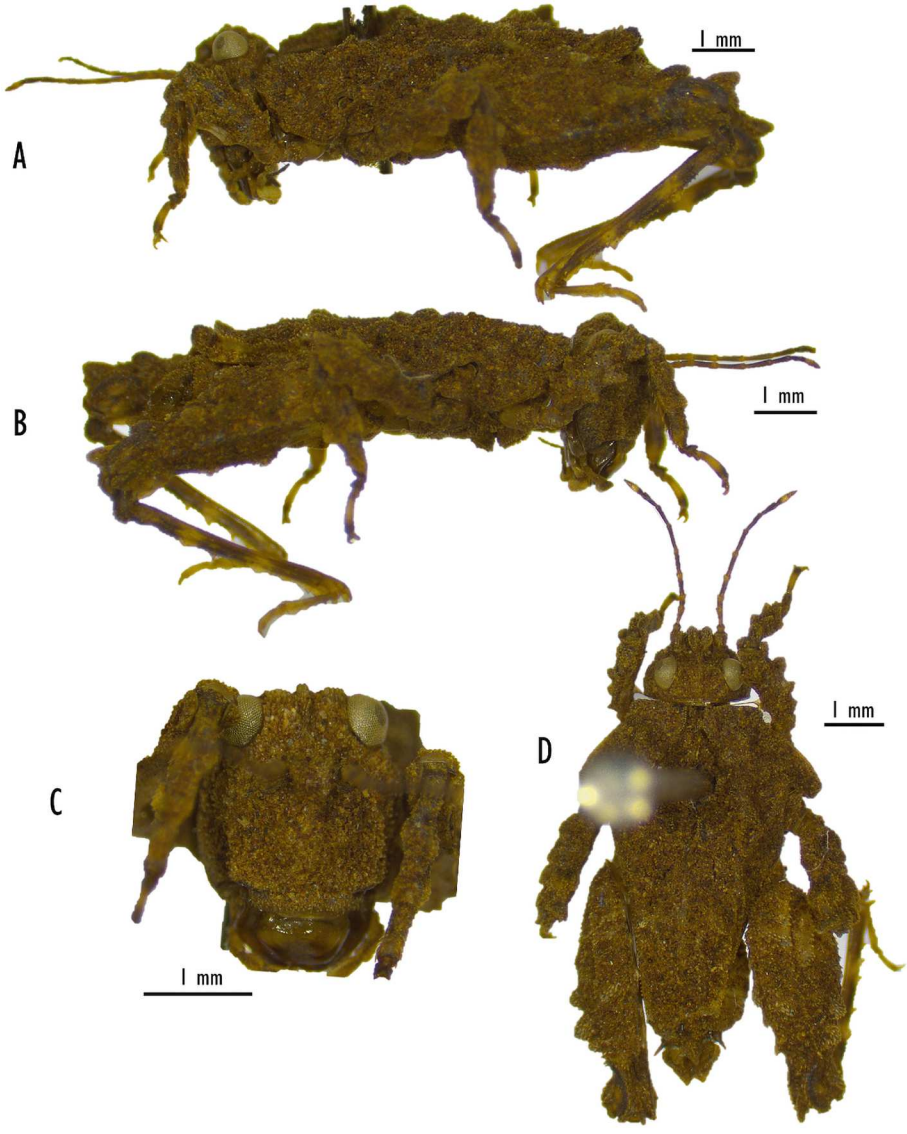

Figure 11. *Peraxelpa oankali* **n. sp.** (Echopraxiini **n. trib.**), holotype ♂. **A,** Left lateral view. **B,** Right lateral view. **C,** Head in frontal view. **D,** Dorsal view. Scale bar: 1 mm.

Peraxelpa oankali n. sp. (Figure 11)

Type specimen

Holotype. ♂, Australia. Mt Murray Prior; −16.932, 145.852; 7.XII.1995; Monteith leg.; Pyrethrum – logs and trees; QM Reg No T258421.

Diagnosis

Antennae composed of 10 visible segments, segments 3–6 with slightly expanded apices. In anterior view, base of vertex at level of margin of eyes; vertex crown-like due to slightly elevated carinae. Prozonal carinae slightly diverging caudally. Median carina distinct throughout its length, forming several small humps. Lateral lobes projecting outwards, slightly bilobate, serrated.

Distribution

Known only from the type locality.

Etymology

Named after the alien species Oankali from the collection of novels "Lilith's Brood" by Octavia E. Butler. The specific epithet is a noun in apposition.

Note

The only known male of this species is around the size of a typical *Peraxelpa* female and lacks the pronotal crest. This species is the only *Peraxelpa* without a pronotal crest. This feature may prove to represent a generic character, but more research is needed.

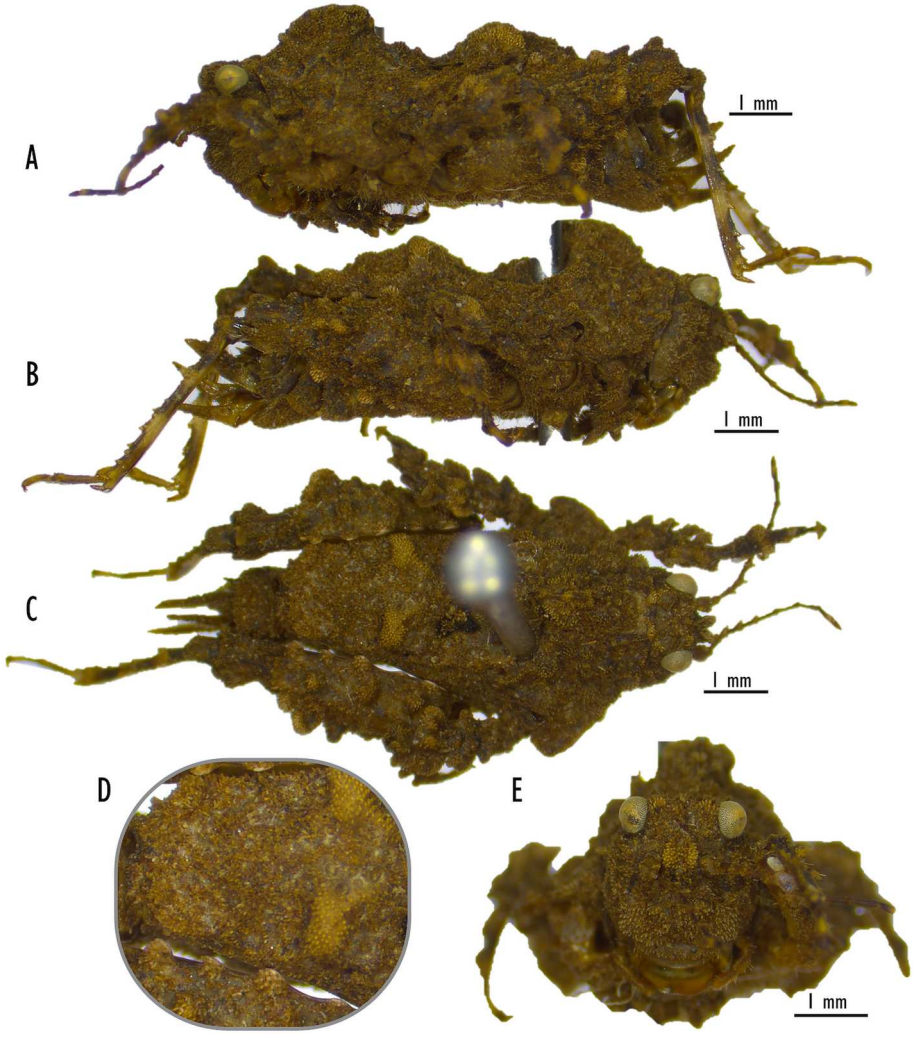

Figure 12. *Peraxelpa subedi* **n. sp.** (Echopraxiini **n. trib.**), holotype ♀. **A,** Left lateral view. **B,** Right lateral view. **C,** Dorsal view. **D,** Pronotal apex. **E,** Head in frontal view. Scale bar: 1 mm.

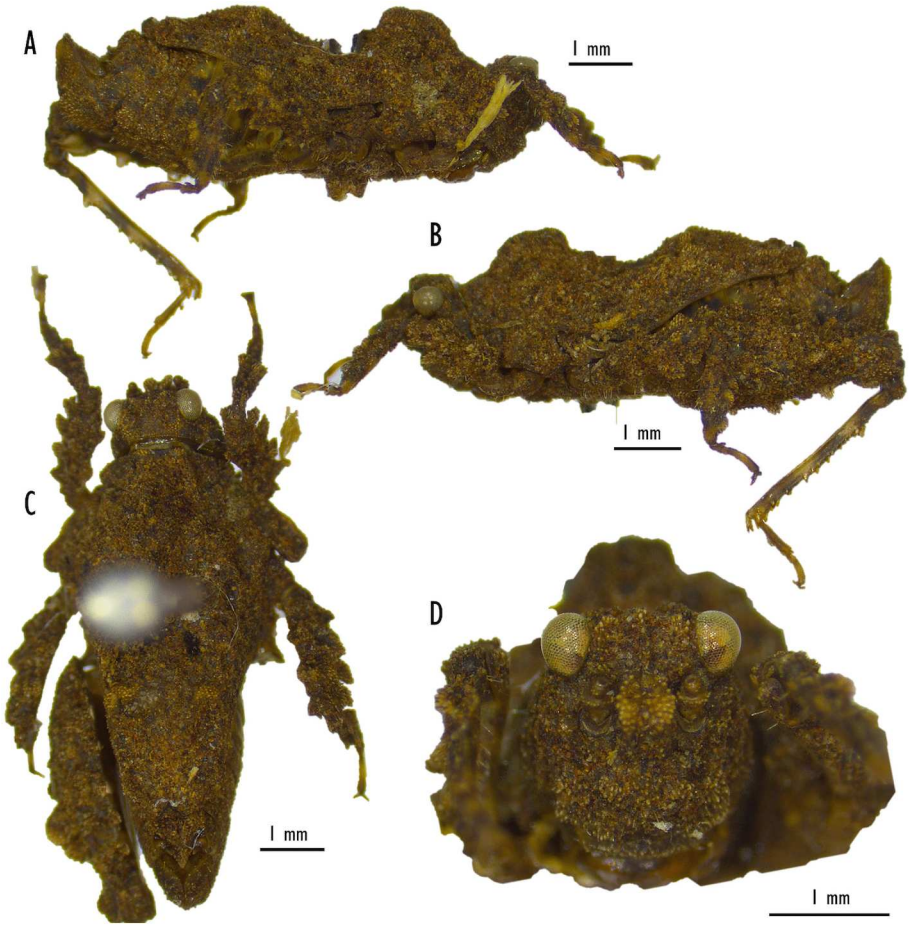

Figure 13. *Peraxelpa subedi* **n. sp.** (Echopraxiini **n. trib.**), paratype ♂. **A,** Right lateral view. **B,** Left lateral view. **C,** Dorsal view. **D,** Head in frontal view. Scale bar: 1 mm.

Peraxelpa subedi n. sp. (Figures 12, 13)

Type series

Holotype. ♀, Australia. 7 km N of Mt Spurgeon; −16.377, 145.219; 17–19.X.1991; Monteith, Janetzki, Cook, Roberts leg.; QM Reg No T258419. – 1♂ paratype; *idem*; QM Reg No T258420.

Additional material

Australia. 1♀; 7 km N of Mt Spurgeon; −16.377, 145.219; 17–19.X.1991; Monteith, Janetzki, Cook, Roberts leg.

Diagnosis

Antennae composed of 11 visible segments, segments 3–6 with expanded apices. In anterior view, base of vertex at level of margin of eyes; vertex crown-like due to slightly elevated carinae. Prozonal carinae slightly diverging caudally. Median carina distinct and elevated throughout its length, forming large hump above lateral lobes and large hump near pronotal apex. Lateral lobes projecting outwards, rectangular.

Distribution

Known only from the type locality.

Etymology

Named for Madan Subedi, an upcoming Nepali orthopterist and a good friend of NK and JS. The specific epithet is a noun in apposition.

Peraxelpa thompsoni n. sp. (Figures 14, 15)

Type series

Holotype. ♀, Australia. Mossman Bluff Track 1300 m Site 10; −16.447, 145.282; 20.XII.1989–15.I.1990; Monteith,

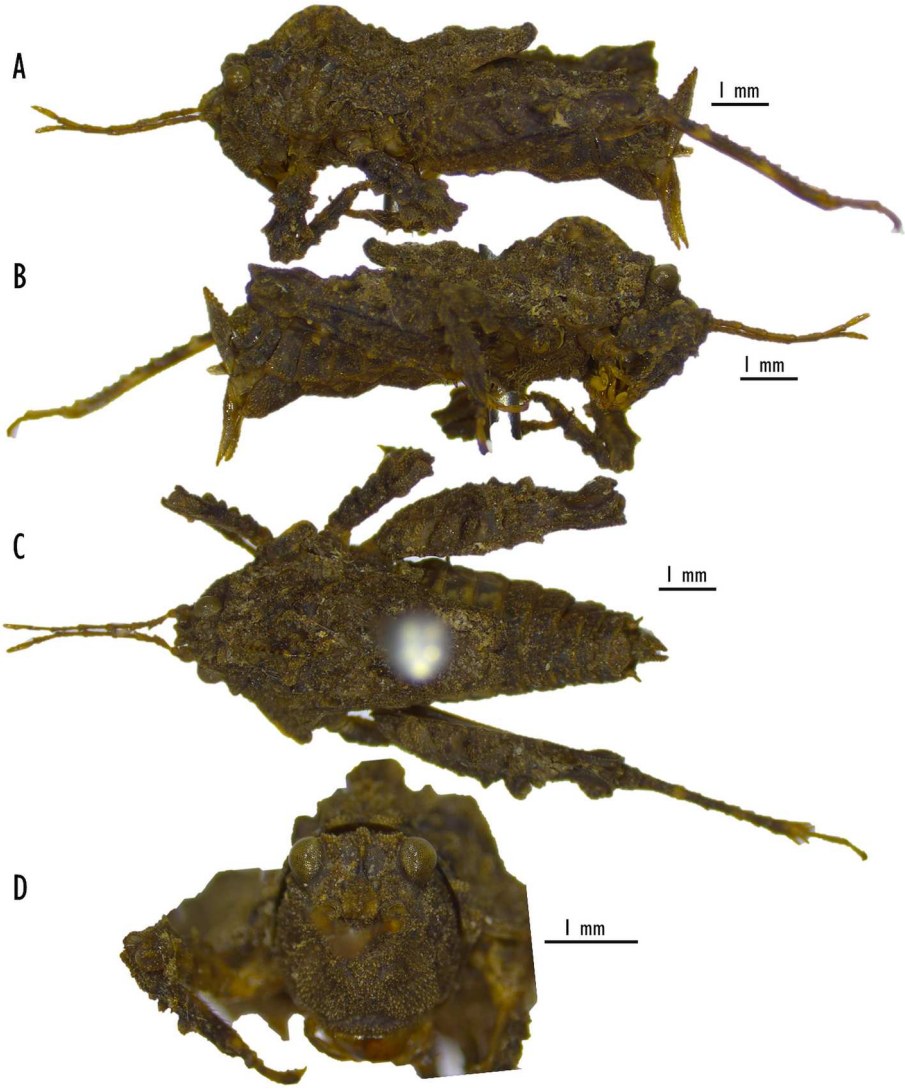

Figure 14. *Peraxelpa thompsoni* **n. sp.** (Echopraxiini **n. trib.**), holotype ♀. **A,** Left lateral view. **B,** Right lateral view. **C,** Dorsal view. **D,** Head in frontal view. Scale bar: 1 mm.

Thompson, ANZSES leg.; Flight intercept; QM Ref No T258416.

Paratype. 1♂, *idem*; QM Reg No T258417.

Additional material

Australia. 12♂; Mossman Bluff Track 1300 m Site 10; −16.447, 145.282; 20.XII.1989–15.I.1990; Monteith, Thompson, ANZSES leg.; Flight intercept. – 1♀, 9♂; *idem*; 1–17.I.1989; Monteith, Thompson, ANZSES leg.; Flight intercept. – 2♂; *idem*; 17–31.XII.1988.; Monteith, Thompson, ANZSES leg.; Flight intercept. – 1♀, 1♂; Mossman Bluff Track 7–10; −16.447, 145.282; 21.XII.1989; Monteith, Thompson, ANZSES leg. – 9♂; Mossman Bluff Track 1260 m Site 9; −16.448, 145.282; 1–17.I.1989; Monteith, Thompson, ANZSES leg.; Flight intercept. – 4♂; Mossman Bluff Track 1260 m Site 9; −16.448, 145.282; 17–31.XII.1988.; Monteith, Thompson, ANZSES leg.; Flight intercept. – 1♀, 7♂; *idem*; 20.XII.1989–15.I.1990; Monteith, Thompson, ANZSES leg.; Flight intercept. – 4♂; Mossman Bluff Track 1180 m Site 8; −16.467, 145.280; 17–31.XII.1988.; Monteith, Thompson, ANZSES leg.; Flight intercept. – 1♀; *idem*; 17–31.XII.1988.; Monteith, Thompson, ANZSES leg.; Flight intercept. – 4♂; *idem*; 20.XII.1989–15.I.1990; Monteith, Thompson, ANZSES leg.; Flight intercept. – 2♀; Mossman Bluff Track 1000 m Site 7; −16.467, 145.285; 1–17.I.1989; Monteith, Thompson, ANZSES leg.; Flight intercept. – 1♂; *idem*; 24.VI.1997; Cook leg. – 1♂; Mossman Bluff Track 860 m Site 6; −16.471, 145.294; 20.XII.1989–15.I.1990; Monteith, Thompson, ANZSES leg.; Flight intercept. – 1♂; Mossman Bluff Camp; −16.447, 145.282; 30.XI.1990; Monteith, Cook, Thompson, Sheridan, Janetzki leg. – 1♀; Mossman Bluff summit; −16.446,

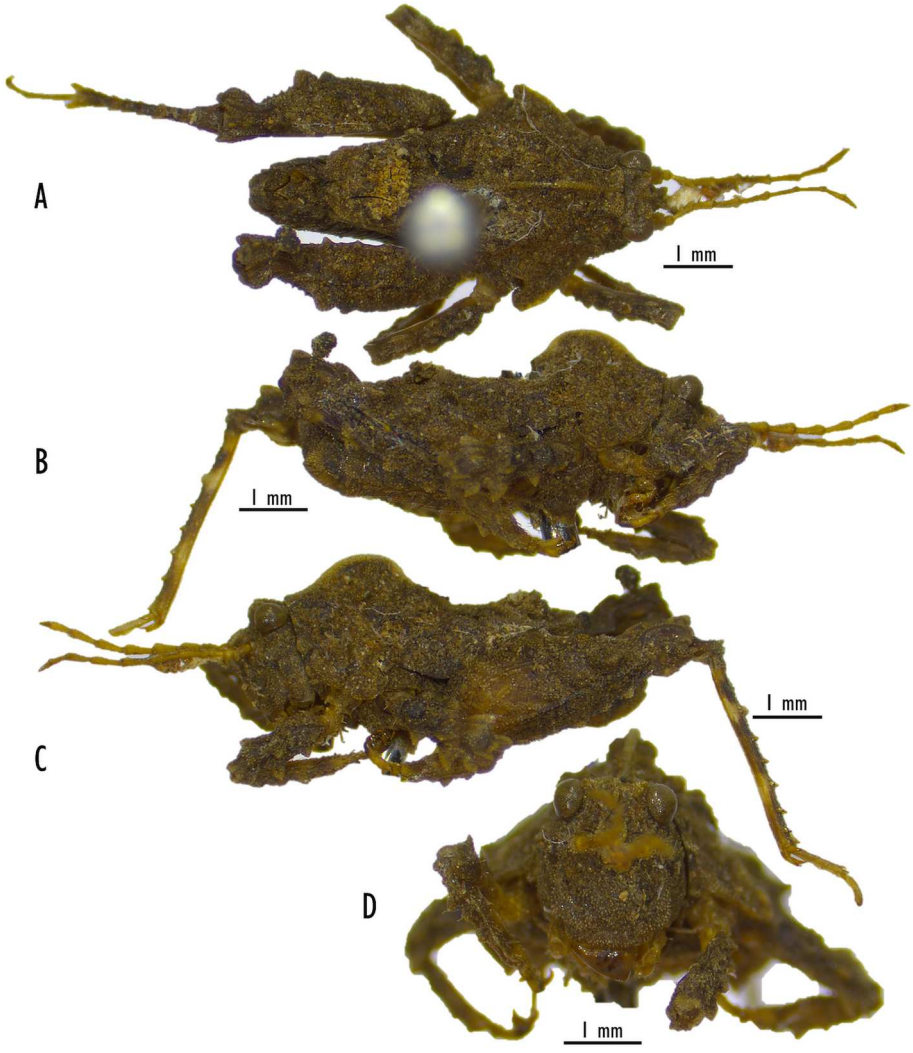

Figure 15. *Peraxelpa thompsoni* **n. sp.** (Echopraxiini **n. trib.**), paratype ♂. **A,** Dorsal view. **B,** Right lateral view. **C,** Left lateral view. **D,** Head in frontal view. Scale bar: 1 mm.

145.282; 18.XII.1988; Monteith, Thompson leg.; Pyrethrum – trees and rocks. – 1♂; *idem*; 31.XII.1988; Schmidt, ANZSES leg.; Pyrethrum. – 3♀, 2♂; Upper High Falls Creek; −16.405, 145.303; 25.I–12.II.1996; Wertz leg.; Flight intercept. – 1♂; Karnak-Devils Thumb Site 7 1040 m; −16.394, 145.300; 26.XII.1989–15.I.1990.; ANZSES expedition leg.; Pitfall. – 1♀; Pauls Luck; −16.423, 145.252; 28–30.XI.1990; Monteith, Thompson, Cook, Sheridan, Janetzki leg. – 1♀; *idem*; 1–2.I.1990; ANZSES expedition leg.; Pyrethrum. – 1♂; 2 km SE of Mt Spurgeon; −16.441, 145.209; 20.XII.1988–4.I.1989; Monteith, Thompson, ANZSES leg.; Flight intercept. – 1♀, 1♂; Mt Demi summit; −16.498, 145.323; 16–17.XII.1995; Monteith; Pyrethrum – trees. – 1♀, 3♂; *idem*; 17.XII.1995–25.I.1996; Monteith, Thompson, Ford leg.; Flight intercept. – 2♀, 1♂; Upper Whyanbeel Creek; −16.398, 145.288; 5.IX.1992; Monteith leg. – 1♂; Mt Lewis Rd; −16.591, 145.274; 18.XII.1989–13.I.1990; Monteith, Thompson, ANZSES leg.; Flight intercept. – 1♀; Mt Lewis, old barracks area; −16.592, 145.275; 13.I.1990; ANZSES expedition leg. – 1♀; Mt Lewis gate, 980 m; −16.591, 145.274; 18.XII.2010; Escalona leg. – 4♀, 3♂; Lamb's Head; −17.018, 145.634; 4–13.XII.1988; Monteith, Thompson, Janetzki leg. – 1♂; *idem*; 8.I–22.II.1990; Monteith, Thompson, Janetzki leg.; Pitfall. – 1♀; Lamb Range, 19 km SE Mareeba; −17.103, 145.590; 3–11.XI.1988; Monteith, Thompson; Flight intercept. – 1♀; Lambs Head, east end; −17.028, 145.659; 29.XI.1993; Monteith, Janetzki, Cook leg. – 1♀, 1♂, 1 N; Mt Williams, 0.5 km N; −16.912, 145.665; 2–3.XII.1993; Cook, Monteith, Janetzki leg. – 1♀, 1 N; *idem*; 28.XI.1997; Monteith leg.; Pyrethrum – logs and trees. – 1 N; Chujeba Peak summit; −16.931, 145.657; 15.XII.1989; Monteith, Thompson leg.; Pyrethrum – logs and trees. – 1♂; Baldy Mtn Road; −17.288, 145.427; 9.XII.1988; Monteith, Thompson leg. – 1♂, 1 N; Upper Boulder Creek; −17.833, 145.903; 900 m asl; 26.X.1983; Monteith, Yeates, Thompson leg.; Pyrethrum.

– 3♂; Upper Boulder Creek; −17.836, 145.904; 850 m asl; 16–19.XI.1984; Cook, Monteith, Thompson leg. – 1♀; *idem*; 5–7.XII.1989; Monteith, Thompson, Janetzki leg. – 1♀; Bartle Frere, west base; −17.396, 145.764; 7.X.1980; Monteith leg. – 1♂; North Bell Peak; −17.087, 145.880; 19–22.XI.1990; Monteith, Thompson leg. – 1♂; 1.5 km S of Tully River crossing; −17.913, 145.621; 8.XII.1989–5.I.1990; Monteith, Thompson, Janetzki leg. – 1♂; Topaz, Westcott Rd; −17.412, 145.700; VII–XII.1993; Monteith leg.; Pitfall. – 1♂; Isley Hills; −17.044, 145.700; 1050 m asl; 30.XI.1993; Cook, Monteith, Janetzki leg. – 1♂; Bellenden Ker summit; −17.263, 145.854; 17.X–5.XI.1981; Earthwatch, QM leg. – 2♂; *idem*; 28.VIII–8.X.1991; Monteith, Janetzki leg.; Pitfall. – 1♀; Black Mtn, 4.5 km N Mt Spurgeon; −16.404, 145.222; 17–18.X.1991; Monteith, Janetzki, Cook, Roberts leg. – 1♀; Mt Lewis, 18 km N; −16.511, 145.269; 23.XI.1998; Monteith leg.; Pyrethrum – trees. – 1♀; Bartle Frere, NW/Centre Peak ridge; −17.386, 145.808; 7–8.XI.1981; Earthwatch, QM leg. – 1♂; Tower near Crater NP; −17.456, 145.486; 25.XI.1994–10.I.1995; Monteith, Hasenpusch leg.; Flight intercept. – 4♂; Mt Fisher summit; −17.556, 145.547; 8.II.1999; Monteith, Cook leg. – 1♀; Vine Creek Road; −17.684, 145.518; 24.XI.1994; Monteith leg. – 1♂; Topaz, Hughes Road; −17.430, 145.702; 6.XII.1993–25.II.1994; Monteith, Cook, Janetzki leg. – 1♀, 2♂; Massey Range; −17.265, 145.814; 9–11.X.1991; Monteith, Janetzki, Cook leg. – 1♀; North Bell Peak; −17.087, 145.880; 19–22.XI.1990.; Monteith, Thompson leg. – 1♀; Topaz, PEI Road; −17.400, 145.687; 6.XII.1993–25.II.1994; Monteith, Cook, Janetzki leg. – 1♂; Mt Bartle Frere, swiftlet caves; −17.393, 145.787; 13.V.1995; Monteith, Slaney leg. – 1♀; South Bell Peak; −17.101, 145.895; 20–21.XI.1990; Monteith, Thompson leg.

Diagnosis

Antennae composed of 11 visible segments, segments 3–6 with slightly expanded apices. In anterior view, base of vertex at level of margin of eyes; vertex crown-like due to slightly elevated carinae. Prozonal carinae parallel. Median carina distinct and elevated throughout its length, forming large hump above lateral lobes. Lateral lobes projecting outwards, rectangular.

Distribution

Widely distributed in northeastern Australia.

Etymology

Named for Geoff Thompson, who assisted in many early expeditions in North Queensland and is now the Queensland Museum's imaging expert.

Peraxelpa wrightae n. sp. (Figures 16, 17)

Type series

Holotype. ♀, Australia. Thornton Peak summit; [−16.1642, 145.3742]; 24–27.IX.1984; G.B Monteith, S.R. Monteith leg.; QM Reg No T258414.

Paratype. 1♂, *idem*; QM Reg No T258415.

Additional material

Australia. 1♂; Thornton Peak summit; 24–27.IX.1984; G.B Monteith, S.R. Monteith leg. – 1♂; Cape Tribulation, Oliver Creek; −16.138, 145.441; 2.XII.1990; Monteith, Sheridan, Thompson leg.; Pyrethrum – logs. – 2♀, 1♂; Mt Hemmant; −16.103, 145.420; 25–27.XI.1993.; Monteith, Cook, Janetzki, Roberts leg.

Diagnosis

Antennae composed of 11 visible segments, segments 3–6 with brush-like apices. In anterior view, base of vertex at level of margin of eyes; slightly concave in middle. Prozonal carinae parallel. Median carina distinct and elevated throughout its length, forming large hump above lateral lobes and small hump near pronotal apex. Lateral lobes projecting outwards, slightly bilobate, serrated.

Distribution

Known only from the Cape Tribulation area.

Etymology

Named for Susan Wright who is senior insect collection manager at the Queensland Museum and participated in several of the QM expeditions to New Caledonia.

Tribe Quasimodini n. trib.

Diagnosis

Frontal costa bifurcation at middle of eye height. Paired ocelli at ventral third of eye height. Dorsal margin of antennal grooves at level of ventral margin of eyes. Antennae filiform, composed of 13–15 visible segments. Vertex narrowing anteriorly in dorsal view; rounded and bulging in frontal view. Anterior margin of pronotum straight. Median carina elevated in anterior part, forming moderately high oval crest. Slightly tuberculated femora. First segment of anterior tarsus moderately elongated, third segment of hind tarsus short.

Type genus

Quasimodo **n. gen.**

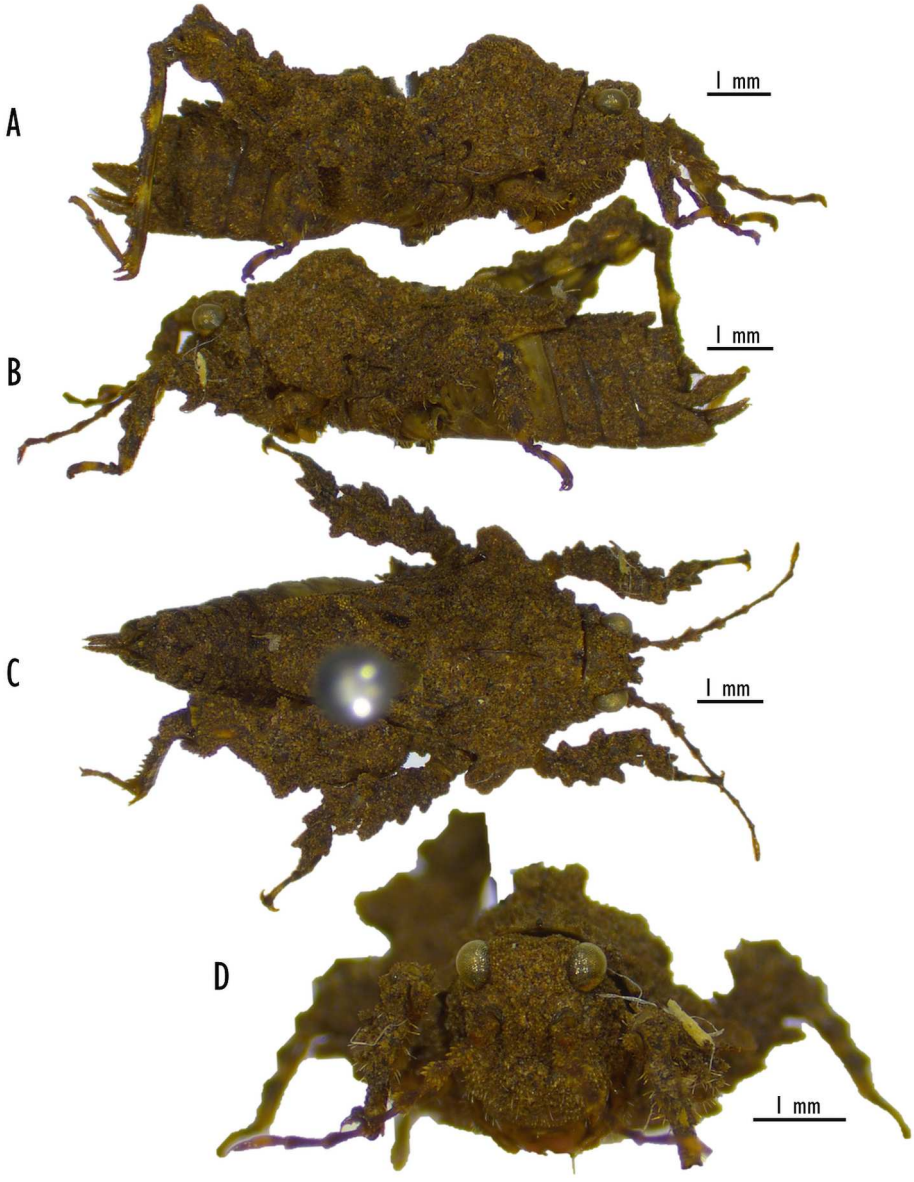

Figure 16. *Peraxelpa wrightae* **n. sp.** (Echopraxiini **n. trib.**), holotype ♀. **A,** Left lateral view. **B,** Right lateral view. **C,** Dorsal view. **D,** Head in frontal view. Scale bar: 1 mm.

Composition

Quasimodo **n. gen.**, *Seraph* **n. gen.**, *Willemsetettix* Tumbrinck, 2014.

Distribution

New Guinea, Australia.

Note

The vertex of many species resembles that of Cladonotini in anterior view, but with carinae of the vertex much more visible. In some species, the carinae are much more apparent, giving the vertex a more crown-like but still distinctly bulging look. It is difficult to ascertain the relationship between this tribe and other groups of Tetrigidae; this will have to be addressed as a part of the necessary thorough revision of Cladonotinae. The genus *Seraph* does not fit exactly with the other two genera, most notably by the shape of the vertex which does not apparently bulge above the eyes in anterior view and is quite crown-like, but it does otherwise appear highly similar to them so it is for the moment placed close to them.

Genus *Quasimodo* n. gen.

Diagnosis

Frontal costa bifurcation at middle of eye height. Paired ocelli at ventral third of eye height. Dorsal margin of antennal

Figure 17. *Peraxelpa wrightae* **n. sp.** (Echopraxiini **n. trib.**), paratype ♂. **A,** Right lateral view. **B,** Left lateral view. **C,** Dorsal view. **D,** Head in frontal view. Scale bar: 1 mm.

groove at level of ventral margin of eye. Vertex bulging in anterior view. Median carina forming moderately high elongated oval crest in anterior part of pronotum. Pronotal apex rounded. Femora slightly tuberculated. First segment of anterior tarsus long, third segment of hind tarsus short.

Description

Frontal costa bifurcation at middle of eye height. Scutellum diverging ventrad, as wide as antennal groove at widest part. Paired ocelli at ventral third of eye height. Dorsal margin of antennal groove at level of ventral margin of eye. Antennae filiform. Vertex approximately two times wider than eye in frontal view. In anterior view, base of vertex at level of margin of eyes; vertex straight. In dorsal view, anterior margin of vertex reaching anterior margin of eyes; slightly narrowing anteriorly. Lateral carinae U-shaped. Anterior margin of pronotum straight. Prozonal carinae slightly diverging caudally. Median carina distinct and elevated throughout its length, forming small hump above lateral lobes. Lateral lobes projecting outwards, rectangular. Ventral sinus blunt. Tegminal sinus absent. Infrascapular area wide above middle femur, narrowing towards pronotal apex. Humeral angles blunt. Pronotal apex wide, rounded. Tegmina and wings absent. Dorsal margin of anterior femur convex, wavy; bottom margin straight with one large and one small spine in middle. Anterior tibia expanded in proximal half. First segment of anterior tarsus long with three pulvilli. Dorsal margin of middle femur wavy; bottom margin with protrusions of various lengths. Hind femur robust with slight lateral protrusions; dorsal margin with

lappets. Hind tibia straight and smooth with small teeth in distal half. First tarsal segment longer than third. Two distal pulvilli equal in size, larger than proximal one, all three with sharp tips.

Type species

Quasimodo yeatesi **n. sp.**

Composition

Quasimodo yeatesi **n. sp.**, *Q. janetzkae* **n. sp.**, *Q. kochae* **n. sp.**

Distribution

Northeastern Australia.

Etymology

Named after the titular character from the novel "The Hunchback of Notre-Dame" by Victor Hugo. The name is of masculine gender.

***Quasimodo janetzkae* n. sp. (Figures 18, 19)**

Type series

Holotype. ♀, Australia. Mt Hemmant; −16.103, 145.420; 25–27.XI.1993.; Monteith, Cook, Janetzki, Roberts leg.; Pitfall; QM Reg No T258423.

Paratype. 1♂, *idem*; QM Reg No. T258424.

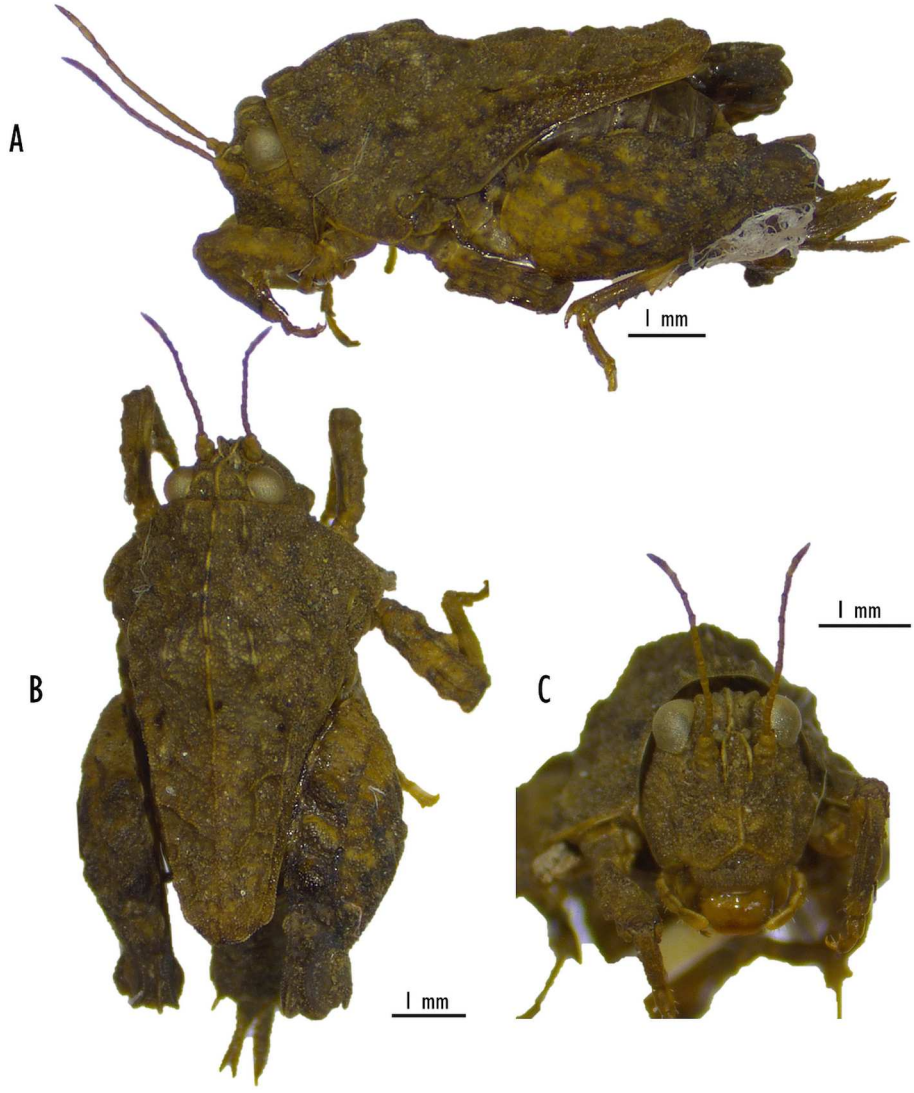

Figure 18. *Quasimodo janetzkae* **n. gen., n. sp.** (Quasimodini **n. trib.**), holotype ♀. **A,** Left lateral view. **B,** Dorsal view. **C,** Head in frontal view. Scale bar: 1 mm.

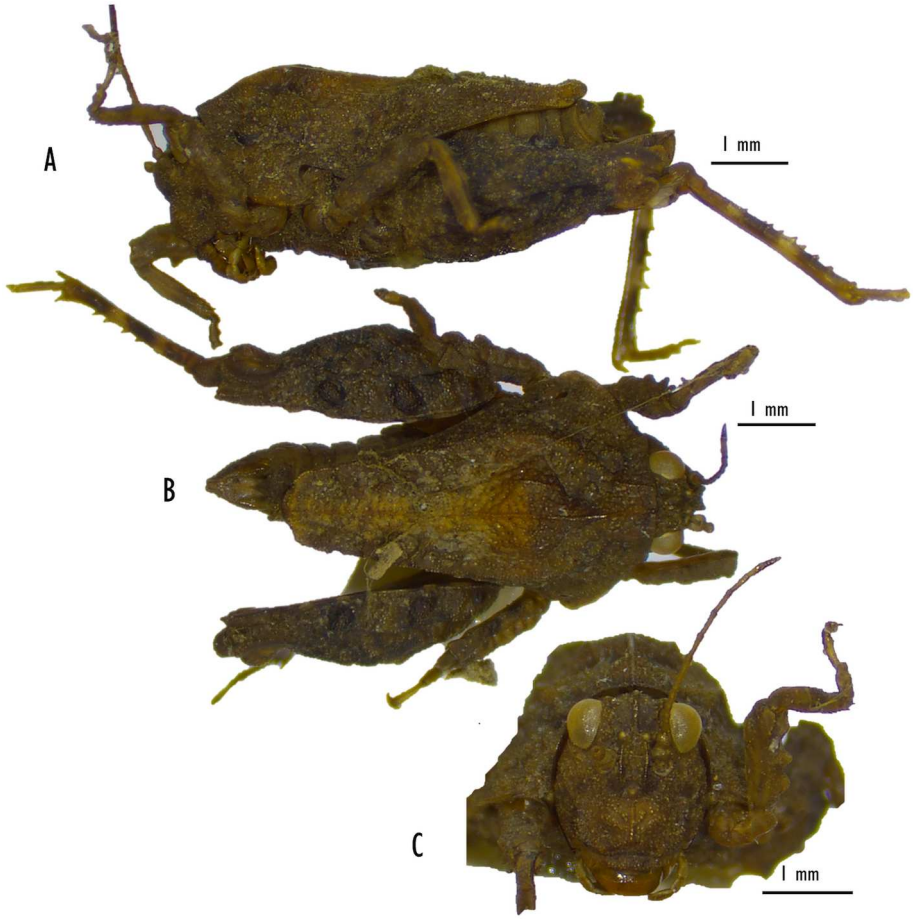

Figure 19. *Quasimodo janetzkae* **n. gen., n. sp.** (Quasimodini **n. trib.**), paratype ♂. **A,** Left lateral view. **B,** Dorsal view. **C,** Head in frontal view. Scale bar: 1 mm.

Diagnosis

Antennae filiform, composed of 15 visible segments. Medial carina visible in entire length between eyes, very distinct. Lateral carinae U-shaped, visible in anterior quarter between eyes; very distinct. Pronotal crest strongly oval. Posthumeral almost absent, represented by three small dots. Dorsal margin of middle femur wavy; bottom margin with three teeth in distal two thirds. Hind femur robust with slight lateral protrusions. Dorsal margin mostly smooth with small lappet connected with antegenicular tooth. Small antegenicular and moderate genicular tooth.

Distribution

Known only from the type locality.

Etymology

Named for Heather Janetzki, the Collection Manager at the Queensland Museum, who took part in many field surveys where the herein examined material was collected. The specific epithet is a Latinized noun in genitive.

Quasimodo kochae n. sp. (Figure 20)

Type specimen

Holotype. ♀, Australia. Mt Lewis, 18 km N; −16.511, 145.269; 23.IX.1998; Monteith leg.; QM Reg No. T258425.

Diagnosis

Antennae filiform, composed of 14 visible segments. Medial carina visible only at apex of vertex. Lateral carinae U-shaped, visible in anterior quarter between eyes. Pronotal crest more circular. Posthumeral spots absent. Dorsal margin of middle femur wavy; bottom margin with three rounded lappets in distal two thirds. Hind femur robust with slight lateral protrusions. Dorsal margin mostly smooth with small lappet before antegenicular tooth. Small antegenicular and moderate genicular tooth.

Distribution

Known only from the type locality.

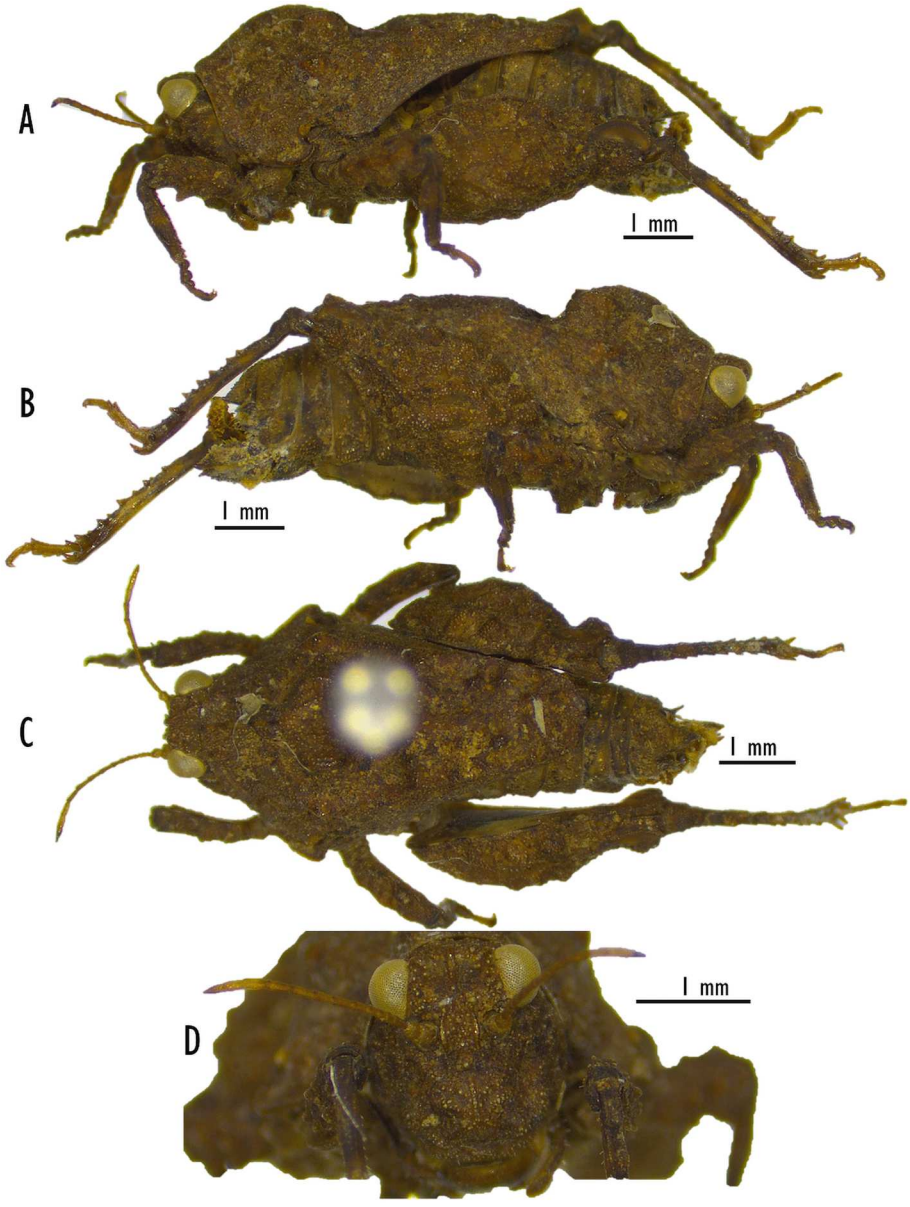

Figure 20. *Quasimodo kochae* **n. gen., n. sp.** (Quasimodini **n. trib.**), holotype ♀. **A,** Left lateral view. **B,** Right lateral view. **C,** Dorsal view. **D,** Head in frontal view. Scale bar: 1 mm.

Etymology

Named for Karin Koch who is an insect collection manager and specimen databaser at the Queensland Museum. The specific epithet is a Latinized noun in genitive.

***Quasimodo yeatesi* n. sp.** (Figure 21)

Type specimen

Holotype. ♀, Australia. Mt Finnigan summit; −15.819, 145.282; 21.XI.1998; G. Monteith leg.; QM Reg No T258422.

Diagnosis

Antennae filiform, composed of 15 visible segments. Medial carina visible only at apex of vertex. Lateral carinae U-shaped, visible in anterior quarter between eyes. Pronotal crest strongly oval. Posthumeral spots present. Dorsal margin of middle femur wavy; bottom margin with three teeth in distal two thirds. Hind femur robust with slight lateral protrusions. Dorsal margin mostly smooth with small lappet before antegenicular tooth. Small antegenicular and moderate genicular tooth.

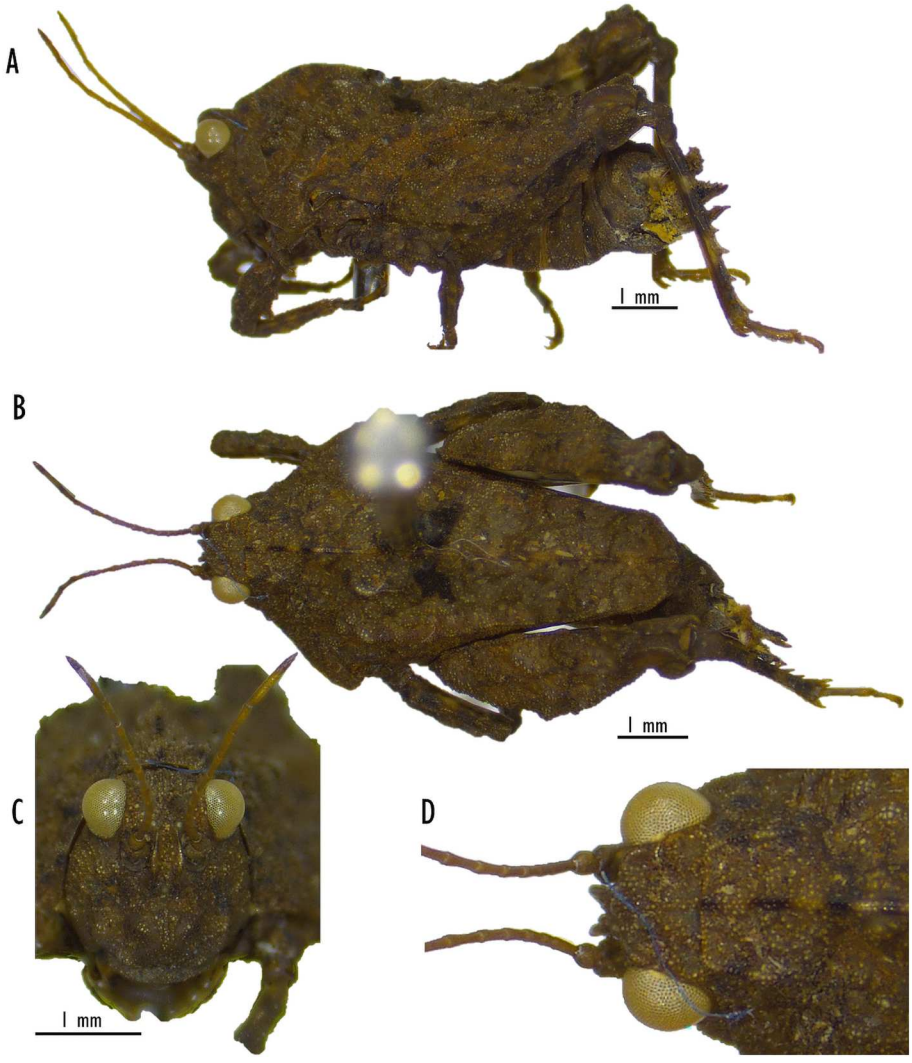

Figure 21. *Quasimodo yeatesi* **n. gen., n. sp.** (Quasimodini **n. trib.**), holotype ♀. **A,** Left lateral view. **B,** Dorsal view. **C,** Head in frontal view. **D,** Head in dorsal view. Scale bar: 1 mm.

Distribution

Known only from the type locality.

Etymology

Named for Dr. David Yeates who helped in the North Queensland surveys in the 1980s and is now Director of the Australian National Insect Collection. The specific epithet is a Latinized noun in genitive.

Genus *Seraph* n. gen.

Diagnosis

Frontal costa bifurcation at middle of eye height. Paired ocelli at ventral third of eye height. Dorsal margin of antennal groove at level of ventral margin of eye. Vertex crown-like in anterior view. Median carina forming high elongated oval crest in anterior part of pronotum. Pronota apex straight. Femora slightly tuberculated. First segment of anterior tarsus long, third segment of hind tarsus short.

Description

Frontal costa bifurcation at middle of eye height. Scutellum widening ventrad, as wide as antennal groove at widest part. Paired ocelli at level of ventral margin of eyes. Antennal grooves below ventral margin of eyes. Antennae filiform, composed of 13 visible segments. Vertex two times wider than eye in frontal view. In anterior view, base of vertex at level of dorsal margin of eyes; vertex crown-like due to slightly elevated carinae. In dorsal view, anterior margin of vertex surpassing anterior margin of eyes; slightly narrowing anteriorly; fossulae

covering entire length of vertex. Medial carina visible in anterior third between eyes, projected anteriorly. Lateral carinae U-shaped, visible in anterior quarter between eyes. Anterior margin of pronotum straight. Prozonal carinae parallel. Median carina distinct and elevated throughout its length, forming large hump which extends from anterior margin of pronotum to base of hind femora. Lateral lobes projecting outwards, rectangular. Ventral sinus blunt. Tegminal sinus absent. Infrascapular area wide above middle femur, narrowing towards pronotal apex. Humeral angles blunt. Posthumeral spots present. Pronotal apex wide, median carina slightly indrawn, making apex appear slightly bilobate. Tegmina and wings absent. Dorsal margin of anterior femur elevated, wavy; bottom margin straight with one large tooth and one small elevation. Anterior tibia expanded throughout its length. First segment of anterior tarsus a little shorter than second segment (minus claws), three pulvilli visible. Dorsal margin of middle femur with three small protrusions; bottom margin with three teeth. Middle tibia expanded in proximal half. Hind femur robust; ventral margin serrated, dorsal margin mostly smooth; small antegenicular and genicular tooth. Hind tibia straight and smooth with small teeth throughout its length. First tarsal segment longer than third. Pulvilli equally long, sharp.

Type species

Seraph maestus **n. sp.**

Composition

Monotypic.

Distribution

Southeastern Australia.

Etymology

Named after the six-winged angels described in Abrahamic religions. The name is of masculine gender.

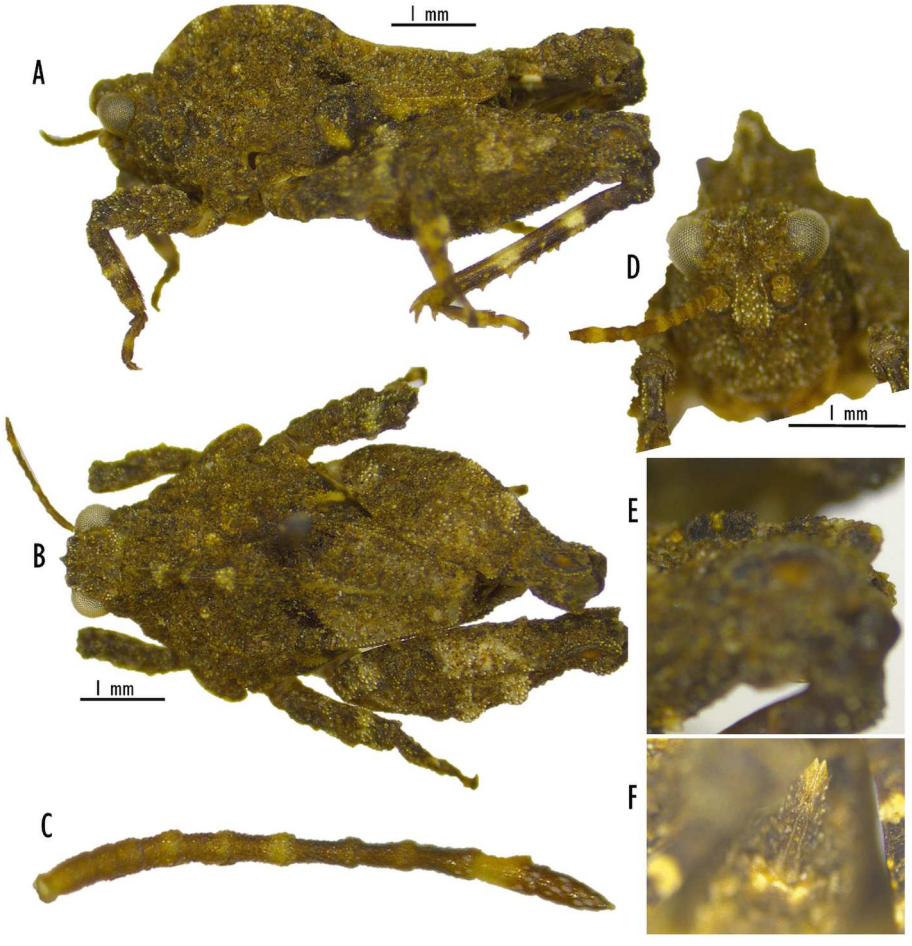

Figure 22. *Seraph maestus* **n. gen., n. sp.** (Quasimodini **n. trib.**), holotype ♂. **A,** Left lateral view. **B,** Dorsal view. **C,** Antenna. **D,** Head in frontal view. **E,** Hind knee. **F,** Abdominal apex. Scale bar: 1 mm.

Seraph maestus n. sp. (Figure 22)

Type specimen

Holotype. ♂, Australia. Clyde Mountain; −35.547, 149.953; 26–27.X.1968; Monteith leg.; QM Reg No T258426.

Diagnosis

Currently inseparable from generic diagnosis.

Distribution

Known only from the type locality.

Etymology

The specific epithet is the Latin adjective "maestus" in nominative, meaning "mournful".

Note

The antegenicular tooth of hind femur in the only known specimen of this species is only faintly visible. It is possible that this specimen is not an adult, but a last instar nymph, but it is geographically and morphologically distant from the other similar species and does not fit into any of the already described genera, making the description of the new genus necessary at this moment.

Key to the Australian incertae sedis *tribes, genera, and species*

1. Frontal costa bifurcation at lower quarter of eye height. Scutellum short. Antennal grooves below level of ventral margin of eyes. Median carina elevated in anterior part, forming jagged crest of various sizes. Strongly tuberculated femora. First segment of anterior tarsi slightly elongated ..... **2** (Tribe **Echopraxiini**)

– Frontal costa bifurcation at middle of eye height. Dorsal margin of antennal grooves at level of ventral margin of eyes. Median carina elevated in anterior part, forming moderately high oval crest. Slightly tuberculated femora. First segment of anterior tarsi moderately elongated ..... **8** (Tribe **Quasimodini**)

2. Antennae filiform. Vertex approximately 1.5 times wider than an eye. In anterior part of pronotum, median carina in shape of small angular backward-pointing crest ..... **3** (Genus ***Echopraxia* n. gen.**)

– Antennae with proximal segments expanded in various ways. Vertex more than two times wider than eye. Anterior part of pronotum usually with jagged symmetrical crest ..... **4** (Genus ***Peraxelpa*** Sjöstedt)

3. Pronotal apex wide, three-spined. Hind femora robust with two strong lateral protrusions. Small antegenicular and genicular tooth ..... ***Echopraxia cooki* n. sp.**

– Pronotal apex wide, rounded. Hind femora robust with one strong lateral protrusion. Very large antegenicular and small genicular tooth..... ***Echopraxia hasenpuschi* n. sp.**

4. Median carina forming several small crests throughout its length ..... ***Peraxelpa oankali* n. sp.**

– Median carina forming single medium to large crest ... **5**

5. Antennae composed of eight visible segments..... ..... ***Peraxelpa bogdanovici* n. sp.**

– Antennae composed of eleven visible segments **6**

6. Prozonal carinae diverging caudally..... ..... ***Peraxelpa subedi* n. sp.**

– Prozonal carinae parallel **7**

7. Median carina forming medium-sized hump above lateral lobes and small hump near pronotal apex. Lateral lobes projecting outwards, rectangular..... ..... ***Peraxelpa monstrosa*** Sjöstedt

– Median carina forming large hump above lateral lobes. Lateral lobes projecting outwards, rectangular..... ..... ***Peraxelpa thompsoni* n. sp.**

– Median carina forming large hump above lateral lobes and small hump near pronotal apex. Lateral lobes projecting outwards, slightly bilobate, serrated .... ***Peraxelpa wrightae* n. sp.**

8. Vertex bulging in anterior view. Median carina forming moderately high elongated oval crest in anterior part of pronotum. First segment of anterior tarsi long, third segment of hind tarsi short. Apex of pronotum rounded ..... **9** (Genus ***Quasimodo* n. gen.**)

– Vertex crown-like in anterior view. Median carina forming high elongated oval crest in anterior part of pronotum. First segment of anterior tarsi long, third segment of hind tarsi short. Apex of pronotum straight .....***Seraph maestus* n. gen., n. sp.**

9. Medial carina visible in entire length between eyes, very distinct. Lateral carinae very distinct. Pronotal crest strongly oval. Post-humeral spots absent. Dorsal margin of hind femora mostly smooth with small lappet connected with antegenicular tooth .... ***Quasimodo janetzkae* n. sp.**

– Medial carina visible only at apex of vertex. Lateral carinae barely distinct. Pronotal crest more circular. Post-humeral spots absent. Dorsal margin of hind femora mostly smooth with small lappet before antegenicular tooth..... ***Quasimodo kochae* n. sp.**

– Medial carina visible only at apex of vertex. Lateral carinae barely distinct. Pronotal crest strongly oval. Post-humeral spots large. Dorsal margin of hind femora mostly smooth with small lappet before antegenicular tooth..... ***Quasimodo yeatesi* n. sp.**

Discussion

Comments on the taxonomy of Cladonotinae and Echopraxiini

In the classical approach to Tetrigidae taxonomy, the herein-described genera would be classified as Cladonotinae due to their winglessness, wide scutellum, and rough surfaces of legs and pronotum. The taxonomic placement of many Cladonotinae genera has long been a subject of debate, and the polyphyletic status of this subfamily is slowly being addressed (Skejo et al. 2023). We leave the new genera without subfamilial assignment, but we also offer key points to be addressed before such an assignment can be made.

Taxonomic hypotheses proposed by Günther (1938) and Rehn (1952) concern the placement of *Peraxelpa* and can be extended to the tribes Echopraxiini **n. trib.** and Trusmaditetrigini, a recently described tribe encompassing the "flattened" genera of SE Asia and Oceania (Storozhenko 2023). Günther (1938) saw some connection between *Cladonotella* Hancock, 1909; *Gestroana* Berg, 1898; and *Gignotettix* Hancock, 1909, while explicitly stating that they are not closely related to *Peraxelpa*. This is starkly contrasted by Rehn (1952), who proposed that *Peraxelpa* is very close to *Potua* Bolívar, 1887 and that this group could be sister to *Cladonotella* and *Gignotettix*, with *Gestroana* being more distantly related to all of them.

All these genera resemble each other and all of them are similar to the type genus of Cladonotinae, *Cladonotus* Saussure, 1862. Echopraxiini **n. trib.** and Trusmaditetrigini also share many similarities with these genera, but their flatter appearance makes them easier to separate at a glance. Although some species of *Peraxelpa* exhibit quite tall crests, we tentatively place it with Echopraxiini **n. trib.**, mainly due to their similar face morphologies. The apparent lower placement of facial features in Echopraxiini **n. trib.** compared to *Cladonotus*, as well as the vertex being more rounded in *Cladonotus*, point to a larger temporal separation between these groups and make us hesitant to classify them together.

Facial features of Echopraxiini and the *Potua* genus group (Skejo et al. 2020b) appear similar, but there are several key differences between *Potua* and *Peraxelpa* that make its current taxonomic placement tentative: (i) the third tarsal segment of the hind tarsus is longer than the first in *Potua*; (ii) the pronotum has the first metamediolateral projections strongly expressed in *Potua*, while they are usually not that visible in *Peraxelpa*; (iii) the lateral carinae of vertex in *Potua* form sharper V-shapes and the vertex does not seem indrawn, while in *Peraxelpa* the vertex is indrawn and the lateral carinae form U-shapes. Echopraxiini **n. trib.** and *Potua* may be related, but the many problems with the latter genus (discussed further in the text) do not allow us to assign it to Echopraxiini just yet.

The present solution differentiates Echopraxiini **n. trib.** from Trusmaditetrigini based mostly on the position of facial features and the length of the scutellum, and provides tribes with which the *Potua* genus group can be compared and revised. We define Trusmaditetrigni more narrowly, but questions still persist. The type genus of Trusmaditetrigini is also the most peculiar one: it is flattened like many of the mentioned genera and has a similar facial morphology, its long third hind tarsal segment points towards *Potua*, while its extremely elongated legs could suggest closeness to Scelimeninae. The *Potua* genus group is even more complicated due to several reasons: (i) there is a large variability among the specimens assigned to the type species of *Potua*, *Potua coronata coronata* Bolívar, 1887, some of which are repeated with a different label under *Potua morbillosa* (Walker, 1871) (likely due to a mistake during digitalization); (ii) even when those specimens are ignored, it is possible that there are multiple species or even genera attributed to a single species of *Potua*, and this is supported by the fact that all of the *Peraxelpa* species exhibit minimal intraspecific variability; (iii) the specimens of *Gestroana* seem to be ordered well, but there is a wide range of morphologies among the species attributed to this genus, including large differences in pronotal crests and some differences in facial morphologies, suggesting that this genus needs to be revisited with new information in mind; (iv) the genus *Cladonotella* has a similar set of problems as *Gestroana*. Since this group requires revision on all levels, we refrain from making any changes without a detailed examination. Further, it is difficult to ascertain the relationship between *Cladonotus*, the rest of Cladonotini, and the *Potua* genus group (e.g. *Gestroana*). Since any decision on this matter would have profound effects on the entire taxonomy of Tetrigidae, it is best to refrain from such acts for now.

In fact, enacting taxonomic changes at higher taxonomic levels (barring some obviously discordant morphologies) is becoming increasingly difficult. The definitions of tribes such as those mentioned above can identify groups with shared combinations of features, but levels above that of tribes may be out of reach for morphology. The subfamily Cladonotinae has been polyphyletic since its very inception and is still considered as such (Bolívar 1887; Rehn 1952; Tumbrinck 2014; Storozhenko 2023). Revising it to a monophyletic state would be a great accomplishment, but it seems that the current system of tribes with unclear relationships among them is not going to be resolved easily. Very disparate taxa share some peculiar properties, most notably the foliaceous crests in Cladonotini Bolívar, 1887; Xerophyllini Günther, 1979; Metrodorini Bolívar, 1887; Lophotettiginae Hancock, 1909, and Tripetalocerinae Bolívar, 1887, and the femora which are tuberculated to different extents but with tubercles and teeth placed in roughly the same places, e.g. in Xerophyllini, Trusmaditetrigini, Echopraxiini **n. trib.**, Metrodorini, Discotettigini Hancock, 1907, and Tripetalocerini (this list is not exhaustive, images of the types

available from Cigliano et al. (2024)). Some such characters likely represent plesiomorphies which minimize the apparent differences between disparate groups (e.g. Beutel et al. 2017; Ballesteros et al. 2019), while some derived character states could have arisen multiple times independently, potentially making some closely related taxa seem distant. Considering the ancient age of Tetrigidae (Song et al. 2020) and the number of recognized taxa (Cigliano et al. 2024), it is quite possible that the diversity of Tetrigidae at higher taxonomic levels is currently underestimated, but it is now apparent that this will be possible to elucidate only by use of molecular phylogenies.

Comments on the biogeography of Echopraxiini and Quasimodini

Eastern Australia is a patchwork of rainforests that have undergone multiple contractions and expansions throughout geologic history (Byrne et al. 2011). Several major biogeographical barriers between these patches have been identified (Bryant & Krosch 2016) and can be used to understand the distribution of the newly described tetrigid taxa.

Most of our species are distributed in the Black Mountain Corridor (BMC) area (Figure 1B–D), with Daintree in the north and Atherton Tableland and in the south. Many phylogeographic studies have shown a clear separation between the northern and southern assemblages (Bryant & Krosch 2016), which is apparent in our study as well. The two *Echopraxia* **n. gen.** species separate perfectly at the corridor, and nearly all *Peraxelpa* species are also present only on one side of the barrier. The only exceptions are *P. monstrosa*, which is found in central-eastern Australia, and *P. thompsoni* **n. sp.** which is present on both sides of the BMC. The explanation for this is currently not apparent, i.e. both vicariance and dispersal are possible. Molecular studies should help answer this question and show how and when the different species and populations separated. The area north of the BMC is well-known for its high flightless invertebrate endemism, especially in higher altitudes (Yeates & Monteith 2008). This mountain-island distribution likely explains the three *Quasimodo* **n. gen.** species, each collected on a different mountain north of the BMC. *E. cooki* morphologically seems to be a single widespread species north of the BMC, but it is unclear if there is any gene flow between the populations.

The only species inhabiting central-eastern Australia identified in this study is *P. monstrosa*, which is distributed significantly more to the south than the other *Peraxelpa* species. *P. monstrosa* occurs north and south of the Brisbane Valley barrier (BVB), i.e. it is distributed along the mountain ranges encircling the valley (Bryant & Krosch 2016). An interesting fact to note is that central-eastern Queensland, the area between the distribution ranges of *P. monstrosa* and the northern *Peraxelpa* species, which includes Eungella Range, Bulburin Range, and Kroombit Tops, is completely devoid of this group of tetrigids despite being well sampled (Moss & Jenkinson 2014). Research into other tetrigid taxa is necessary to explain this curious void in the distribution. More sampling is needed in southeastern Australia, from where only a single specimen of *Seraph maestus* **n. gen., n. sp.** is currently known.

Acknowledgements

We are immeasurably grateful to Geoff Monteith of the Queensland Museum, who led the many fieldwork efforts and suggested that we examine this unique collection. We are thankful to everyone who participated in the fieldwork and the subsequent care of the specimens. We especially recognize the efforts of Karin Koch and Susan Wright of the Queensland Museum, who were beyond kind and helpful in making the collection available for study. We are thankful to Sandro Bogdanović for handling the loan process, and to Stjepan Budimir, a representative of Mikro + Polo, for loaning us the stereomicroscope. We appreciate the efforts of iNaturalist users who captured wonderful photos of living specimens and allowed us to use them in the paper. Finally, we are grateful to Tomislav Domazet-Lošo for reading a draft of this paper and giving valuable suggestions.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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