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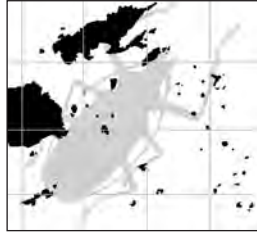
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FIJI ARTHROPODS XII

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AND

DANIEL J. BICKEL, EDITORS



12



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Cover: *Ugyops vitiensis* Kirkaldy (Hemiptera: Delphacidae). Photo: James Turner.

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FIJI ARTHROPODS XII

Editors' Preface

We are pleased to present the twelfth issue of *Fiji Arthropods*, a series offering rapid publication and devoted to studies of terrestrial arthropods of the Fiji Group and nearby Pacific archipelagos. Most papers in this series are the results of collecting and research on the Fijian fauna deriving from the NSF-funded “Terrestrial Arthropods of Fiji” project. Two co-PIs and 15 specialists form the core team of scientists who have agreed to publish new taxa that result from collecting during this survey. However, as space allows, we welcome papers from any scientist who is currently working on arthropod taxonomy in Fiji.

This issue contains studies on Brentidae (Coleoptera—Beaver), Cicindelidae (Coleoptera—Cassola), and an annotated checklist of Auchenorrhyncha (Hemiptera—Wilson). Manuscripts are currently in press or in preparation on Muscidae, Keroplatidae, Mycetophilidae, Mythicomyiidae, Tipulidae, and Dolichopodidae, and will appear in future issues.

The editors thank the Government of Fiji (especially the Ministries of Environment and Forestry), the National Science Foundation (DEB 0425970), and the Schlinger Foundation for their support of this project. Types of new species deriving from this study and voucher specimens will be deposited in the Fiji National Insect Collection, Suva.

All papers in this series are available free of charge as pdf files downloadable from the following url:

<http://hbs.bishopmuseum.org/fiji/fiji-arthropods/>

We encourage interested authors to contact us before submitting papers.

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Checklist and Illustrated Key to Species of Brentidae from Fiji (Coleoptera: Curculionoidea)¹

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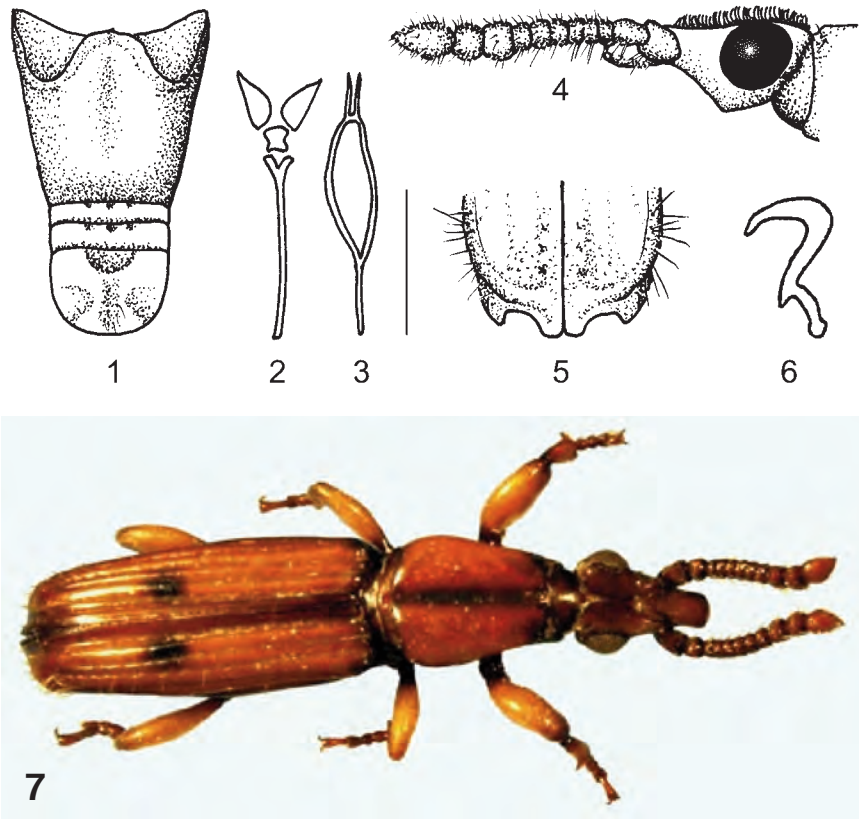
ABSTRACT. A checklist of 22 species of the weevil family Brentidae (subfamilies Cyladinae, Brentinae, Cyphagoginae, Trachelizinae) recorded from Fiji is given, with notes on distribution, biology, and faunal composition. *Aneorhachis fijiana* n. sp. is described by A. Mantilleri. An illustrated key to the 22 species is provided. *Eubacrus metallicollis* Fairmaire is transferred to the genus *Miolispa* Pascoe, with *Miolispa fijiana* Kleine as a new synonym. *Cerobates angustipennis* Senna, *Cerobates laevipennis* Senna, and *Ithystenus muelleri* Kleine are removed from the Fiji faunal list.

INTRODUCTION

The Brentidae is a family of weevils (Coleoptera: Curculionoidea), including about 1750 species, the majority associated with dead wood in the tropical rain forests of the world. The taxonomic extent of the family has been subject to some recent controversy (e.g., Anderson & Kissinger, 2002; Sforzi & Bartolozzi, 2004). In this paper we follow Zimmermann (1994) and the recent catalogues of Alonso-Zarazaga & Lyal (1999, 2002) and Sforzi & Bartolozzi (2004) and include the subfamily Cyladinae within the Brentidae, but exclude the Apionidae and Nanophyidae. Kleine (1935) listed 12 species recorded from Fiji as part of a list of brentid species from Oceania. Since that time there has been no updated checklist, although there have been fairly numerous taxonomic changes, and a number of additional species have been described from Fiji. This paper provides for the first time an illustrated key to the Fijian species, together with a checklist with notes on distribution, and, when available, the plants on which the species have been found. Although not all specimens can presently be identified below tribal or generic level, we hope that the paper may encourage studies of the family in Fiji, particularly the biology and ecology of the endemic species.

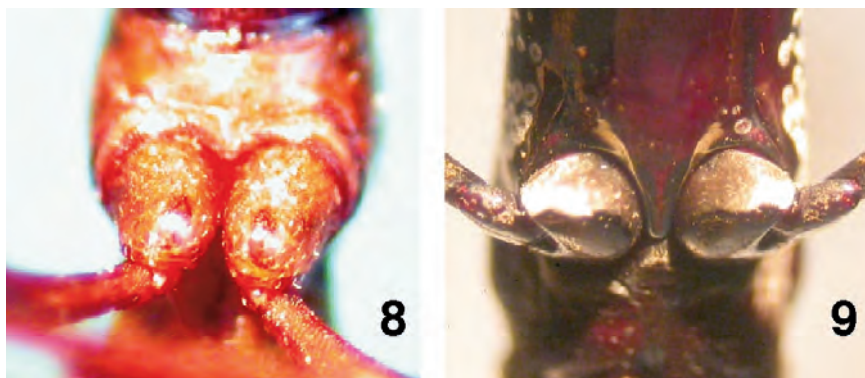
The study is based for the most part on a large collection of Fijian Brentidae in the Bishop Museum, Honolulu (BIBM), including specimens collected since 2001 as part of

1. Contribution No. 2009-001 to the NSF-Fiji Arthropod Survey.



Figures 1–7. *Aneorhachis fijiana* Mantilleri n. sp. 1. Abdomen (male, ventral view). 2. *Spiculum gastrale*. 3. Tegmen. 4. Head (male, lateral view). 5. Apex of elytra. 6. Spermatheca. Scale: 0.5 mm except fig. 6: 0.25 mm. 7. Dorsal view

the Terrestrial Arthropod Survey of Fiji project. This collection includes many specimens from the main islands of Viti Levu and Vanua Levu, as well as material from the islands of Kadavu, Ovalau, Taveuni and a few other outer islands. Further specimens were collected by the senior author in 1973 and from 1981–1988. These are in his private collection (RAB). The majority of these were collected in lowland tropical rain forest on the island of Viti Levu, near Wailoku (18°04'S, 178°26'E), 10 km North of Suva. The identifications have been checked against type and other identified specimens in the Muséum National d'Histoire Naturelle, Paris (MNHN), the Natural History Museum, London (NHML), and the New Zealand Arthropod Collection, Auckland (NZAC). The nomenclature of the brentids follows Sforzi & Bartolozzi (2004). In the checklist, details of specimens examined are given for the less common species, but not for the two most abundant species (*Bulbogaster stenostomoides* Lacordaire and *Eubactrus semiaeneus* Lacordaire), of which more than 100 specimens were examined from many different localities. For these two species only a



Figures 8–9. Procoxae. **8.** Contiguous, conical, prominent procoxae (*Cylas formicarius*). **9.** Separated procoxae (*Eubactrus semiaeneus*).

few records which add significantly to the known distribution of the species within Fiji are given. It is likely that the majority of the presently unidentified species are new to science, and these will be described after further study. The number before the name of the species in the key refers to the number of the species in the checklist that follows.

SYSTEMATICS

Aneorhachis fijiana Mantilleri, n. sp.

Description. Length from tip of rostrum to apex of elytra: 3.9–4.1 mm. Width at humeral callus: 0.6–0.7 mm. Body brown-red with darker spot on intervals 2–4 of elytra.

Head much larger than long, flat, base strongly incised medially with two protruding lobes on neck and two lines of thick setae on each side of the head above the eyes, those two lines reaching the meso-rostrum. Eyes slightly protruding, temples short without bulge behind the eyes. Vertex and frons furrowed, this furrow reaching the base of the pro-rostrum. Metarostrum foveate, with a longitudinal short line of thick setae on each side of the rostrum between the median furrow and the lateral lines of setae. No metarostral lateral grooves. Prorostrum flattened, short, 0.3 times the length of the head, metarostrum and meso-rostrum together. Antennae (Fig. 4) with long hair on the inner side of the antennomeres; antennomere 2 as long as wide, 3rd conical as long as wide, 4th to 8th cylindrical wider than long; antennomeres 9–11 clubbed, slightly flattened, 9th and 10th wider than long, 11th twice the length of the 10th. Underside of the head glabrous, bulging, with a transverse carina forming an angle beneath the head when viewed laterally (Fig. 4).

Pronotum more or less strongly punctured, deeply furrowed, with few setae on the rounded fore angles. Prothorax glabrous without a fovea between the procoxae; odd prothoracic sclerite not distinct. Metathorax with a longitudinal median groove. Elytra with a concave base and long setae, mainly at the apex. Interstria 2 present only after the first half and reaching the apex; interstria 3 large, present on the total length of the elytra; interstria 4 beginning at the base and reaching the apical declivity; interstriae 5 and 6 con-

nected together to form a common humeral branch; interstria 7 very reduced and present only on the last third of elytra; interstria 8 complete and forming the external apical border of the elytra; interstriae 9 and 10 present. Elytra notched on each side at the apex (Fig. 5). Protibiae with a strong internal spur; mesotibiae and metatibiae of the female with two sharp spurs at the apex; male with one sharp spur and one blunted spur almost bifid.

Male: abdomen (Fig. 1) slightly furrowed, slightly depressed, glabrous; ventrites V–VI with three small basal notches; ventrite VII almost glabrous with a large semi-circular basal notch, a longitudinal depressed area, no apical fovea and two slight lateral depressions. Spiculum as in Fig. 2. Parameres reduced, filiform, separated (Fig. 3).

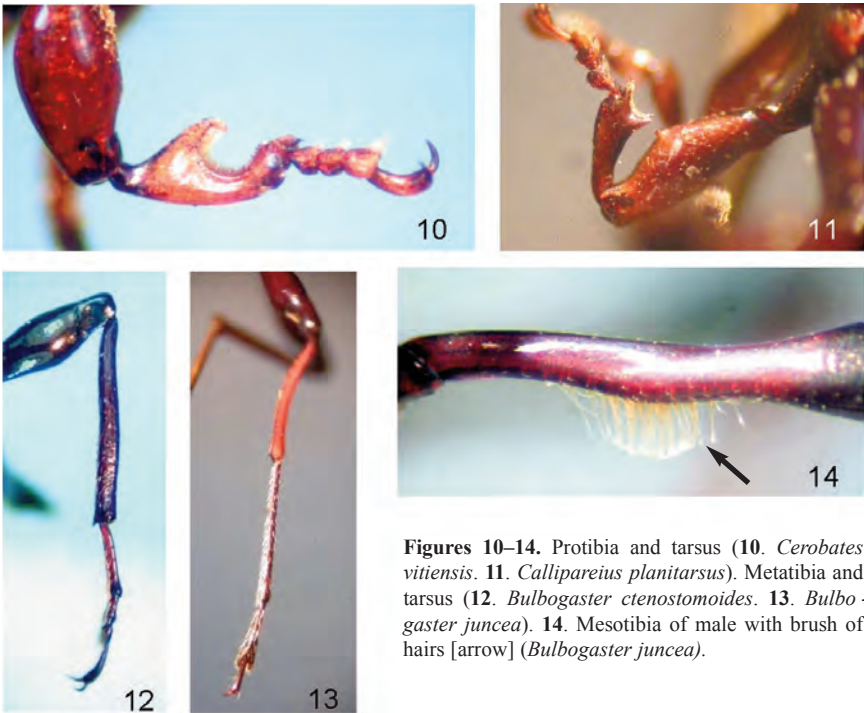
Female: abdomen smooth, strongly convex; ventrites V–VI as in the male; ventrite VII as in the male but without longitudinal depressed area. Spermatheca as in Fig. 6.

Types. *Holotype* ♂ (BPBM Type 17,140) FIJI: **Viti Levu:** Navai Mill nr. Nandarivatu, 2700 ft [2222 m], 7 Sep 1938, E.C. Zimmerman. *Paratypes:* 1 ♀, FIJI: **Ovalau:** nr. Vuma, 200 ft [61 m], 14 Jul 1938, rotten logs, E.C. Zimmerman (BPBM). **Vanua Levu:** 1 ♀, Kilaka, 16°48'S, 178°59'E, 154 m, 28 Jun–2 Jul 2004, Malaise, M.E. Irwin, E. Schlinger, M. Tokota'a [FBA153182] (MNHN). Holotype in BPBM.

Discussion. This species is the third to be described in the genus *Aneorhachis* Kleine. The two others were described from India (*A. stricta* Kleine) and Bhutan (*A. monticola* Damoiseau). From the rounded fore angles of the pronotum, *A. fijiana* seems to be closer to *A. monticola*, but many characters such as size, presence of a carina beneath the head, and incomplete elytral interstria 2 separate these two taxa very easily. It is surprising to see such a gap in the geographical distribution of the genus, but this may be because we lack material from Indonesia and Papua New Guinea. In the future, other species of this genus will be probably discovered in other islands of this region.

KEY TO SPECIES OF FIJIAN BRENTIDAE

1. Procoxae contiguous, conical, prominent (Fig. 8). Antennae 10-segmented, antennomere 10 longer than 2–9 together in the male, about as long as antennomeres 4–9 together in the female. Head, rostrum, metasternum and abdomen black, prothorax, mesosternum and legs reddish, elytra steely blue (Fig. 27) 1. **Cylas formicarius** (Fabricius)
- . Procoxae separated (Fig. 9). Antennae 11-segmented, with antennomeres 9–11 forming a more or less distinct club. Colour pattern not as above 2
2. Anterior sides of pronotum laterally compressed and concave for reception of femora when folded against body and/or hind femora pedunculate and strongly claviform (Figs. 24, 30) 3
- . Anterior sides of pronotum not laterally compressed and concave. Hind femora not strongly claviform 9
3. Apex of metafemur not reaching elytral apex (Fig. 25). Elytra glabrous. Interstriae 3 pale yellow except for a darker band in the basal third and on the declivity. Profemora with or without a ventral tooth ... (*Callipareius*) 4
- . Apex of metafemur as long as or extending well beyond elytral apex (Fig. 28). Elytra with erect hairs or scales on interstriae. Interstriae 3 not pale yellow. Profemora without a ventral tooth 5
4. Interstriae 2 complete. Bases of interstriae 2–5 pale yellow, interstriae 9 pale up to the declivity (Fig. 24). Elytral apices not appendiculate. Profemora with a ventral tooth (Fig. 11) 4. **Callipareius planitarsus** (Perroud & Montrouzier)



Figures 10–14. Protibia and tarsus (10. *Cerobates vitiensis*. 11. *Callipareius planitarsus*). Metatibia and tarsus (12. *Bulbogaster ctenostomoides*. 13. *Bulbogaster juncea*). 14. Mesotibia of male with brush of hairs [arrow] (*Bulbogaster juncea*).

- Interstriae 2 obsolete in middle part of elytra. Bases of interstriae 2, 4–5 not pale yellow, interstriae 9 dark brown (Fig. 25). Elytral apices appendiculate. Profemora without a ventral tooth 5. **Callipareius** sp.
- 5. Metasternum longer than abdomen, hind coxae set far back and metafemora extending well beyond elytral apex. Interstriae 2 strongly narrowed after the basal quarter and obsolescent in the middle of the elytra. Elytra with a longitudinal, reddish-brown vitta extending from the suture to interstriae 3, and from the base to the apex (Fig. 30). All interstriae with long fine hairs 6. **Cyphagogus fijianus** Kleine
- Metasternum about as long as abdomen, metafemora extending to or slightly beyond elytral apex. Interstriae 2 present or absent. Uneven-numbered interstriae with erect or semi-erect scales or bristles, even-numbered interstriae glabrous 6
- 6. Head with a median groove extending to the mesorostrum, the raised lateral margins with a dense covering of scales (Fig. 29). Gena without a tooth in front of eye. Pronotum very weakly concave at sides anteriorly, with a deep median groove, bearing setae similar to those on the head. Interstriae 1, 3, and 5 more strongly raised than the others, interstriae 2 and 4 varied 7
- Vertex of head and pronotum not grooved, weakly convex, bearing only a few scattered finer setae (Fig. 37). Gena with a pointed down-curved tooth in front of eye. Pronotum strongly concave at sides anteriorly, without a median groove. Interstriae

- 1, 3 and 5 not more strongly raised than the others, interstriae 2 absent, interstriae 4 raised throughout their length 7. **Microsebus fijianus** (Damoiseau)
7. Pronotum convex on either side of median groove, about 1.5 times longer than wide. Interstriae 2 complete or interrupted in middle of elytra, interstriae 4 continuous 8
- Pronotum dorsally forming a shallow ‘V’ with flattened, weakly sloping sides and a deeper median groove, about 1.7 times longer than wide (Fig. 40). Interstriae 2 absent or visible only at extreme base of elytra, interstriae 4 raised only close to base, obsolete posteriorly 8. **Nesidiobrentus** sp.
8. Interstriae 2 complete. Elytra with a well-marked pattern of black spots and bands on a paler background (Fig. 28) 9. Cyphagogini (Undetermined genus and species #1)
- Interstriae 2 interrupted in middle of elytra. Elytra with three transverse darker bands, the base of the elytra, two transverse maculae, and the apex, slightly paler (Fig. 29) 10. Cyphagogini (Undetermined genus and species #2)
9. Rostrum with rounded tubercles above the antennal insertions (Fig. 16). Pronotum without a median furrow. Elytra regularly, coarsely punctate, the sutural interstriae strongly raised, interstriae 2–4 flat, narrower than striae, interstriae 5 with the base widened, raised or carinate posteriorly, interstriae 7–9 very narrow, carinate, the declivity with a preapical spine extending beyond the apex ... (*Anomobrentus*) 10
- Rostrum without rounded tubercles above the antennal insertions, or if present, elytra not as above. Pronotum often with a median furrow 11
10. Pronotum bicoloured with sides darker than dorsal surface. Elytra with paler yellowish humeri, darker apically, but without a sudden change in colour after basal third (Figs 17, 18). Interstriae 5 raised but not carinate posteriorly, with a yellow vitta extending from base to declivity 2. **Anomobrentus hamatirostris** Fairmaire
- Pronotum more uniformly brown-black, shining. Basal 1/3 of elytra yellow to yellow-orange, clearly distinct from brown-black apical half (Fig. 19). Interstriae 5 carinate posteriorly, distinctly yellow only in basal third 3. **Anomobrentus kuscheli** Damoiseau
11. Protibia with a large, conspicuous emargination on its inner side between the middle and apex, the base of the emargination produced into a prominent process, its inner margin setose (Fig. 10). Ventral surface of head hairy at base, a line of trichobothria extending along the rostrum on each side (Fig. 15). Pronotum with a basal fovea. Interstriae 2 obsolete in middle third of elytra. Small, rather flattened species, 6–8 mm long (Fig. 26) 11. **Cerobates vitiensis** Fairmaire
- Protibia without such a large, conspicuous emargination or prominent process. Ventral surface of head not as above. Mostly larger, more cylindrical species 12
12. Elytra appendiculate, each with a posterolateral process formed by the fusion of the third and ninth interstriae. Last 3 antennomeres usually long and slender 13
- Elytra without such processes. Last 3 antennomeres not elongate 17



Figures 15–16. 15. Ventral view of head of *Cerobates vitiensis*. 16. Dorsal view of head of *Anomobrenthus hamatirostris*.

- 13. Pronotum with a complete median furrow. Elytra nearly parallel-sided, only weakly laterally compressed in the middle; both striae 1 and 2 impressed for the whole length of the elytra ... (*Ithystenus*) 14
- Pronotum without a median furrow or with only a short impression at the base. Elytra either strongly laterally constricted in middle, or with convex sides and constricted only just before apex; only striae 1 impressed for the whole length of the elytra 15
- 14. Pronotum dorsally with a reddish to yellowish band on either side of black median furrow, dark laterally and ventrally. Interstriae 1–2 usually black, the remainder of the elytra reddish or reddish black, with the striae punctures often surrounded by dark spots (Fig. 34) Rostrum with scattered minute punctures, lacking a dorsolateral groove. Apical processes of elytra in male approximately cylindrical, tapering slightly to blunt tips 17. ***Ithystenus nigrosulcatus*** Fairmaire
- Pronotum and elytra almost uniformly dark reddish brown to black, the elytra lacking black spots around the punctures. Metarostrum with coarse punctures beneath a dorsolateral groove. Apical processes of elytra in male laterally flattened, more strongly tapering to a more acute tip. (Figs. 35, 36) 18. ***Ithystenus*** sp.
- 15. Last 3 antennomeres long and slender. Elytra strongly laterally constricted in the middle ... (*Bulbogaster*) 16
- Last 3 antennomeres not long and slender. Elytra with convex sides, constricted only just before apex (Fig. 33) 19. *Ithystenini* sp. (Undetermined genus and species)
- 16. First metatarsal segment extremely elongate, as long as metatibia (Fig. 13). Male pro-rostrum not expanded towards apex (Fig. 23), and with brushes of fine hairs ventrally on the peduncle of the mesofemora (Fig. 14) and on the metasternum; brushes absent in female 16. ***Bulbogaster juncea*** Damoiseau
- First metatarsal segment not more than half as long as metatibia (Fig. 12). Male pro-rostrum expanded towards apex (Fig. 22), lacking brushes of hairs below mesofemora and on metasternum in both sexes 15. ***Bulbogaster ctenostomoides*** Lacordaire
- 17. Head broadly grooved with a ridge on each side extending onto the rostrum bearing erect, flattened setae (Fig. 7). Protibial spur enlarged to form a calcar. Elytra with long, erect hairs, sparse on the disc, denser on the declivity, with a row on striae 2

- and 4 on the disc, and further hairs on the outer interstriae. Elytral interstriae strongly convex; interstriae 2 beginning at about the middle of the elytra, strongest on the upper part of the declivity 20. **Aneorhachis fijiana** Mantilleri, **sp.n.**
- Head not broadly grooved or ridged, lacking erect, flattened setae. Elytra glabrous or almost so, lacking long hairs; interstriae 2 present only at base 18
18. Striae 1 and 5–9 impressed. Interstriae 3 with a paler, reddish yellow vitta, broken in the middle, and not reaching the apex (Figs. 38, 39) 12. **Miolispa metallicollis** (Fairmaire)
- Only striae 1 and/or 2 impressed. Elytra without a vitta of contrasting colour 19
19. Both interstriae 1 and 2 impressed on elytral disc 20
- Only interstriae 1 impressed on elytral disc 21
20. Body strongly shining, finely punctured, the punctures not tomentose (Fig. 42). Interstriae 1 joining interstriae 9 at apex of elytra, interstriae 3 not reaching apex 13. **Tracheloschizus castaneicolor** (Kleine)
- Body weakly shining, coarsely punctured, the punctures tomentose (Fig. 20). Interstriae 3 strongly raised posteriorly and joining interstriae 9 at apex 21. **Atenophthalmus fuscojanthinus** (Fairmaire)
21. Body blackish with dark metallic reflections (Fig. 41). Base of head without a dorsal impression at base. Tomentose punctures extending to front of pronotum dorsally, median sulcus narrow 14. **Trachelizini** (Undetermined genus and species)
- Body chestnut-brown, without obvious metallic reflections (Figs. 31, 32). Base of head with a large, tomentose depression dorsally. Anterior third of pronotum without tomentose punctures dorsally, the punctures very fine and scattered, median sulcus wide 22. **Eubactrus semiaeneus** Lacordaire

CHECKLIST OF FIJIAN BRENTIDAE

Subfamily Cyladinae

1. *Cylas formicarius* (Fabricius) (Figs. 8, 27)

Brentus formicarius Fabricius, 1798: 174.

This is the notorious sweet potato weevil, an important pest of *Ipomoea batatas*, the sweet potato, and related wild species of *Ipomoea* (Convolvulaceae). As a result of introductions, it has a circumtropical distribution. The feeding activities of the larvae can render the tubers inedible to both humans and cattle. Waterhouse & Norris (1987) give an account of its biology, pest status, natural enemies and control measures, and Zimmerman (1994) gives further details.

Material Examined: FIJI: **Viti Levu:** Sigatoka Prov., Sigatoka Sand Dunes N.H.P, 177°30'E, 18°10'S, 10 m, Malaise, 1–13 Dec 2003, M. Irwin, E. Schlinger, M. Tokota'a (1) [FB036150] (BPBM); Suva, USP [University of the South Pacific], swept on waste ground, 1 Apr 1985, 22 Oct 1988, 6 Nov 1988, R.A. Beaver (3) (RAB).

Subfamily Brentinae

Tribe Arrhenodini

2. *Anomobrenthus hamatirostris* Fairmaire

(Figs. 16–18)

Anomobrenthus hamatirostris Fairmaire, 1881a: 349.

Recorded from Fiji and Vanuatu (Damoiseau, 1989b; Sforzi & Bartolozzi, 2004). The species has been collected on the islands of Ovalau, Taveuni, Vanua Levu and Viti Levu. One male and two females were collected on the bark of a small felled tree (*Commersonia bartramia* - Sterculiaceae) in the Namosi area of Viti Levu by RAB. The species was common in Malaise traps of the Fiji Arthropod Survey. Damoiseau (1989b: 55, Fig. 6) provided a dorsal view of the male.

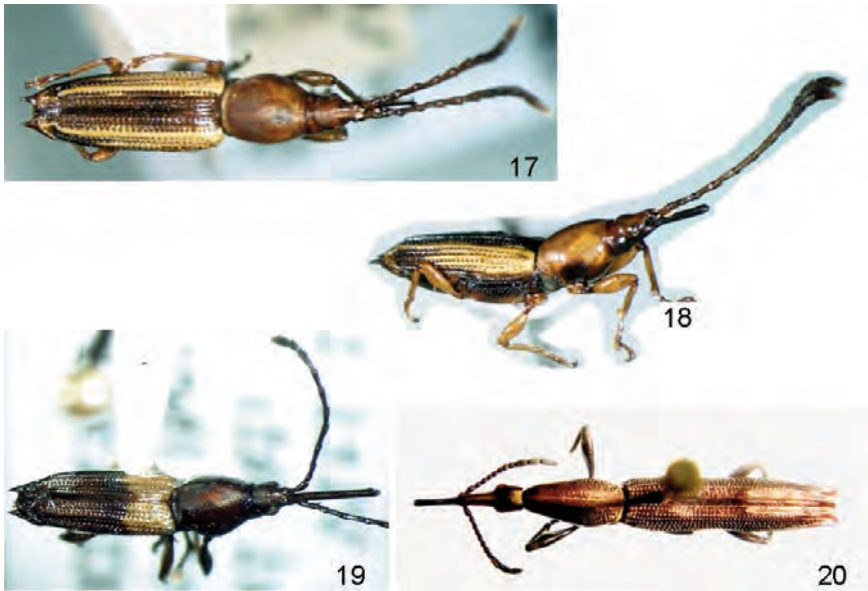
Material Examined: FIJI: **Ovalau:** Dreiba Trail, 800–1000 ft [244–305 m], ferns, 8 Jul 1938, E.C. Zimmerman (1). **Taveuni:** Devo Forest Reserve, 179°59'E, 16°50'S, 800m, Malaise, 10–17 Oct 2002, M. Irwin, E. Schlinger, M. Tokota'a (2) [FBA008376–008377]; Tavuki Village, Mt. Devo, 16.837°S, 179.973°W, 892 m, Malaise, 14–31 Jul 2004, E.I. Schlinger, M. Tokota'a (1) [FBA1515577]; 5.3 km SE Tavuki, Devo Peak, 16.8431°, 179.9681°, 1064 m, Malaise, 10–17 Oct 2002, Schlinger, Tokota'a (5) [FBA052829–052823]; 3.2 km NW Lavena Vlg., Mt. Koronibuabua, 16.855°S, 179.89°W, 217 m, Malaise, 24 Oct–4 Nov 2003, Schlinger, Tokota'a (1) [FBA153650]. **Vanua Levu:** Batiqere Range, 6 km NW Kilaka Village, 16.807°S, 178.988°E, 154 m, Malaise, 28 Jun–2 Jul 2004, Schlinger, Tokota'a (5) [FBA156308–156312]; Kilaka, 178°59'290"E, 16°48'412"S, 154 m, Malaise, 28 Jun–21 Jul 2004, M.E. Irwin, E. Schlinger, M. Tokota'a (2) [FBA029014–029015]; as previous except: 178°59'017"E (1) [FBA048741]; Savusavu, 100 m, Mar 1978, N.L.H. Krauss (1). **Viti Levu:** Colo-i-Suva, 29 Jun 1924, E.H. Bryan, Jr. (2); Colo-i-Suva, beating, 27 Jul 1938, E.C. Zimmerman (1); Nadarivatu, 3700 ft [1128 m], beating shrubbery, 10 Sep 1938, E.C. Zimmerman (1); Rdg W of Nadarivatu, 2800 ft [853 m], beating shrubs, 11.ix.1938, E.C. Zimmerman (1); Rdg. W of Vatuthere, Nadarivatu, 2600–3000 ft [792–914 m], beating shrubbery, 8 Sep 1938, E.C. Zimmerman (1); Namosi Rd, 3 km N Queen's Bay, 100 m, 3–7 Nov 1981, W.C. Gagné (1); Navai, Jan 1951, N.L.H. Krauss (1); Navai Mill, nr. Nadarivatu, beating, 2700 ft [823 m], 7 Sep 1938, E.C. Zimmerman (1); as previous except: 2500 ft [762 m], 15 Sep 1938 (3); as previous except: 17 Sep 1938 (1); Nakobalevu Mt, logging rd behind Suva, 178°25'E, 18°03'S, 340 m, Malaise, 22 Sep–9 Oct 2002, M. Irwin, E. Schlinger, M. Tokota'a (1) [FBA008948]; as previous except: Radio towers nr. Suva, 450 m (1) [FBA008221]; Navai Village, Eteni, 17°37'S, 177°59'E, 70 m, Malaise, 15 May–2 Jun 2003, M. Irwin, E. Schlinger, M. Tokota'a (1) [FBA041795]; as previous except: 7–26 Jan 2004 (4) [FBA044920–044923]; as previous except: 13–18 Feb 2004 (1) [FBA039512]; Sigatoka Sand Dunes N.P., 177°28'96.7"E, 18°09'93.9"S, 4 m, Malaise, 24 Nov–16 Dec 2003, M. Irwin, E. Schlinger, M. Tokota'a (1) [FB030444]; Koroyanitu N.H.P., Abaca Village, 17°40'S, 177°33'E, 400 m, Malaise, 21 Sep–7 Oct 2002, M. Irwin, E. Schlinger, M. Tokota'a (1) [FBA008232]; Koroyanitu Pk, 1 km E Abaca Vlg, Savuione Trl, 17°667'S, 177°55'E, 800 m, Malaise, 12–19 Oct 2002, Schlinger, Tokota'a (1) [FBA156182]; as previous except: near Abaca Vlg, 18 Oct–13 Dec 2003 (or 2004?) [sic] (1) [FBA166802] (all BPBM); Namosi Rd, on *Commersonia bartramia* trunk, 9 Mar 1985, R.A. Beaver (3) (RAB).

3. *Anomobrenthus kuscheli* Damoiseau

(Fig. 19)

Anomobrenthus kuscheli Damoiseau, 1989b: 55.

The species is endemic to Fiji, and is known only from Viti Levu. It may be noted here that there is an error in Damoiseau's (1989b) key to and description of the species. In the key to distinguish *A. kuscheli* from *A. hamatirostris*, and in the description, Damoiseau



Figures 17–20. *Anomobrenthus hamatirostris* (17. Male dorsal view, 18. Male lateral view). Dorsal view (19. Male *Anomobrenthus kuscheli*. 20. Female *Atenophthalmus fuscojanthinus*).

states that the apical part of the elytra is yellow or yellow-orange, and the basal part shining brown-black. The holotype of the species in NZAC is damaged (W. Kuschel, personal communication, 2005), but we have been able to examine conspecific male and female, and photographs of male and female paratypes of the species kindly sent by Dr. A. Sforzi. These clearly show a reverse pattern of elytral colouration, with the basal third yellow and the apical two-thirds dark brown. The distinction is weak in a very small specimen, but the identity of the species can be confirmed by the carinate interstriae 5 on the posterior part of the elytral disc.

Material Examined: FIJI: **Viti Levu:** Belt Rd, 20 mi [32 km] W of Suva, beating shrubs, 23 Jul 1938, E.C. Zimmerman (1) (BPBM); Namosi Rd, 15 km N Queen's Bay, on *Cyathea*, 3–7 Nov 1981, W.C. Gagné (1) (BPBM).

Subfamily Cyphagoginae
Tribe Cyphagogini

4. *Callipareius planitarsus* (Perroud & Montrouzier)
(Figs. 11, 24)

Diastrophus planitarsus Perroud & Montrouzier, 1865: 142.

Specimens varying from 3.0 mm (male) to 7.8 mm (female) in length have been examined. It is well known that intraspecific variation in size can be very large in brentids, related to environmental conditions during larval development (Johnson, 1982; Sforzi &



Figures 21–23. *Bulbogaster ctenostomoides* (21. Female dorsal view, 22. Male dorsal view). 23. Male dorsal view of *Bulbogaster juncea*.

Bartolozzi, 2004). The morphology of the species suggests that it could be a brood parasite of ambrosia beetles of the curculionid subfamilies Platypodinae and/or Scolytinae.

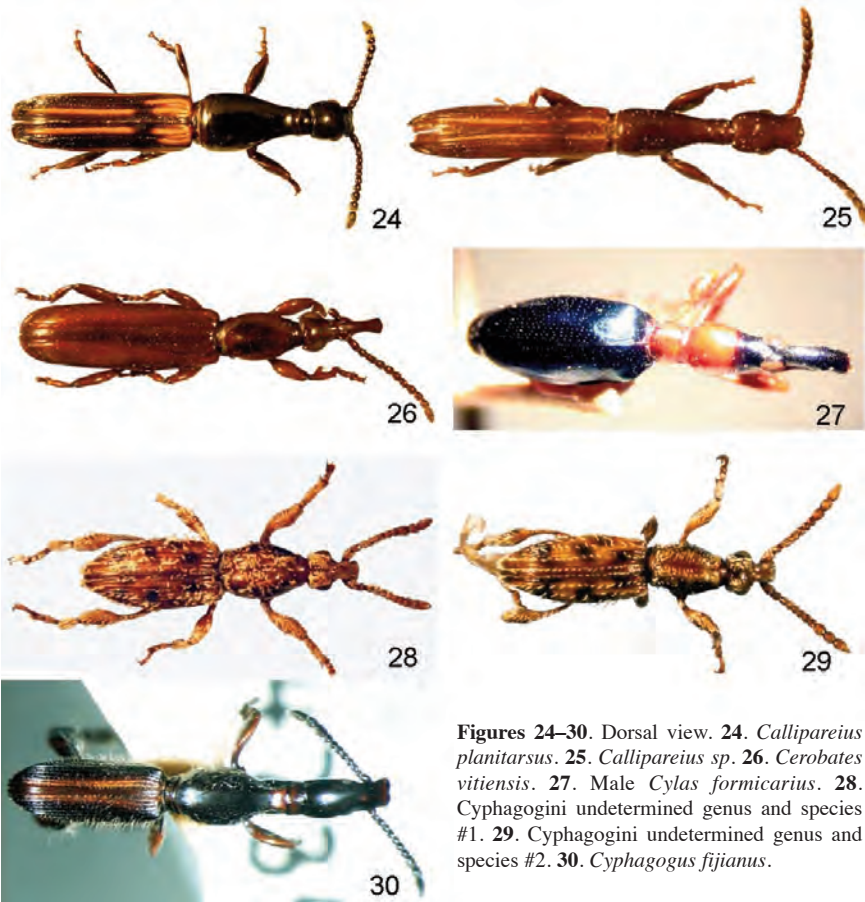
Material Examined: FIJI: **Kadavu:** Solodamu, 19°04'S 178°07'E, 128 m, Malaise in coastal limestone forest, 25 Aug–23 Oct 2003, M. Irwin, E. Schlinger, M. Tokota'a (2) [FBA017399]. **Taveuni:** Waiyevo, 0–100 m, Jan 1972, N.L.H. Krauss (1) (all BPBM). **Viti Levu:** Savura Ck, Malaise trap, 14–20 Sep 1981, 21–27 Sep 1981, 4–11 Oct 1981, R.A. Beaver (3) (RAB).

5. *Callipareius* sp.

(Fig. 25)

A single male specimen of a species of *Callipareius* was caught on Viti Levu. It probably belongs to a new species, but further studies on the genus are needed to confirm its status.

Material Examined: FIJI: **Viti Levu:** Savura Ck, Malaise trap, 14–20 Sep 1981, R.A. Beaver (1) (RAB).

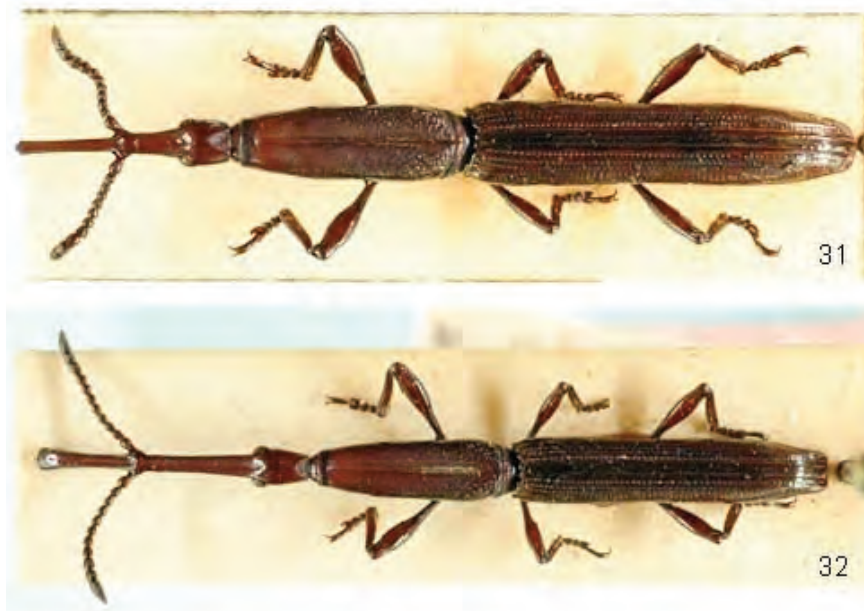


Figures 24–30. Dorsal view. 24. *Callipareius planitarsus*. 25. *Callipareius* sp. 26. *Cerobates vitiensis*. 27. Male *Cylas formicarius*. 28. Cyphagogini undetermined genus and species #1. 29. Cyphagogini undetermined genus and species #2. 30. *Cyphagogus fijianus*.

6. *Cyphagogus fijianus* Kleine
(Fig. 30)

Cyphagogus fijianus Kleine, 1928a: 48.

The species is endemic to Fiji, where it has been recorded from Viti Levu and Taveuni (Damoiseau, 1989a). It was redescribed by Damoiseau (1989a). The species was collected by RAB most frequently in a Malaise trap in the rain forest at Savura Creek, close to Suva, but also on the bark of *Myristica chartacea* (Myristicaceae) investigating the entrance to scolytine weevil galleries. It is more commonly associated with the galleries of platypodine weevils, and Roberts (1977) recorded it as a probable nest parasite of *Crossotarsus externedentatus* (Fairmaire) and *Platypus yasiyasi* Roberts. Although Roberts (1977) did not observe breeding, he noted that the male platypodine, which usually remains close to the entrance of the gallery system, was missing when *C. fijianus* was



Figures 31–32. Dorsal view. **31.** Female *Eubactus semiaeneus*. **32.** Male *Eubactus semiaeneus*.

found in the gallery, and implies that it was killed or displaced by the brentid. The species has also been found associated with the following tree species (Roberts, 1977): *Canarium vitiense* (Burseraceae), *Cleistocalyx* sp. and/or *Syzygium* sp. (Myrtaceae), *Palaquium hornei* (Sapotaceae), and *Trichospermum richii* (Tiliaceae).

Material examined: FIJI: **Viti Levu:** Navai village, Eteni, 17°37'S, 177°59'E, 700 m, Malaise, 24 Oct–8 Nov 2003, M. Irwin, E. Schlinger, M. Tokota'a (1) [FBA036823]; Sigatoka Sand Dune N.P., 18°09'93.9"S, 177°28'96.7"E, 4 m, Malaise, 24 Nov–18 Dec 2003, (same collectors) (7) [FBA156205–156210]; Koroyanitu N.H.P., 17°40'S, 177°33'E, 400 m, Malaise, 21 Sep–7 Oct 2002, (same collectors) (1) [FBA008231] (all BPBM); Savura Ck, Malaise trap, various dates from 4–10 Jun 1981 to 22 Feb 1985, R.A. Beaver (32) (all RAB).

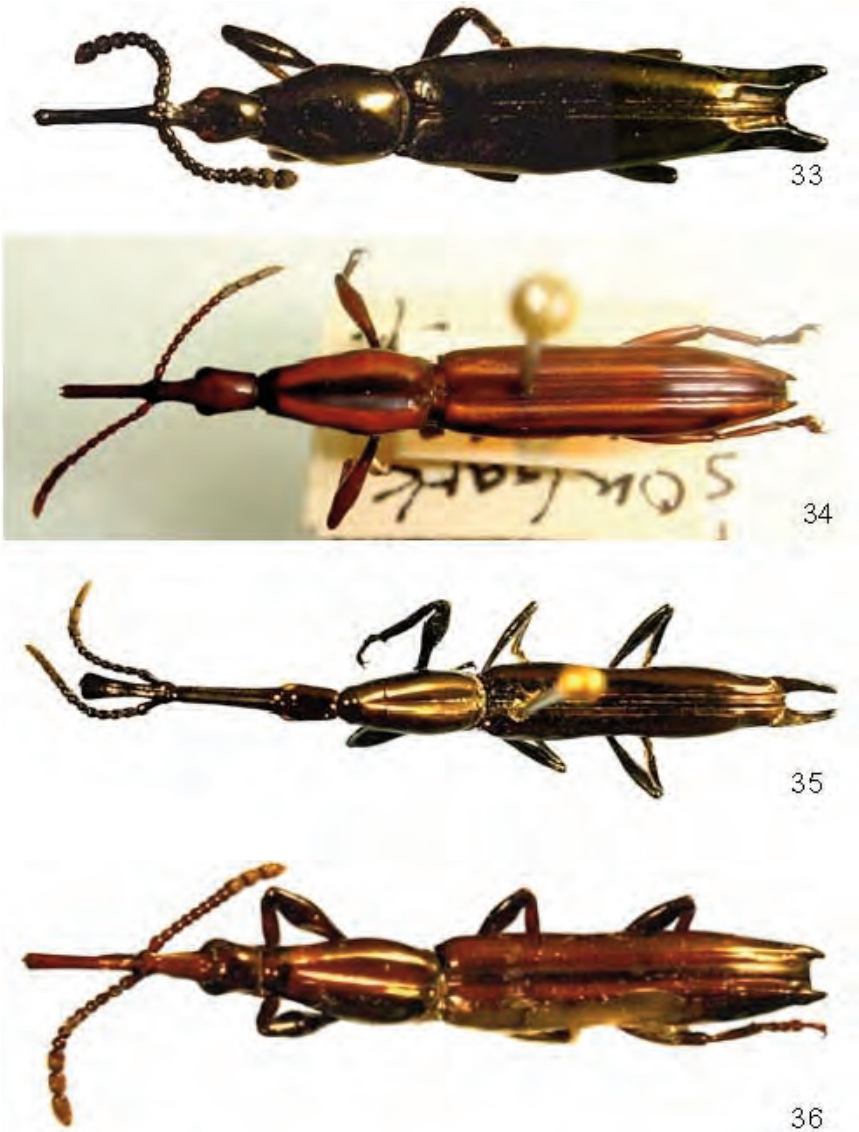
7. *Microsebus fjianus* (Damoiseau)

(Fig. 37)

Eusebus fjianus Damoiseau, 1989a: 156.

The species is endemic to Fiji and known only from Viti Levu. It was transferred to *Microsebus* by Sforzi and Bartolozzi (2004). We examined the female holotype (NZAC) collected on *Albizzia falcataria* (Leguminosae) at Colo-i-Suva near Suva (Damoiseau, 1989a). It is likely that it is a nest parasite of platypodine weevils. Damoiseau (1989a:156, Fig. 11) illustrated the species.

Material Examined (in addition to holotype): FIJI: **Viti Levu:** 40 km. E of Nadi, 26 Jul 1967, J. & M. Sedlacek (1) (BPBM); Savura Ck, 25–30 Jun 1981; 1–7 Sep 1981, R.A. Beaver (2) (RAB).

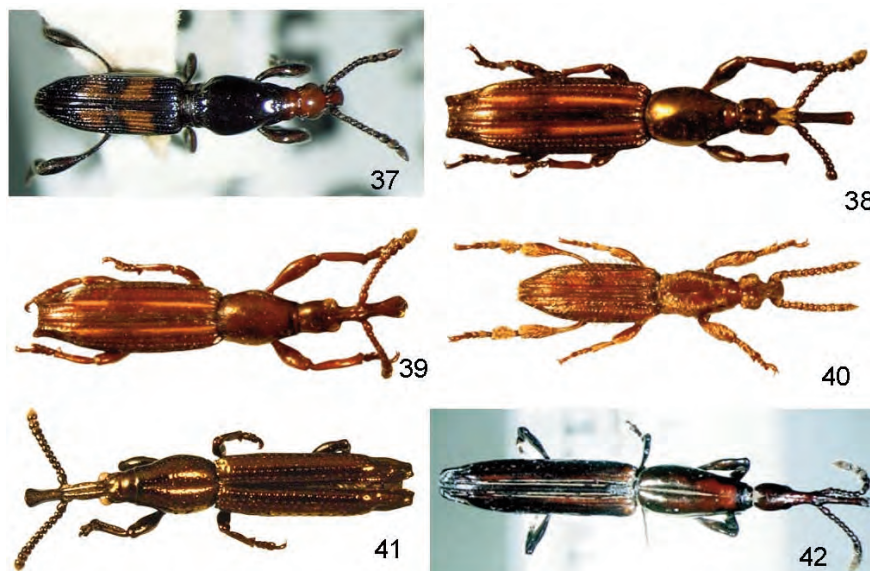


Figures 33–36. Dorsal view. 33. Ithystenini undetermined genus and species. 34. *Ithystenus nigrosulcatus*. 35. Male *Ithystenus* sp. 36. Female *Ithystenus* sp.

8. *Nesidiobrentus* sp.

(Fig. 40)

This species is related to *Nesidiobrentus samoanus* (Kleine) from Samoa, but probably represents a new species. It is left undescribed until further studies can be undertaken.



Figures 37–42. Dorsal view. **37.** *Microsebus fijianus*. **38.** Female *Miolispa metallicollis*. **39.** Male *Miolispa metallicollis*. **40.** *Nesidiobrentus* sp. **41.** Trachelizini undetermined genus and species. **42.** Male *Tracheloschizus castaneicolor*.

Material Examined: FIJI: **Moala:** 12 Jul 1924, E.H. Bryan, Jr. (1). **Viti Levu:** Korovou, Tailavu, at light, 24 Sep 1937, J.M. Valentine (1); Rewa, Apr 1906, Muir (1) (all BPBM); Savura Ck, Malaise trap, 9–12 May 1981, 1–7 Sep 1981, 8–13 Sep 1981, R.A. Beaver (3) (RAB).

9. Cyphagogini (Undetermined genus and species #1)

(Fig. 28)

The present species can not be satisfactorily included in any of the known genera of the tribe Cyphagogini. Despite the papers of Damoiseau (e.g. 1964, 1971a, 1979, 1989a) on the tribe, the present division into genera is unsatisfactory. We prefer to leave the species undescribed until further studies on it and other Cyphagogine genera can be undertaken. It has been included in the key so that it may be recognised if further specimens are found.

Material Examined: FIJI: **Kadavu:** Solodamu, 19°04'S 178°07'E, 128 m, Malaise in coastal limestone forest, 23 Oct–19 Dec 2003, M. Irwin, E. Schlinger, M. Tokota'a (1) [FBA044183]. **Taveuni:** Soqulu Hills, 300 m, 2 Oct 1979, M. Kamath, S.N. Lal, G.A. & S.L. Samuelson (1). **Viti Levu:** Belt Road, 20 mi W of Suva, beating shrubs, 23 Jul 1938, E.C. Zimmerman (1); Kalekana to Mt. Korobaba (nr. Lami), 10–250 m, dried leaves on dead tree, 30 Sep 1979, G.A. & S.L. Samuelson (1); Nadarivatu, Rdg W of, 2600–3000 ft [792–914 m], beating shrubbery, 9 Sep 1938, E.C. Zimmerman (1); Nausori, on noni, 24 Mar 1905 [no collector] (1); 3.8 km N Veisari, Waivudawa Logging Rd, 18.0792[°S], 178.3625[°E], 300 m, Malaise, 25 Apr–25 May 2003, Schlinger, Tokota'a (1) [FBA054962]; Colo-i-Suva, beating, 27 Jul 1938, E.C. Zimmerman (2) (all BPBM); Savura Ck, Malaise trap, 22–28 Jul 1981, 30 Apr 1983, R.A. Beaver (2) (RAB).

10. Cyphagogini (Undetermined genus and species #2)

(Fig. 29)

This species is also left unidentified within the tribe Cyphagogini until further revisionary work can be undertaken.

Material Examined: FIJI: **Viti Levu:** Galoa, ex *Syzygium* sp., 8–9 Oct 1988, R.A. Beaver (1); Namosi, 13 km in, ex *Syzygium curvistylum* log, 24–30 Nov 1981, R.A. Beaver (1) (both RAB).

Tribe Stereodermini

11. *Cerobates vitiensis* Fairmaire

(Figs. 10, 15, 26)

Cerobates vitiensis Fairmaire, 1881c: 422.

The species was described from Fiji. The female holotype is located in MNHN and was redescribed by Mantilleri (2005).

Material Examined: FIJI: **Viti Levu:** Nausori Highlands, 500–600 m, 1 Oct 70 (N.L.H. Krauss) (16) (BPBM (14), MNHN (1), RAB (1)).

Subfamily Trachelizinae

Tribe Trachelizini

12. *Miolispa metallicollis* (Fairmaire), **comb. nov.**

(Figs. 38, 39)

Eubactrus metallicollis Fairmaire, 1881c: 421.

Miolispa fijiana Kleine, 1928b: 55. **Syn. n.**

This is an endemic species which from present records appears to be confined to the higher altitude forests on Viti Levu and Taveuni from 600–1300 m. Fairmaire's description of the species is short, and the location of the type material is unfortunately unknown (Sforzi & Bartolozzi, 2004). *M. metallicollis* appears not to have been recorded again since its description. However, the description applies very well to darker and more metallic specimens of *M. fijiana*, and to no other species known to occur in Fiji. The combination of size, lack of a pronotal groove, impressed striae, presence on interstriae 3 of a narrow elytral vitta interrupted in the middle and at the apex, and other characters all indicate the synonymy of the two species.

Material Examined: FIJI: **Taveuni:** 5.5 km SE Tavuki Vlg., Devo Peak, 16.843°S, 179.966°E, 1188 m, 30 Jun–14 Jul 2004, Malaise 1, Schlinger, M. Tokota'a (1) [FBA153181]. **Viti Levu:** Mt. Victoria, Colo North, West slope, 3000 ft [914 m], beating, 10 Sep 1938, E.C. Zimmerman (1); Mt. Victoria, track from Navai, 660–900 m, 2 Jul 1958, B. Malkin (1); Nadarivatu, 800–850 m, 7 Oct 1971, N.L.H. Krauss (1); Navai, Sep 1950, Jan 1951, N.L.H. Krauss (2); Navai mill, nr. Nadarivatu, 2500 ft [762 m], beating, 17 Sep 1938, E.C. Zimmerman (1); Yayu, nr. Nadarivatu, 650 m, 4 Jul 1958, B. Malkin (1) (BPBM, RAB).

13. *Tracheloschizus castaneicolor* (Kleine)

(Fig. 42)

Schizotrachelus castaneicolor Kleine, 1933: 326.

This species is endemic to Fiji. It was described (Kleine, 1933) and then listed by Kleine

(1935) as *Schizotrachelus*, but recently transferred to *Tracheloschizus* by Sforzi & Bartolozzi (2004).

Material Examined: FIJI: **Kadavu:** Solodamu, 19°04'S, 178°07'E, Malaise in coastal limestone forest, 128 m, 23 Oct–19 Dec 2003, M. Irwin, E. Schlinger, M. Tokota'a (1) [FBA044183] (BPBM). **Ovalau:** Levuka, 0–200m, Dec 1978, N.L.H. Krauss (1). **Viti Levu:** Bulu, Mt Sovi, 21 Apr 1941, N.L.H. Krauss (1); Lami, Mar 1951, N.L.H. Krauss (1); as previous except: Jan 1955 (2); as previous except: Nov 1957 (1); as previous except, 0–20m, Mar 1981 (1); Navai Mill, nr. Nadarivatu, 2500 ft [762 m], under dead bark, 15 Sep 1938, E.C.Zimmerman (1); Rdg. W of Nadarivatu, 2800 ft [854 m], beating shrubbery, 11 Sep 1938, E.C. Zimmerman (1); Koroyanitu N.H.P., Kokabula Trail, 17°40'S, 177°33'E, 400 m, 26 Oct–5 Nov 2002, M. Irwin, E. Schlinger, M. Tokota'a (1) [FBA071833] (all BPBM); Savura Ck, on *Macaranga* sp. leaf, 20 Nov 1981, R.A. Beaver (1); Wailoku, Malaise trap, 13–17 May 1981, R.A. Beaver (1) (both RAB).

14. *Trachelizini* (Undetermined genus and species)

(Fig. 41)

A single male specimen of this unidentified species of *Trachelizini* was collected on Taveuni I. during the Fiji Arthropod Survey.

Material Examined: FIJI: **Taveuni:** Taveuni Estate, 16°50'S 179°59'E, 140 m, Malaise in garden, 21–31 Oct 2002, M. Irwin, E. Schlinger, M. Tokota'a (1) [FBA008885] (BPBM).

Tribe *Ithystenini*

15. *Bulbogaster ctenostomoides* Lacordaire

(Figs. 12, 21, 22)

Bulbogaster ctenostomoides Lacordaire, 1866: 467

This is the commoner of the two species of *Bulbogaster* that occur in Fiji. We have seen specimens from the islands of Kadavu, Taveuni, Vanua Levu, and many from Viti Levu. Only those from the first three islands are listed in detail below. The species was redescribed and figured by Damoiseau (1989b). It also appeared on a 20-cent Fijian postage stamp issued in 1987. Although Sforzi & Bartolozzi (2004) indicated that the species is endemic to Fiji, it also occurs in Samoa (see below).

Material examined: FIJI: **Kadavu:** Solo Tavine, 23 Apr 1941, N.L.H. Krauss (1); Solodamu, 178°07'E, 19°04'S, 128 m, Malaise in coastal limestone forest, 25 Aug–23 Oct 2003, M. Irwin, E. Schlinger, M. Tokota'a (3) [FBA156191–156192]; 0.25km SW Solodamu Vlg., Moanakaka Bird Sanctuary, 19.078°S, 178.121°E, 60 m, Malaise, 25 Aug–23 Oct 2003., Schlinger, Tokota'a (2) [FBA189554–189555]; Namalata, 178°11'058"E, 19°02'541"S, 100 m, Malaise, 15–28 Jul 2004, M.E. Irwin, E. Schlinger, M. Tokota'a (1); as previous except: 178°11'140"E, 19°02'318"S, 120 m (1) [FBA031852]. **Taveuni:** 5.5 km SE Tavuki Vlg., Devo Peak, 16.843°S, 179.955°W, 1188 m, Malaise, 30 Jun–14 Jul 2004, Schlinger, M. Tokota'a (1) [FBA153180]; Devo Peak, Malaise, 10–16 Jan 2003, M. Irwin, E. Schlinger, M. Tokota'a (1) [FBA038772]; Mt De Voex [= Devo Peak] summit, 1000–1100 m, sweeping, 9 Apr 1981, Pranish (1). **Vanua Levu:** Nakawanga, 9 Oct 1955, J.L. Gressitt (1) Trans-Insular Road, above summit, 500–550 m, forest, 6–9 Oct 1979, S.L. Samuelson (1); as previous except: forest, S.N. Lal, G.A. & S.L. Samuelson (1). **Viti Levu:** (111 specimens from various localities) (BPBM, RAB). SAMOA: **Upolu:** L. Lanoto'o Road, 22 May 1973, R.A. Beaver (1) (RAB).

16. *Bulbogaster juncea* Damoiseau

(Figs. 13, 14, 23)

Bulbogaster juncea Damoiseau, 1989b: 65.

The species is endemic to Fiji, where it occurs on Kadavu, Vanua Levu and Viti Levu. Damoiseau (1989b) illustrates the species. It is much less common than *B. ctenostomoides*. Damoiseau did not note in his description that, in addition to the tufts of fine hairs on the male mesofemora, there is a large patch of similar hairs on the metasternum, extending from between the mesocoxae for about one-third of its length, and divided posteriorly into lines of hairs on either side of the median sulcus.

Material Examined: FIJI: **Kadavu:** Solodamu, 19°04'S, 178°07'E, Malaise in coastal limestone forest, 128 m, 23 Oct–19 Dec 2003, M. Irwin, E. Schlinger, M. Tokota'a (1) [FBA044183] (BPBM); **Viti Levu:** Lami, Mar 1951, N.L.H.Krauss (1); Nadarivatu, 850 m, Malaise trap, 8–13 Mar 1963, C.M. Yoshimoto (1); Nakobalevu Mt, 18°08'S, 178°25'E, 340 m, rainforest, Malaise, 22 Sep–9 Oct 2002, M. Irwin, E. Schlinger, M. Tokota'a (1) [FBA071854]; Colo-i-Suva, under logs, 27 Jul 1938, E.C. Zimmerman (2) (all BPBM); Savura Ck, Malaise trap, 28 May–3 Jun 1981, 11–17 Jun 1981, R.A. Beaver (2); Savura Ck, on bark of *Xylopa pacifica*, 1 Aug 1982, R.A. Beaver (1) (all RAB).

17. *Ithystenus nigrosulcatus* Fairmaire

(Fig. 34)

Ithystenus nigrosulcatus Fairmaire, 1881c: 421.

The species is known from Fiji and Vanuatu (Sforzi & Bartolozzi, 2004). The species is easily recognised within the genus *Ithystenus* by the colouration of the pronotum: dark brown to black below and with a lighter reddish brown band on each side of the broad, black sulcus. Two specimens were found on the bark of *Syzygium* sp. (Myrtaceae) on Viti Levu.

Material Examined: FIJI: **Kadavu:** Namalata, 19°02'318"S, 178°11'140"E, 120 m, Malaise, 15–28 Jul 2004, M.E. Irwin, E. Schlinger, M. Tokota'a (1) [FBA031506]; Solodamu, 19°04'S, 178°07'E, Malaise in coastal limestone forest, 25 Aug–23 Oct 2003, (same collectors) (1 [FBA156193]). **Ovalau:** Adubangda, 1000–1500 ft [305–457 m], beating, 18 Jul 1938, E.C. Zimmerman (1). **Taveuni:** Koronibuabua, 16°51'283"S, 179°53'436"E, 233 m, Malaise, 11–26 Mar 2004, M. Irwin, E. Schlinger, M. Tokota'a (1) [FBA045308]. **Viti Levu:** Colo-i-Suva, under logs, 27 Jul 1938, E.C. Zimmerman (1) (all BPBM); Savura Ck, Malaise trap, 6–10 Aug 1981, 7–12 Nov 1981, R.A. Beaver (3); Savura Ck, on *Syzygium* sp. bark, 9 Dec 1981, R.A. Beaver (2) (all RAB).

18. *Ithystenus* sp.

(Figs 35, 36)

Thirteen specimens (6 males, 7 females) of an undetermined species of the large genus *Ithystenus* were studied. The species appears to be widespread, occurring on Kadavu, Taveuni, Vanua Levu and Viti Levu islands, but not very common. We have not been able to verify if it has been described previously. A revision of the genus is required.

Material Examined: FIJI: **Kadavu:** Namalata, 19°02'453"S, 178°11'050"E, 100 m, Malaise, M.E. Irwin, E. Schlinger, M. Tokota'a (1) [FBA051757]. **Taveuni:** 5.6 km SE of Tavuki village, 16.843°S, 179.965°E, 1187 m, rainforest, Malaise, 3–10 Jan 2003, Schlinger, Tokota'a (1) [FBA058778]. **Vanua Levu:** 0.6 km S of Rokosalase Village, 16.5333°S, 179.0181°E, 180 m, Malaise in forest, Schlinger, Tokota'a (1) [FBA055569]. **Viti Levu:** Belt Rd, 9 mi [15 km] W Suva, beating shrubs, 29 Jul 1938, E.C. Zimmerman (1); Lami, Mar 1951, N.L.H. Krauss (1); Lami, 20–200 m, Mar 1976, N.L.H. Krauss

(1); Nadarivatu, 3000 ft [914 m], beating shrubbery, 3 Sep 1938, E.C. Zimmerman (1); Navai Mill, nr. Nadarivatu, 2500 ft [305 m], beating, 15 Sep 1938, E.C. Zimmerman (1); Colo-i-Suva, under logs, 27 Jul 1938, E.C. Zimmerman (2); Tomaniivi summit, 1350 m, 17.6148[S], 178.0182[E], beating vegetation, 30 Nov 2002, D. Gruner (1) (all BPBM); Namosi Rd 6 km, 6 Nov 1981, R.A. Beaver (1); Nukuraa, light trap, 27 Oct 1987, M. Kamath (1) (both RAB).

19. *Ithystenini* (Undetermined genus and species)

(Fig. 33)

A single specimen belonging to the tribe *Ithystenini*, which can not at present be placed into a known genus, was collected on the island of Vanua Levu.

Material Examined: FIJI: **Vanua Levu:** Mt. Dalaikoro, summit area, 700–790 m, 10 Oct 1979, S.N. Lal, G.A. & S.L. Samuelson (1) (BPBM).

Tribe *Microtrachelizini*

20. *Aneorhachis fijiana* Mantilleri, n. sp.

(Figs. 1–7)

This is the first species of *Aneorhachis* found in the Pacific region. It has been collected on the islands of Ovalau, Taveuni, Vanua Levu and Viti Levu. One specimen was found on the bark of *Endospermum macrophyllum* (Euphorbiaceae) partly inside a gallery entrance of the scolytine *Eurwallacea destruens* (Blandford) [= *Xyleborus nandarivatus* Schedl]. However, it is not likely to be a predatory species.

Material Examined (in addition to types listed above): FIJI: **Taveuni:** 5.5 km SE Tavuki Vlg., Devo Peak, 16.843°S, 179.966°W, 1188 m, 30 Jun–14 Aug 2004, Malaise, Schlinger, M. Tokota'a (1) [FBA153182]. **Viti Levu:** Namosi Rd, 6 km N Queen's Hwy, 250 m, UV light, 3–7 Nov 1981, B.H. & W.C. Gagné (1) (both BPBM); Namosi Rd, 13 km in, ex *Endospermum macrophyllum*, pt in *Xyleborus nandarivatus* gall[ery] s[ystem], 1 Jan 1982, R.A. Beaver (1) (RAB).

Tribe *Pseudocecephalini*

21. *Atenophthalmus fuscojanthinus* (Fairmaire)

(Fig. 20)

Eubactrus fuscojanthinus Fairmaire, 1881b: 373.

The species is endemic to Fiji, and known only from the island of Viti Levu where it is apparently rare. It was transferred to *Atenophthalmus* Kleine by Damoiseau (1989b), who also redescribed and illustrated the species. A single female was collected on the bark of *Endospermum macrophyllum* (Euphorbiaceae).

Material Examined: FIJI: **Viti Levu:** Tailevu, on bark *Endospermum macrophyllum*, 29 May 1973, R.A. Beaver (1) (RAB).

22. *Eubactrus semiaeneus* Lacordaire

(Figs. 9, 31, 32)

Eubactrus semiaeneus Lacordaire, 1866: 457.

The species is known from both Fiji and Vanuatu. In Fiji, it is one of the most commonly collected brentid species in the rain forest. We have seen many specimens from the islands

of Kadavu, Ovalau, Taveuni, Vanua Balavu, Vanua Levu, and Viti Levu. The male body length (including rostrum) can reach 48 mm, but the smallest examined male measured only 11.5 mm. Females range from 9.5–40mm. On Viti Levu it was frequently collected by RAB on the bark of *Endospermum macrophyllum* (Euphorbiaceae) and on *Gonystylus punctatus* (Thymelaeaceae), as well as at light, and in a Malaise trap. Roberts (1977) found it frequently breeding in *Myristica castaneifolia* (Myristicaceae) attacked by the platypodine, *Platypus gerstaeckeri* Chapuis, and in *Heritiera ornithocephala* (Sterculiaceae), as well as *E. macrophyllum*. Roberts (1977) gives a brief account of the biology of the species. He notes that both sexes are active during the day, and mating pairs are common in the morning (0900–1200 h). The female lays single eggs, and the larvae bore almost radial galleries 8–20 cm long, and 2–3 mm diameter in the host tree. Although oviposition takes place at about the same time as attacks by *P. gerstaeckeri*, the brentid takes longer to develop and emerges later than the platypodine. Roberts (1977) suggests that the larvae of this species are sometimes so abundant that there may be interspecific competition with the platypodines *P. gerstaeckeri* and *P. vitiensis* Roberts

Material Examined: FIJI. **Kadavu:** Wai Salima, 30 Apr 1941, N.L.H. Krauss (1). **Ovalau:** (67 specimens from various localities). **Taveuni:** Somosomo, 0–200 m, Jan 1972, N.L.H. Krauss (3); Taveuni Estate, 179°59'E, 16°50'S, 140 m, Malaise in garden, 10–17 Oct 2002, M. Irwin, E. Schlinger, M. Tokota'a (4) [FBA071772–071775]; as previous except: 31 Oct–21 Oct 2002 [sic] (1) [FBA008885]. **Vanua Balavu:** Loma Loma, 200–500 ft [61–152 m], beating shrubs, 5 Aug 1938, E.C. Zimmerman (1). **Vanua Levu:** Savusavu Bay, Balanga, Feb 1941, O. Degener (2); Savusavu, Mar 1966, N.L.H. Krauss (1); as previous except: 0–100 m, Mar 1978 (1) (all BPBM). **Viti Levu:** (145 specimens from various localities) (BPBM, RAB).

DELETIONS FROM THE FIJIAN FAUNA

1. *Cerobates angustipennis* Senna

Cerobates angustipennis Senna, 1895: 182.

Cerobates adustus Senna, 1895: 184; Damoiseau, 1987: 70 (synonymy).

This species was listed as occurring in Fiji by Kleine (1935, as *Cerobates adustus*). Consequently Sforzi & Bartolozzi (2004) included Fiji in the distribution of this species. However, the species is known only from Java, Sumatra and Borneo (Mantilleri, 2005), and thus is here removed from the list of Fijian species.

2. *Cerobates laevipennis* Senna

Cerobates laevipennis Senna, 1896: 219.

Cerobates aequalis Kleine, 1922: 203; Damoiseau, 1971b: 270 (synonymy).

This species has a wide distribution from the Indian subcontinent to the Solomon Islands (Sforzi & Bartolozzi, 2004; Mantilleri, 2005). Kabakov (2001) includes Fiji in the species range, but does not list any record from there. As we know of no confirmed published record from the islands, and we have not seen any specimens among several hundreds examined, we believe that Kabakov's (2001) record is in error, and that *C. laevipennis* should be deleted from the list of Fijian species.

3. *Ithystenus muelleri* Kleine

Ithystenus muelleri Kleine, 1925: 53

The species was described from New Guinea. Sforzi & Bartolozzi (2004) gave the distribution as Fiji, New Guinea, Vanuatu. We have seen no specimens from Fiji, and Sforzi (pers. comm., Nov 2005) confirmed that the record from Fiji was a mistake.

COMPOSITION OF THE FAUNA

The known brentid fauna of Fiji includes 16 apparently endemic species (73%), 3 species known also from Vanuatu, the island group closest to Fiji to the West (14%), 1 species known also from Samoa to the East, one known also from Australia, New Caledonia, New Guinea, and Vanuatu, and a single species, *Cylas formicarius*, with a wider distribution, introduced by man to Fiji with the sweet potato. All species except *C. formicarius* are presumed to be native to Fiji. Only four subfamilies [of nine recognised by Sforzi & Bartolozzi (2004)], and seven tribes are present (the Cyladinae includes only a single genus, and no tribal level is recognised). Of the 299 genera of Brentidae recognised by Sforzi & Bartolozzi (2004) worldwide, only 14 are certainly present in Fiji. This rather depauperate fauna with a high proportion of endemic species is what might be expected for a rather isolated island group. The fauna clearly originated from the West, and the closest affinities of most endemic species appear to be with species present in Vanuatu or the Solomon Islands. These island groups were probably in close proximity to Fiji until the late Miocene period (Burrett *et al.*, 1991), and this would have allowed relatively easy movement of flying insects between them. Later, the island groups rifted apart, and dispersal became more difficult. Further evolutionary changes are presumed to have continued within the Fijian archipelago giving rise to the many endemic species found today.

BIOLOGY

When the Cyladinae are included, the brentids can be divided into four ‘biological groups’ (Beeson, 1961; Zimmerman, 1994; Sforzi & Bartolozzi, 2004). In the ‘true wood borers’, the female usually lays eggs in the sapwood, and the larvae develop in tunnels that they bore in the wood. It is likely that they feed largely on fungi growing on the walls of these tunnels, although sap may also be ingested. Pupation occurs in the larval tunnel, usually close to the original opening of the tunnel at the oviposition site, and the adult bites its way out to the exterior. The second group consists of ‘aggressors’ which exploit the tunnels of other wood-boring insects, often Scolytinae or Platypodinae, sometimes ejecting (and perhaps killing) the original occupants, and causing the death of their brood. Their eggs are laid in the walls of the tunnel, and the brentid larvae bore short tunnels into the surrounding wood. It is likely that the larvae feed largely on fungi growing on the wood. The new generation of adults emerges via the original wood-borer’s tunnel. In the third group, the Cyladinae, both larvae and adults feed on the living tissue of stems and tubers of *Ipomoea* and related Convolvulaceae. The fourth group comprises myrmecophile species, whose adults live in association with ants, and possibly with other social insects (Isoptera and Hymenoptera).

Only three of the four biological groups are present in Fiji. The species of *Callipareius*, *Cyphagogus* and *Microsebus* and the other unidentified species of the tribe Cyphagogini are all likely to be ‘aggressors’ taking over the galleries of platypodine or scolytine weevils. *Cylas formicarius* develops in the living tubers of the sweet potato, although the adults may also feed on the stems and leaves. The remaining species most probably belong to the ‘true wood-borers’ group. Myrmecophile species are not known from Fiji at present.

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Studies of Tiger Beetles. CLXXVII. Notes on the tiger beetle fauna of Fiji (Coleoptera: Cicindelidae)

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Abstract. The data are given of tiger beetle species collected during the long-term Bioinventory of Fijian Arthropods (FBA) Project, funded by the Schlinger Foundation between September 2002 and May 2004, and the subsequent NSF-funded Fiji Terrestrial Arthropods Survey (still continuing). The Fijian tiger beetle fauna presently includes two species only, one of which was early described early in 19th Century by Blanchard, while the other one was described by the author in 1983 from Viti Levu. Both species have obvious Papuan relationships and were collected during the surveys, mostly by primarily using Malaise traps in rainforest. While *Oceanella vitiensis* (Blanchard) was collected on Kadavu, Taveuni, Vanua Levu and Viti Levu, *Parapolyrhanis oceanica* Cassola proved to be new to Taveuni and Vanua Levu, but it was apparently not found on Kadavu.

INTRODUCTION

The tiger beetle fauna of Fiji includes only two species, one of which (*Parapolyrhanis oceanica* Cassola) was described by me several years ago (Cassola, 1983, 1986) and is apparently a Fiji endemic. The other species, *Oceanella vitiensis* (Blanchard, 1853), is better known, is apparently widespread in on several Fiji islands (D. Brzoska, pers. comm.), and was also recorded from the Samoan Islands (Brouerius van Nidek, 1957). Generally, there are few tiger beetle species on Pacific islands and are lacking in several island groups (such as the Hawaiian Islands). The only notable exceptions are New Guinea and the Solomons (both of which harbour a rich and remarkable endemic fauna); New Caledonia [with at least 3 endemic genera at (*Caledonica* Chaudoir, *Vata* Fauvel, and *Manautea* Deuve)]; and New Zealand (with the endemic genus *Neocicindela* Rivalier) (Cassola 1983). One species was recently described from the Palau Islands as well (Cassola & Sató, 2004).

Previous to this study, the existing information on Fijian species was scanty and based primarily on a few old-collected specimens. In 2001, Mike Irwin (University of Illinois, USA) and Evert I. Schlinger (World Spider Endoparasitoid Laboratory, Santa Ynez, California, USA; WSPL) started a long-term bioinventory analysis of the arthropods of Fiji, which was followed by the NSF-funded Fiji Terrestrial Arthropods Survey (the latter still continues). General information about the geography of the Fiji Islands and the surveys cited above is found in Evenhuis & Bickel (2005). Beginning in September 2002, many trips were made to Fiji and numerous Malaise traps were placed in habitats on various islands. Thanks to several Fijian naturalists (especially Moala Tokota'a, and his wife Akanisi Caginitoba, but also S. Lau, W. Naisililili, E. Namatalau, E. Ratu, Timoci, L. & M. Tuimereke and P. Vodo), all traps were monitored regularly and many specimens

were collected. From the tiger beetles kindly sent to me for identification, the present paper presents the many new distributional records obtained. Most of the specimens mentioned below are currently in the collection of the Bishop Museum (BPBM; Honolulu, Hawaii, USA), and some are in my collection (FCC). Vouchers deriving from this material currently in BPBM will be sent to the Fiji National Insect Collection in Suva (FNIC).

Oceanella vitiensis (Blanchard)

Cicindela vitiensis Blanchard, 1853: 7. Fairmaire, 1881: 244. Fleutiaux, 1892: 40. Horn, 1915: 316; 1926: 198; 1936: 9. Brouerius van Nidek, 1957: 140.

Cicindela australasiae Chaudoir, 1865: 22. Fleutiaux 1892: 40. [synonymy by Horn, 1915: 316].
Nomen nudum.

Cicindela ezonata Broun, 1921: 594. [synonymy by Horn, 1936: 9].

Oceanella vitiensis (Blanchard); Rivalier, 1963: 40. Brouerius van Nidek, 1965: 353. Cassola, 1983: 215. Lorenz, 1998: 60.

This species was first described by Blanchard (1853), then by Fairmaire (1881). Broun (1921) erroneously reported it from Greymouth, New Zealand. Broun's species, *Cicindela ezonata* was synonymized under *vitiensis* by Horn (1936) and this synonymy was maintained by Brouerius van Nidek (1965). The name *australasiae* Chaudoir is a *nomen nudum* and is treated under *O. vitiensis* (Horn, 1896a; Wiesner, 1992; Lorenz, 1998). *Oceanella vitiensis* is apparently a common species in the Fiji Islands, found in many places and habitats (D.W. Brzoska, pers. comm.). The supposed "subspecies" *imperfecta* Horn (Horn, 1896b) and *pallidesignata* Brouerius van Nidek, both of which exhibit slightly different elytral markings, are herein considered to be junior synonyms because all forms were represented among the examined material. *Oceanella vitiensis* has also been recorded from the Samoa Islands (Brouerius van Nidek, 1957).

Material Examined: Kadavu: 0.25 km SW Solodamu Village, Moanakaka Bird Sanctuary, 60 m, 19°04'S, 178°07'W, 28 May–11 Jun 2003, Malaise 1, E.I. Schlinger & M. Tokota'a, 1 ♀; 23 Oct–19 Dec 2003, Malaise in coastal limestone forest, M. Irwin, E.I. Schlinger, M. Tokota'a, 1 ♂; 9–15 Feb 2004, Malaise 1, E.I. Schlinger & M. Tokota'a, 1 ♂, 2 ♀; 15 Feb–7 Mar 2004, Malaise 4, S. Lau, 6 ♂, 5 ♀; 15 Feb–7 Mar 2004, Malaise 1, E.I. Schlinger & M. Tokota'a, 6 ♂, 7 ♀; 7 Mar–11 Apr 2004, Malaise, E. I. Schlinger & M. Tokota'a, 7 ♂, 1 ♀; 11 Apr–2 May 2004, Malaise, S. Lau, 4 ♂, 1 ♀. *Taveuni:* Taveuni Estate, 16°50'S, 179°59'W, 140 m, 25 Sep–2 Oct 2002, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 1 ♀; 10–17 Oct 2002, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 1 ♂ 1 ♀; 31 Oct–21 Nov 2002, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 1 ♂, 1 ♀; 5.3 km SE Tavuki Village, Des Voeux (Devo) Peak, 1064 m, 16.84°S, 179.97°W, 2–10 Oct 2002, Malaise, P. Vodo [FBA 108411], 1 ♀; 24–31 Oct 2002, Malaise, E.I. Schlinger & M. Tokota'a, 5 ♂, 2 ♀; 31 Oct–14 Nov 2002, Malaise, E.I. Schlinger & M. Tokota'a, 2 ♀; 14–21 Nov 2002, Malaise, E.I. Schlinger & M. Tokota'a, 2 ♂, 1 ♀. Des Voeux Peak Radio Tower, 16°51'S, 179°58'W, 1195 m, 31 Oct–21 Nov 2002, Malaise, M.E. Irwin, E.I. Schlinger & M. Tokota'a, 2 ♂; 13–20 Dec 2002, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 6 ♂, 4 ♀; 10–16 Jan 2003, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 10 ♂, 8 ♀. Des Voeux Forest Reserve, 16°50'S-179°59'W, 800 m, 3–10 Jan 2003, Malaise, M. Irwin, E.I. Schlinger, M. Tokota'a, 2 ♂, 4 ♀. Soqulu House in Soqulu Estate, 140 m, 16°50'S, -180°W, 17–24 Oct 2002, Malaise, E.I. Schlinger & M. Tokota'a [FBA 206419], 1 ♀; 3–10 Jan 2003, Malaise, E. Ratu [FBA 220383], 1 ♀. Lavena, 16°51'S, -179°53'W, 213 m, 4–19 Nov 2003, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 1 ♀. 3.2 km NW Lavena Village, Mt Koronibuabua, 16.85°S, 179.89°W, 234 m, 24 Oct 2003–4 Jan 2004, Malaise, E.I. Schlinger & M. Tokota'a, 3 ♂, 1 ♀. Koronibuabua, 16°51'S, 179°53'W, 233 m, 11–26 Mar 2004, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 3 ♀. *Vanua Levu:* Kilaka, 16.89°S, 178.59°W, 146 m, 3–10 Jun 2004,

Malaise, M.E. Irwin, E.I. Schlinger & M. Tokota'a, 1♂, 1♀; 98 m, 28 Jun–21 Jul 2004, Malaise, M.E. Irwin, E.I. Schlinger & M. Tokota'a, 1♀; 154 m, 28 Jun–2 Jul 2004, Malaise, M.E. Irwin, E.I. Schlinger & M. Tokota'a, 1♀; Batiqere Range, 6 km NW Kilaka Village, 16.81°S, -178.99°E, 98 m, 28 Jun–21 Jul 2004, Malaise, E.I. Schlinger & M. Tokota'a, 7♂, 10♀; Rokosalase, 28 Mar 2004, hand netted, E.I. Schlinger, 1♂, 1♀; 0.6 km S Rokosalase Village, 16°53'S, -179°02'W, 180 m, 22 May–8 Jun 2004, Malaise, E.I. Schlinger & M. Tokota'a, 1♀; 22 May–8 Jun 2004, Malaise, E.I. Schlinger & M. Tokota'a, 2♂, 2♀; 0.5 km S Rokosalase Village, 16°53'S, -179°02'W, 97 m, 26 Mar–9 Jun 2004, Malaise, E.I. Schlinger & M. Tokota'a, 1♀. **Viti Levu:** 3.3 km N Veisari, logging rd to Waivudawa, 18°07'S, -178°37'W, 300 m, 12 Dec 2002–3 Jan 2003, Malaise, E.I. Schlinger & M. Tokota'a, 30♂, 28♀; 14 Feb–8 Mar 2003, Malaise, E.I. Schlinger & M. Tokota'a, 5♂, 10♀; 8–31 Mar 2003, Malaise, M. Tokota'a, 7♂, 17♀; Sovi Basin, Wainivalau, 17°54'S, -178°14'E, 300 m, 8–16 May 2003, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 10♂, 2♀; Nakobalevu Peak, 372 m, 14 Nov–24 Dec 2003, Malaise, E.I. Schlinger & Timoci, 1♀; 325 m, 12–24 Apr 2004, Malaise trap, Timoci, 2♀; Nakobalevu logging rd, 17 Mar–9 Apr 2003, Malaise, E.I. Schlinger & M. Tokota'a, 1♂, 1♀; Nakobalevu Peak radio towers nr. Suva, 19°03'S, -178°25'E, 460 m, 22 Sep–9 Oct 2002, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 1♂; Nakobalevu Peak, logging rd behind Suva, 18°03'S, -178°25'E, 340 m, 22 Sep–9 Oct 2002, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 1♂; 4 km WSW Colo-i-Suva Village, 18°05'S, -178°42'E, 372 m, 17 Mar–9 Apr 2003, Malaise, E.I. Schlinger & M. Tokota'a, 1♀; Sovi Basin, Wainivalau, 17°54'S, -178°14'E, 300 m, 8–16 May 2003, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 5♂, 7♀; Navai Village, Eteni, 17°37'S, -177°59'E, 700 m, 15 May–2 Jun 03, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 1♂; 13–18 Dec 2004, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 1♀; 2 km SE Nabukavesi Village, Ocean Pacific Resort, 40 m, 18°01'S, -178°25'W, 21 Apr–4 May 2003, Malaise, W. Naisilisili, 1♂, 1♀; 24 Nov–11 Dec 2003, Malaise, W. Naisilisili, 1♂, 1♀; Wainadoi, Ocean Pacific, 18°10'S, -178°15'E, 40 m, 5–24 Nov 2003, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 1♂, 2♀; 3.8 km N Veisari, Waivudawa logging rd, 19°08'S, -178°36'W, 300 m, 25 Apr–25 May 2003, Malaise, E.I. Schlinger & M. Tokota'a, 27♂, 42♀; Koroyanitu Ecopark, Mt. Evans Range, Abaca Village, 17°40'S, 177°33'E, 400 m, 21 Sep–7 Oct 2002, Malaise, E.I. Schlinger & M. Tokota'a, 1♂; 0.5 km N Abaca Village, 17.67°S, -177.55°W, 800 m, 7–12 Oct 2002, Malaise, E.I. Schlinger & M. Tokota'a, 8♂, 16♀; 28 Jan–4 Feb 2003, Malaise, L. & M. Tuimereke, 2♂, 2♀; Koroyanitu Ecopark, Mt. Evans Range, 1 km E Abaca Village, Savuione Trail, 17°40'S, -177°33'E, 450 m, 7–12 Oct 2002, Malaise, E.I. Schlinger & M. Tokota'a, 12♂, 10♀; 12–19 Oct 2002, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 4♂, 2♀; 19–26 Oct 2002, Malaise, E.I. Schlinger & M. Tokota'a, 9♂, 6♀; 26 Oct–5 Nov 02, Malaise, E.I. Schlinger & M. Tokota'a, 18♂, 19♀; 11–19 Mar 2003, E.I. Schlinger & M. Tokota'a, 24♂, 36♀; 800 m, 22 Apr–6 May 2003, Malaise, L. & M. Tuimereke, 4♂, 1♀; 21 Oct–18 Nov 2003, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 22♂, 26♀; Savuione Trail, 800 m, 6–11 Mar 2003, Malaise, E.I. Schlinger & L. & M. Tuimereke, 5♂, 6♀; 26 Nov–3 Dec 2002, Malaise, E.I. Schlinger & L. & M. Tuimereke, 2♂ 5♀. Koroyanitu Ecopark, Mt. Evans Range, 1 km E Abaca Village, Kokabula Trail, 17°40'S, -177°33'E, 400 m, 12–19 Nov 2002, Malaise, E.I. Schlinger & M. Tokota'a, 3♂, 13♀; 19–26 Oct 02, Malaise, E.I. Schlinger & M. Tokota'a, 7♂, 13♀; 26 Oct–5 Nov 2002, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 9♂, 6♀; 800 m, 19–26 Nov 2002, Malaise, L. & M. Tuimereke, 4♂ 2♀; 10–17 Dec 2002, Malaise, M. Tokota'a, 1♂, 3♀; 1 km SW Vaturu Dam, 17.75°S, -177.66°W, 620 m, 2–14 Jul 2004, Malaise, E.I. Schlinger & M. Tokota'a, 1♀.

Parapolyrhanis oceanica Cassola

Parapolyrhanis oceanica Cassola, 1983: 216; 1986: 117. Lorenz, 1998: 60.

This endemic species was described on a single male specimen from Lami, Viti Levu, Fiji (Cassola, 1983), but three years later (Cassola, 1986) two more specimens, both also from Viti Levu (one male from Nadala and one female from Suva), were found. No additional specimens have been reported in the entomological literature, thus the recently collected

specimens, listed below, are the first subsequent records. This species, which is smaller and narrower than *Oceanella* and has yellowish legs (instead of metallic), appears to be new to Taveuni and Vanua Levu while, surprisingly, it was not found on Kadavu.

Material Examined: **Taveuni:** 5.3 km SE Tavuki Village, Des Voeux (Devo) Peak, 1064 m, 16°50'S, -180°W, 2–10 Oct 2002, Malaise, P. Vodo, 2♀; 10–17 Oct 2002, Malaise, E.I. Schlinger & M. Tokota'a, 2♂; 31 Oct–14 Nov 2002, Malaise, E.I. Schlinger & M. Tokota'a, 2♂; 21 Nov–13 Dec 2002, Malaise, E.I. Schlinger & M. Tokota'a, 1♀; 5.6 km SE Tavuki Village, Des Voeux Peak, 1187 m, 16.84°W, -179.96°W, 24–31 Oct 2002, Malaise, E.I. Schlinger & M. Tokota'a, 2♂, 1♀; 3–10 Jan 2003, Malaise, E.I. Schlinger & M. Tokota'a, 16♂, 3♀; 10–16 Jan 2003, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 13♂, 3♀. Des Vœux Forest Reserve, 16°50'S, -179°59'W, 800 m, 10–17 Oct 2002, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 1♂; 3–10 Jan 2003, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 10♂, 5♀; Des Voeux Peak Radio Tower, 1200 m, 16°51'S, -179°58'E, 2–10 Oct 2002, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 1♂, 1♀; 10–16 Jan 2003, Malaise, M. Irwin, E.I. Schlinger & M. Tokota'a, 2♂; Soqulu House in Soqulu Estate, 140 m, 17–24 Oct 2002, Malaise: M01, E.I. Schlinger & M. Tokota'a [-16.833°, 180°], [FBA 206420–206422], 3♂. **Vanua Levu:** 0.5 km S Rokosalase Vlg., 16.532°S, -179.019°E, 97 m, 26 Mar–9 Jun 2004, Malaise 3, E.I. Schlinger & M. Tokota'a, 8♂. **Viti Levu:** 3.5 km N Veisari, logging rd to Waivudawa, 18°07'S, -178°37'W, 300 m, 12 Dec 2002–3 Jan 2003, Malaise, E.I. Schlinger & M. Tokota'a, 1♂, 1♀; 14 Feb–8 Mar 2003, Malaise, E.I. Schlinger & M. Tokota'a, 1♀; 8–31 Mar 2003, Malaise, M. Tokota'a, 1♂; 2 km E Navai Village, old trail to Mt. Tomaniivi, 17.62°S, -178°E, 700 m, 9–20 Dec 2003, Malaise, E.I. Schlinger & M. Tokota'a, 1♂; 24 Nov–9 Dec 2003, Malaise, E.I. Schlinger & M. Tokota'a, 1♂; 3.2 km E Navai Village, Veilaselase Trail, 1020 m, 17°35'S, -178°01'W, 20 Dec 2003–7 Jan 2004, Malaise, E. Namatalau, 1♂.

CONCLUSIONS

As far as it is presently known, the Fijian tiger beetle fauna includes only two species, both of which were collected in the various Malaise traps placed during the surveys in several localities. While *Oceanella vitiensis* (Blanchard) was collected on Kadavu, Taveuni, Vanua Levu, and Viti Levu, the second species, *Parapolyrhaxis oceanica* Cassola, occurs on Viti Levu and is new to Taveuni and Vanua Levu, but it is apparently absent on Kadavu Island. Both species clearly show Papuan relationships.

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A checklist of Fiji Auchenorrhyncha (Hemiptera)

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Abstract. The Auchenorrhyncha (Hemiptera) species (leafhoppers, planthoppers, cicadas, and spittlebugs) found in Fiji are tabulated from literature records. A total of 299 species are known, mostly from the island of Viti Levu; other large islands are under-recorded and many new records are to be expected. The taxonomic composition and island distributions are given and discussed.

INTRODUCTION

The Auchenorrhyncha (Hemiptera) species (leafhoppers, planthoppers, cicadas, and spittlebugs) are well represented in the Fiji islands with a total of 299 species currently known. Most are recorded from the island of Viti Levu, other large islands are under-recorded and many new records are to be expected.

Arguably the first significant collecting of the Auchenorrhyncha in Fiji was made by Frederick Muir who visited Viti Levu in connection with his studies on sugarcane-associated species. Many early records resulted from his samples. Later extensive collections were made by the Bishop Museum (including visits by various well-known collectors such as N.L.H. Krauss and E.C. Zimmerman from the period 1924 to 1941). The recent sampling by the Fiji Arthropod Survey over the archipelago is likely to greatly expand our knowledge of the Auchenorrhyncha fauna, especially given the paucity of records from islands such as Vanua Levu.

For this checklist all the available literature has been reviewed and the species recorded in Fiji have been tabulated (Appendix 1). Species names have been updated where appropriate. An earlier version of the list (Wilson & Evenhuis 2007) was published as part of the series of ‘Checklists of the Terrestrial Arthropods of Fiji’ series. In this current list, island distributions have also been added as far as possible. Table 1 provides the numbers of species from each island group. Most are island endemics and currently few are known from more than one island group.

Fulgoromorpha

The Fulgoromorpha (planthopper) families were reviewed by Fennah (1950), based on the extensive collections of the Bishop Museum from 1924 to 1941. Fennah recognised 52 genera and 177 species from Fiji and described 98 species. He noted 14 genera as being confined to Fiji, the remainder being also found in Samoa, Philippines, Indonesia, and Australia. It is quite likely, however, that some generic concepts may now be differently applied.

Table 1. Taxonomic composition of the Auchenorrhyncha fauna of Fiji and numbers of each family in each island group. F = unknown locality in Fiji; V = Viti Levu; v = Vanua Levu; K Kadavu; T = Taveuni; O = Ovalau; L = Lau group; R = Rotuma.

Family	No. species (no. endemic) % endemic	F	V	v	K	T	O	L	R	No. multi-island species
Fulgoromorpha										
Cixiidae	26(24) 92%		21(20)		1		4	6	1	6
Delphacidae	33(11) 33%	2	21(4)	3	2		9	11	2	12
Meenoplidae	5 (3) 60%		5							-
Derbidae	48(47) 96%	1	40(38)	2	2		8	7	1	7
Achilidae	9(9) 100%		9				1			1
Tropiduchidae	17(16) 95%		6				3	9		2
Lophopidae	1(0)		1	1						1
Dictyopharidae	1 (1) 100%		1							
Issidae	1(1) 100%		1							1
Nogodimidae	14 (14) 100%		3		1		2	7	1	1
Ricanidae	37(37) 100%		5		2		4	27		1
Flatidae	1						1			-
Total no.	193(152) 79%		111	6	8		33	67	5	37
Cicadomorpha										
Cicadoidea	20(20) 100%		12	5	1	4	3	1	1	4
Cercopidae	1(1) 100%		1							-
Aphrophoridae	12		9	3	1					1
Cicadellidae	73(46) 62%	8	62(43)	9(4)	3(1)	1(0)	11(5)	13(5)		-
Total no.	106									
Totals	299	11	200	21	13	6	47	81	6	52

Table 2: Numbers of species on each island group and proportion of endemic species.

Island (or island group)	No of species/ endemic	% endemic
Viti Levu	200 (153)	76
Vanua Levu	16 (14)	87
Kaduvu	13 (9)	75
Taveuni	6 (5)	83
Ovalua	46 (37)	80
Lau group	81 (69)	85
Rotuma	6 (5)	83

Fennah also noted that the species appeared largely endemic to Fiji. However, most Delphacidae species are found more widely in the Pacific and beyond, with the notable exceptions of the tribe Ugyopini, whose members are all endemic. The locality records given in Appendix 1 come from Fennah (1950). The collections studied by him included almost nothing from large islands such as Vanua Levu and Taveuni so it is certain that new records and species will be added from these and other localities in the island group.

The number of families of planthoppers represented in the Fijian islands is rather high, with 13 from the 21 recognised families worldwide. Many species of Issidae, as recognised by Fennah, have recently been reassigned to the Nogodinidae (Gnezdilov, 2007). There are, however, some interesting families lacking in Fiji from those present in New Guinea, Indonesia, and SE Asia. There are no Eurybrachidae or Fulgoridae, although all of these are represented by a diversity of genera in New Guinea, Australia, and SE Asia. Only one species of the family Flatidae is known and one new species of Dictyopharidae was found in Viti Levu by me in April 2007 and seems to represent the first record of this family from the islands (Emeljanov & Wilson, in prep.).

The Fulgoromorpha families are likely to offer much scope for biogeographical analysis in the region but much more basic taxonomic research has to be conducted first. One exception is the Lophopidae where biogeographical patterns have been analysed (Soulier-Perkins, 2000). The *Makota* group (five genera) all show evidence of endemicity to islands in the southwest Pacific. The only lophopid genus known from Fiji is *Buxtoniella* (recorded on Viti Levu and Vanua Levu as well as in Samoa).

Cicadomorpha

The major families of the Cicadomorpha, Cicadidae (cicadas), Cercopidae (spittlebugs), Aphrophoridae (spittlebugs), and Cicadellidae (leafhoppers), are all represented in Fiji. The absence of the Membracidae (treehoppers) is somewhat surprising but many species are rather limited in their distribution. The Cicadidae are the best known of all Auchenorrhyncha groups in Fiji [following work by Duffels (1988)] and more widely in the Pacific [reviewed by de Boer & Duffels (1997)].

Cicadidae

The Indo-Pacific cicada fauna is a composite of the Oriental and Australian fauna (de Boer & Duffels, 1996; who have provided a thorough analysis of the Indo-Pacific cicadas). All cicada species in Fiji are endemic (Duffels, 1988) with some island subspecies. The Fiji islands as a whole may be regarded as an area of endemism, with the genus *Aceropyga* endemic to the islands (de Boer & Duffels, 1996). They argue that the present genera have evolved on isolated island arc fragments.

Cicadellidae

Knowledge of the cicadellid (leafhopper) fauna comes largely from the revision by Linnavuori (1960) which, like the study by Fennah (1950), was largely based on specimens from the Bishop Museum. Like Fennah's, his conclusions were tentative since intensive collecting had not at that time been carried out on most islands— the majority of species were only known from Viti Levu. He found that 75% of the species were endemic with around 10% common cosmopolitan species. The remainder seemed to be species also occurring in Samoa and in Micronesia. He concluded that as far as cicadellids were concerned the fauna of Micronesia was of Oriental Region origin and Fiji also derived its fauna from this region.

Cercopidae

Despite the family being very well represented in the Oriental Region, only one species of cercopid, *Nesaphrogeneia vitiensis* Kirkaldy, is known from Fiji. However, populations of this taxon from different islands appear to be distinctly different morphologically and may represent new species (M.R. Wilson, unpubl.).

Aphrophoridae

The Aphrophoridae (Cercopoidea) of the western Pacific islands, from the Solomons to Polynesia have been covered in a series of studies by Hamilton: Polynesia, (Hamilton, 1980a); Solomon Islands (Hamilton, 1980b), New Caledonia and Loyalty Islands (Hamilton, 1981a) and Fiji, New Hebrides (now Vanuatu) and Banks Islands (Hamilton, 1981b). While the spittlebug fauna of the Solomon Islands form a link between New Guinea and the faunas of Polynesia, there exists a range of endemic genera and species that have dispersed eastwards in the island chain. Only one genus, *Nesaphrestes*, is recognised in Fiji with 12 endemic species, 9 of which are found on Viti Levu. However, the genus is also found in Vanuatu, where 5 species are recognised. Hamilton (1981b) provided a key to the Fiji species based largely on external coloration, lengths and proportions. While he briefly described the aedeagal structure in most species, he unfortunately gave no illustrations in these papers.

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Taxon	E	N	F	V	v	K	T	O	L	R
Cixiidae (cont'd)										
<i>Dysthaetias clymene</i> Fennah 1950: 30	E									R
<i>Dysthaetias ensicauda</i> Fennah 1950: 27	E								L	
<i>Dysthaetias fuscata</i> Kirkaldy 1907: 114	E			V					L	
<i>Dysthaetias lacon</i> Fennah 1950: 28	E			V					L	
<i>Dysthaetias aeneas</i> Fennah 1950: 25	E			V						
<i>Dysthaetias beecheyi</i> Kirkaldy 1907: 113	E			V						
<i>Dysthaetias nigricosta</i> Fennah 1950: 26	E			V						
<i>Dysthaetias smaragdus</i> Fennah 1950: 26	E			V						
<i>Dysthaetias vitiensis</i> (Kirkaldy) 1907: 114	E			V				O		
<i>Epaustraloma simois</i> Fennah 1950: 17	E			V						
<i>Myndus antenor</i> Fennah 1950: 23	E			V						
<i>Myndus personatus</i> Fennah 1950: 21	E			V				O		
<i>Myndus pica</i> Fennah 1950: 22	E			V						
<i>Myndus ulysses</i> Fennah 1950: 23	E			V						
<i>Myndus vitiensis</i> Kirkaldy 1907: 111	E			V						
<i>Myndus xanthus</i> Fennah 1950: 20	E			V						
<i>Nesochlamys kalypso</i> (Kirkaldy) 1907: 111										
= <i>Nesochlamys vitiensis</i> Kirkaldy 1907: 115				V				O	L	
<i>Nesochlamys kalypso insulicola</i> Fennah 1950: 31									L	
<i>Oliarus (Nesopompe) felis</i> Kirkaldy 1907: 107	E					K				
<i>Oliarus laertes</i> Kirkaldy 1906: 398	N			V						
<i>Oliarus lubra vitiensis</i> Kirkaldy 1907: 109	E			V						
<i>Oliarus tasmani</i> Kirkaldy 1907: 108	N			V						
<i>Oliarus saccharicola</i> Kirkaldy 1907: 109				V						
<i>Urvillea melanesica</i> Kirkaldy 1907: 110	E			V						
Delphacidae										
<i>Cemus sauteri</i> (Muir) 1917: 320	N			V	v					
<i>Opiconsiva dilpa</i> (Kirkaldy) 1907: 162	N*			V						
<i>Coronacella sinhalana</i> (Kirkaldy) 1906: 156										
= <i>Coronocella puella</i> (Kirkaldy) 1907: 160	N	F								
<i>Euidellana ucalegon</i> (Fennah) 1950: 43	N			V						
<i>Cemus granulinervis</i> (Stål) 1854: 246										
= <i>Dicranotropis koebelei</i> Kirkaldy 1907: 134										
(renamed <i>Cemus kirkaldyi</i> Metcalf 1943: 148)	N			V						
<i>Phacalastor pseudomaidis</i> (Kirkaldy) 1906: 408	N			V						
<i>Horcoma colorata lacteipennis</i> (Muir) 1917: 337	N	F								
<i>Latistria eupompe</i> (Kirkaldy) 1907: 162										
= <i>Delphax ochrias</i> Kirkaldy 1907: 157	N			V		K				
<i>Melanesia pacifica</i> Kirkaldy 1907: 129										
= <i>Melanesia pacifica strigata</i> Kirkaldy 1907: 129	N			V	v			O		
<i>Nilaparvata lugens</i> (Stål) 1854: 11										
= <i>Dicranotropis anderida</i> Kirkaldy 1907: 133	N*			V						
<i>Nycheuma cognata</i> (Muir) 1917: 317	N			V						
<i>Peregrinus maidis</i> (Ashmead) 1890: 323**	N*			V				O		
<i>Perkinsiella vitiensis</i> Kirkaldy 1906: 406	E			V		K			L	
<i>Perkinsiella saccharicola</i> Kirkaldy 1903: 179	N			V						
<i>Sardia rostrata</i> (Kirkaldy) 1906: 410										
= <i>Hadedodelphax pluto</i> var. <i>pallidior</i> Kirkaldy 1907: 140	N*								L	
<i>Opicosiva paludum</i> Kirkaldy 1910: 579	N								L	
<i>Sogatella furcifera</i> (Horvath) 1899: 372	N*			V	v			O		
<i>Sogatella kolophon</i> (Kirkaldy) 1907: 157	N*			V						
" <i>Stenocranus</i> " <i>pacificus</i> Kirkaldy, 1907: 139	N			V						
<i>Syndelphax disonymos</i> (Kirkaldy) 1907: 156										
= <i>Syndelphax matanitu</i> Kirkaldy 1907: 155	N*			V					L	
<i>Tarophagus proserpina</i> (Kirkaldy) 1907: 147	N*							O		
<i>Toya dryope</i> (Kirkaldy) 1907: 152	N*			V						

Taxon	E/N	F	V	v	K	T	O	L	R
Delphacidae (cont'd)									
<i>Toya lazulis</i> (Kirkaldy) 1907: 155	N		V						
<i>Ugyopana cassia</i> Fennah 1950: 41	E		V						
<i>Ugyops astrolabei</i> Fennah 1950: 37	E							L	
<i>Ugyops bianor</i> Fennah 1950: 39	E								R
<i>Ugyops demeter</i> Fennah 1950: 35	E		V				O	L	R
<i>Ugyops demeter</i> ssp. <i>angusticauda</i> Fennah 1950: 36	E						O	L	
<i>Ugyops demeter</i> ssp. <i>laticauda</i> Fennah 1950: 36	E						O	L	
<i>Ugyops laui</i> Fennah 1950: 37	E							L	
<i>Ugyops necopinus</i> Fennah 1950: 38	E							L	
<i>Ugyops vitiensis</i> Kirkaldy 1907: 127	E		V				O		
<i>Ugyops zimmermanni</i> Fennah 1950: 37	E						O	L	
Lophopidae									
<i>Buxtoniella hopkinsi</i> Muir 1927: 24	N		V**	v					
Meenoplidae									
<i>Nisia nervosa</i> (Motschulsky) 1863: 114									
= <i>Nisia atrovonosa</i> Lethierry 1888: 466	N		V						
<i>Nisia grandiceps</i> Kirkaldy 1906: 427									
= <i>Nisia atrovonosa levuana</i> Fennah 1950: 47	N		V						
<i>Siva cretacea</i> Fennah 1950: 47	E		V						
<i>Siva fuscomarginata</i> Fennah 1950: 47	E		V						
<i>Siva koebelei</i> Kirkaldy 1906: 428	E		V						
Derbidae									
<i>Flaccia bicornis</i> Fennah: 1950: 51	E							L	
<i>Flaccia imthurni</i> Kirkaldy 1907: 173	E		V						
<i>Flaccia oedicerus</i> Fennah 1950: 54	E		V						
<i>Flaccia pyrrhoneura</i> Fennah 1950: 52	E		V						
<i>Flaccia tumidifrons</i> Fennah 1950: 53	E		V				O		
<i>Harpanor fuligo</i> Fennah 1950: 59	E		V						
<i>Kamendaka nigrospersa</i> Fennah 1950: 60	E		V						
<i>Kamendaka rubrinervis</i> Fennah 1950: 60	E		V						
<i>Lamenia caliginea</i> (Stål) 1854: 246	E								R
<i>Levu halosydne</i> (Kirkaldy) 1907: 169	E		V						
<i>Levu vitiensis</i> Kirkaldy 1906: 434	N		V	v	K		O	L	
<i>Muiria stridula</i> Kirkaldy 1907: 175	E		V						
<i>Nesocore candida</i> Fennah 1950: 65	E		V						
<i>Nesocore clitoria</i> Fennah 1950: 63	E		V						
<i>Nesocore coccinea</i> Muir 1913: 51	E		V						
<i>Nesocore crocea</i> Muir 1913: 66	E			v					
<i>Nesocore elutriata</i> Fennah 1950: 66	E		V						
<i>Nesocore fidicina</i> Kirkaldy 1907: 172	E		V						
<i>Nesocore nivea</i> Fennah 1950: 65	E		V						
<i>Nesocore purpurigena</i> Fennah 1950: 67	E		V						
<i>Nesocore pygmaea</i> Fennah 1950: 64	E		V						
<i>Nesocore subfulva</i> Fennah 1950: 63	E							L	
<i>Nesoniphys insignitissima</i> Kirkaldy 1907: 175	E		V						
<i>Niphaphodite insulicola</i> Kirkaldy 1907: 170	E		V						
<i>Paralyricen astyanax</i> Fennah 1950: 55	E							L	
<i>Paralyricen knowlesi</i> Muir 1913: 53	E		V						
<i>Paralyricen similis</i> Fennah 1950: 58	E		V				O		
<i>Paralyricen sphaeromma</i> Fennah 1950: 56	E		V						
<i>Paralyricen vespillo</i> Fennah 1950: 57	E		V						
<i>Paralyricen jepsoni</i> Muir 1913: 53	E		V						
<i>Phaciocephalus marpsias</i> Fennah 1950: 72	E		V						
<i>Phaciocephalus miltodias</i> Kirkaldy 1907: 168	E		V				O		
<i>Phaciocephalus minyrias</i> Kirkaldy 1907: 168	E		V				O		

Taxon	E/N	F	V	v	K	T	O	L	R
Derbidae (cont'd)									
<i>Phaciocephalus nesodreptis</i> Kirkaldy 1907: 167	E		V						
<i>Phaciocephalus nesogonias</i> Kirkaldy 1907: 167	E						O		
<i>Phaciocephalus pembertoni</i> (Muir) 1922: 89	E		V						
<i>Phaciocephalus pullatus</i> Kirkaldy 1907: 168	E		V						
<i>Phaciocephalus troas</i> Fennah 1950: 71	E		V						
<i>Phaciocephalus vitiensis</i> Kirkaldy 1906: 428	E		V						
<i>Pyrrhoneura charonea</i> Fennah 1950: 61	E								L
<i>Pyrrhoneura citharista</i> Kirkaldy 1907: 171	E		V						
<i>Pyrrhoneura rubida</i> Muir 1913: 45	E	F							
<i>Pyrrhoneura poecila</i> Fennah 1950: 62	E						O		
<i>Pyrrhoneura saccharicida</i> Kirkaldy 1906: 435	E		V		K				L
<i>Pyrrhoneura vitiensis</i> Kirkaldy 1907: 171	E		V						
<i>Sikaiana flammeivittata</i> Fennah 1950: 49	E		V						
<i>Sikaiana nesiope</i> Kirkaldy 1907: 178	E		V						
<i>Swezeyia lyricen</i> Kirkaldy 1906: 430									
= <i>Phantasmatoecera vitiensis</i> Kirkaldy 1906: 431	N		V				O		L
Achilidae									
<i>Callichlamys muiri</i> Kirkaldy 1907: 120	E		V						
<i>Callichlamys undulata</i> Kirkaldy 1907: 120	E		V						
<i>Callinesia ornata</i> Kirkaldy 1907: 118	E		V						
<i>Callinesia pulchra</i> Kirkaldy 1907: 118	E		V						
<i>Callinesia pusilla</i> Kirkaldy 1907: 119	E		V						
<i>Callinesia venusta</i> Kirkaldy 1907: 119	E		V						
<i>Eurynomus argo</i> Fennah 1950: 77	E		V						
<i>Nephelia bicuneata</i> (Kirkaldy) 1907: 117	E		V						
<i>Nephelia tristis</i> (Kirkaldy) 1907: 117	E		V				O		
Tropiduchidae									
<i>Kallitaxila</i> sp. See notes	N		V**						
<i>Macrovanua demissa</i> (Fennah) 1949: 165	E					T			L
<i>Rhinodictya cuneolus</i> Fennah 1950: 86	E								L
<i>Rhinodictya granulata</i> Muir 1931: 73	E		V						
<i>Rhinodictya paeminosa</i> Fennah 1950: 86	E		V						L
<i>Rhinodictya belone</i> Fennah 1950: 86	E								L
<i>Vanua deidamia</i> Fennah 1950: 83	E								L
<i>Vanua deiopieia</i> Fennah 1950: 82	E								L
<i>Vanua paphia bicuspidata</i> Fennah 1950: 82	E								
<i>Vanua paphia paphia</i> Fennah 1950: 81	E								L
<i>Vanua pleone</i> Fennah 1950: 84	E								L
<i>Vanua respicienda flagellata</i> Fennah 1950: 81	E						O		
<i>Vanua respicienda hastata</i> Fennah 1950: 81	E						O		
<i>Vanua respicienda serrata</i> Fennah 1950: 80	E		V						
<i>Vanua respicienda vitiensis</i> Kirkaldy 1906: 416	E		V				O		
<i>Vanua sambucina</i> Fennah 1950: 83	E		V						
<i>Vanua taygete</i> Fennah 1950: 85	E								L
Dictyopharidae									
<i>Anasta</i> n.sp (Emeljanov & Wilson in prep.)	E		V						
Issidae									
<i>Sarima erythrocyclus</i> Fennah 1950: 96	E		V				O		
Nogodinidae									
<i>Capelopterum betulus</i> Fennah 1950: 93	E								L
<i>Capelopterum dolabra</i> Fennah 1950: 90	E						O		
<i>Capelopterum lyco</i> Fennah 1950: 90	E								L
<i>Capelopterum phormio</i> Fennah 1950: 89	E		V						

Taxon	E/N	F	V	v	K	T	O	L	R
Nogodiniidae (cont'd)									
<i>Capelopterum ranula</i> Fennah 1950: 93	E							L	
<i>Capelopterum tanaquil</i> Fennah 1950: 91	E							L	
<i>Capelopterum vacuna</i> Fennah 1950: 92	E							L	
<i>Capelopterum zetes</i> Fennah 1950: 92	E							L	
<i>Lollius australicus</i> Stål 1870: 763									
= <i>Lollius furcifer</i> Stål 1870: 762 (see note)	N	F							
<i>Lollius pyrrhoceras</i> Fennah 1950: 96	E		V						
<i>Tylana (Atylana) carcinias</i> Fennah 1950: 94	E								R
<i>Tylana (Atylana) intrusa</i> Melichar 1906: 207	E				K			L	
<i>Tylana (Atylana) orientalis</i> Melichar 1906: 208	N						O		
<i>Tylana (Paratylana) piceus</i> Walker 1870: 123 (see notes)	N		V						
Ricaniiidae									
<i>Euricania camilla</i> Fennah 1950: 114	E				K			L	
<i>Euricania camilla kanduvuana</i> Fennah 1950: 114	E								
<i>Euricania cliduchus</i> Fennah 1950: 113	E							L	
<i>Euricania cyane</i> Fennah 1950: 113	E							L	
<i>Euricania dinon</i> Fennah 1950: 113	E						O		
<i>Euricania furina</i> Fennah 1950: 113	E							L	
<i>Euricania laetoria</i> Fennah 1950: 112	E							L	
<i>Euricania licinia</i> Fennah 1950: 112	E							L	
<i>Euricania moneta</i> Fennah 1950: 114	E							L	
<i>Euricania opora</i> Fennah 1950: 115	E							L	
<i>Euricania procilla</i> Fennah 1950: 112	E							L	
<i>Euricania progne</i> Fennah 1950: 114	E							L	
<i>Euricania sirenia</i> Fennah 1950: 115	E							L	
<i>Euricania sterope</i> Fennah 1950: 115	E							L	
<i>Euricania tristicula</i> (Stål) 1865: 163									
= <i>Euricania aperiens</i> Walker 1858: 103	E		V						
<i>Euricania tristicula</i> var <i>lapidaria</i> Melichar 1898: 394	E		V				O		
<i>Plestia andromeda</i> Fennah 1950: 107	E							L	
<i>Plestia antigone</i> Fennah 1950: 105	E							L	
<i>Plestia arethusa</i> Fennah 1950: 104	E							L	
<i>Plestia artemis</i> Fennah 1950: 100	E							L	
<i>Plestia calypso</i> Fennah 1950: 105	E						O		
<i>Plestia cassandra</i> Fennah 1950: 106	E				K				
<i>Plestia cassiopeia</i> Fennah 1950: 100	E						O		
<i>Plestia circe</i> Fennah 1950: 98	E		V						
<i>Plestia danae</i> Fennah 1950: 103	E							L	
<i>Plestia deiana</i> Fennah 1950: 103	E							L	
<i>Plestia eurydice</i> Fennah 1950: 107	E							L	
<i>Plestia galatea</i> Fennah 1950: 108	E		V					L	
<i>Plestia galatea levuana</i> Fennah 1950: 109	E		V						
<i>Plestia io</i> Fennah 1950: 101	E							L	
<i>Plestia iphigeneia</i> Fennah 1950: 104	E							L	
<i>Plestia marginata</i> (Montrouzier) 1861: 73	F								
<i>Plestia medusa</i> Fennah 1950: 102	E							L	
<i>Plestia naias</i> Fennah 1950: 100	E							L	
<i>Plestia neretis</i> Fennah 1950: 102	E							L	
<i>Plestia niobe</i> Fennah 1950: 109	E		V						
<i>Plestia scylla</i> Fennah 1950: 109	E						O		
<i>Plestia thetis</i> Fennah 1950: 101	E							L	
<i>Scolypopa australis</i> (Walker) 1851: 430 (see notes)	F								
Flatidae									
<i>Euphanta acuminata</i> Melichar 1902: 39 (see notes)	E						O		

Taxon	E	N	F	V	v	K	T	O	L	R
Cicadellidae										
Agalliinae										
<i>Austoagallia torrida</i> Evans 1935: 70										
= <i>Austoagallia lauensis</i> Linnavuori 1960b: 8	N								L	
Penthimiinae										
<i>Vulturinus dido</i> Linnavuori 1960b: 41	E			V						
Selenocephalinae										
<i>Hybrasil brani</i> Kirkaldy 1907: 41	E			V						
<i>Lamia cydippe</i> Linnavuori 1960b: 39	E			V						
<i>Parohinka lotophagorum</i> (Kirkaldy) 1907: 41	N			V						
Xestocephalinae										
<i>Xestocephalus contortuplicatus</i> Kirkaldy 1907: 52	E			V						
<i>Xestocephalus pallidiceps</i> Kirkaldy 1907: 51	E			V						
<i>Xestocephalus pallidiceps</i>										
var. <i>decemnotatus</i> Kirkaldy 1907: 52	E			V	v				L	
<i>Xestocephalus purpurascens</i> Kirkaldy 1907: 52	N			V						
<i>Xestocephalus purpurascens</i>										
var. <i>mendax</i> Linnavuori 1960b: 36	E			V						
<i>Xestocephalus purpurascens</i>										
var. <i>taeniatus</i> Linnavuori 1960b: 36	E			V						
<i>Xestocephalus tutuilanus</i> Osborn 1934: 172	N	F								
<i>Xestocephalus vitiensis</i> Kirkaldy 1907: 51	E			V				O		
<i>Xestocephalus vitiensis</i> var. <i>mancus</i> Linnavuori 1960b: 34	E			V						
<i>Xestocephalus vitiensis</i> var. <i>tricerus</i> Linnavuori 1960b: 33	E			V						
Coelidinae										
<i>Thagria fijiana</i> (Osborn) 1934: 182	E					K		O	L	
<i>Tharra hades</i> Linnavuori 1960b: 26	E			V						
<i>Tharra kalypso</i> Kirkaldy 1907: 76										
= <i>Tharra atriceps lauensis</i> Linnavuori 1960b: 28	E			V					L	
<i>Tharra kassiphone</i> Kirkaldy 1907: 77	E			V						
<i>Tharra kirkaldyi</i> (Linnavuori) 1960b: 31	E			V						
<i>Tharra lenta</i> Nielson 1975: 144	E				v					
<i>Tharra nausikaa</i> Kirkaldy 1907: 77										
= <i>Tharra nausikaa</i> var. <i>pallidor</i> Kirkaldy 1907: 78	E			V						
<i>Tharra nausikoides</i> Linnavuori 1960b: 27	E			V						
<i>Tharra ogygia</i> Kirkaldy 1907: 76										
= <i>Tharra atriceps</i> Linnavuori 1960b: 27	E			V						
<i>Tharra oxyomma</i> (Kirkaldy) 1907: 79	E			V						
<i>Tharra transversa</i> Nielson 1975: 146	E			V						
<i>Tharra vitiensis</i> Nielson 1975: 136	E			V						
Idiocerinae										
<i>Pedioscopus quadrimaculatus</i> Linnavuori 1960b: 11	E			V						
<i>Wilomatma tutuilanus</i> (Osborn) 1934: 170	N			V						
Deltocephalinae: Macrostelini										
<i>Balclutha incisa</i> (Matsumura) 1902: 360	N*			V	v	K		O	L	
<i>Balclutha lucida</i> (Butler) 1877: 91										
= <i>Balclutha filum</i> Linnavuori 1960a: 342	N*			V						
<i>Balclutha rosea</i> (Scott) 1876: 83										
= <i>Balclutha hebe</i> Kirkaldy 1906: 343	N*			V		K			L	
<i>Balclutha rubrostriata</i> (Melichar) 1903: 208	N*			V						
<i>Balclutha viridinervis</i> Matsumura 1914: 166										
= <i>Balclutha viridus</i> (Metcalf) 1946: 134										
= <i>Balclutha flexuosa</i> Linnavuori 1960a: 342				V						
<i>Cicadulina (Idyia) fijiensis</i> Linnavuori 1960b: 59	N			V					L	
Deltocephalinae: Opsiini										
<i>Hishimonus passiflorae</i> (Evans) 1941: 40	N			V						
<i>Litura discigutta</i> (Walker) 1857: 172	N	F								
<i>Navaia deiphobe</i> Linnavuori 1960b: 52	E			V						
<i>Navaia filicicola</i> (Kirkaldy) 1907: 63	E			V						

Taxon	E/N	F	V	v	K	T	O	L	R
Cicadellidae (cont'd)									
<i>Navaia hesperidum</i> Linnavuori 1960b: 55	E		V						
<i>Navaia nereis</i> Linnavuori 1960b: 54	E		V						
<i>Orosius argentatus</i> (Evans) 1938: 15									
= <i>Orosius cantonis</i> (Oman) 1943: 33	N	F							
<i>Orosius lotophagorum</i> (Kirkaldy) 1907: 62									
= <i>Orosius argentatus</i> var. <i>distans</i> Linnavuori 1960a: 322	N*		V				O	L	
<i>Satsumanus multispinosus</i> Linnavuori 1960b: 50	E		V						
<i>Satsumanus rubrinervis</i> Linnavuori 1960b: 51	E		V						
Deltocephalinae: Chiasmini									
<i>Exitianus capicola</i> (Stål) 1855: 99	N*		V	v					L
<i>Exitianus plebeius</i> (Kirkaldy) 1906: 331	N*		V	v			O		
Deltocephalinae: Deltocephalini									
<i>Deltocephalus samuelsoni</i> Knight 1976: 96	N	F							
<i>Recilia affinis</i> (Osborn) 1934: 180									
= <i>Recilia hospes</i> sensu Linnavuori 1960a: 306	N		V	v			O	L	
<i>Recilia coronifer</i> (Marshall) 1866: 222									
= <i>Recilia hospes</i> Kirkaldy 1904:177	N*	F							
<i>Recilia histrionicus</i> (Kirkaldy) 1907d: 57	E		V						
<i>Recilia pacificus</i> (Osborn) 1934: 179	N		V				O		
<i>Wakaya obtusiceps</i> Linnavuori 1960b: 43	E								L
lassinae									
<i>Batracomorphus angustatus</i> (Osborn) 1934: 166	N		V	v		T	O		
<i>Batracomorphus hamadryas</i> (Kirkaldy) 1907: 39	E		V				O	L	
Cicadellinae									
<i>Cofana spectra</i> (Distant) 1908: 211									
= <i>Tetigonia albida</i> Walker, misidentification (see notes)	N*		V						
Typhlocybinae									
<i>Dayus euryphaessus</i> (Kirkaldy) 1907: 68	E		V						
<i>Empoasca chloe</i> Linnavuori 1960b: 17	E		V				O	L	
<i>Empoasca euryphaessa</i> (Kirkaldy) 1907: 68	E		V						
<i>Empoasca euryphaessa rubricincta</i> Linnavuori 1960b: 18	E		V						
<i>Empoasca hyadas</i> (Kirkaldy) 1907: 68	E		V						
<i>Empoasca quadripunctata</i> Evans 1942: 49	N		V						
<i>Empoasca tavuaensis</i> Linnavuori 1960b: 14	E		V	v					
<i>Empoasca vitiensis</i> (Kirkaldy) 1906: 362	E		V						
<i>Empoasca vitiensis vinicolor</i> Linnavuori 1960b: 15	E		V						
<i>Jacobiella facialis</i> (Jacobi in Aulmann) 1912: 69 (see notes)		F							
<i>Erythroneura ariadne</i> Linnavuori 1960b: 22	E		V						
<i>Erythroneura doris</i> Kirkaldy 1907: 69	E		V						
<i>Erythroneura lalage</i> Kirkaldy 1907: 70	E		V						
<i>Erythroneura leveri</i> Evans 1948: 131	E		V	v			O	L	
<i>Erythroneura leveri</i> var. <i>kraussi</i> Linnavuori 1960b: 21	E		V						
<i>Erythroneura nayavua</i> Linnavuori 1960b: 21	E		V						
<i>Erythroneura nayavua</i> var. <i>revanoides</i> Linnavuori 1960b: 22	E		V						
<i>Erythroneura rewana</i> Kirkaldy 1907: 71	E		V						
<i>Tautoneura leucothoe</i> (Kirkaldy) 1907: 70	N		V						
<i>Edwardsiana flavescens</i> (Fabricius) 1794a: 46 (see notes)		F							

Notes to checklist:

FULGOROMORPHA

Lophopidae

Buxtoniella hopkinsi Muir 1927: 24

Buxtoniella hopkinsi was identified in trap samples in March 2007 from Viti Levu (new record)

Meenoplidae

Nisia nervosa Motschulsky 1863

= *Nisia atrovenosa* Lethierry 1888: 466 (recorded by Kirkaldy 1906: 427)

Nogodinidae

Lollius australicus Stål 1870: 763

= *Lollius furcifer* Stål 1870: 762 [listed by Kirkaldy in Kirkaldy & Muir, 1913: 25].
Recorded from Fiji but not listed by Fennah (1950).

Tylana (Paratylana) piceus Walker 1870: 123 noted by Melichar (1906) for Fiji. Fennah (1950: 3) regarded the record as erroneous.

Ricaniidae

Euricania aperiens Walker 1858: 103 (*Flatoides*)

Not listed by Fennah (1950). May be a synonym of *Euricania tristicula* (Stål) 1865: 163 (*Ricania*)

Plestia marginata Montrouzier 1861. cited by Melichar 1898, Kirkaldy 1907 from Fiji but not listed by Fennah 1950.

Scolypopa australis Walker 1851:430 cited by Kirkaldy 1906: 450. Fennah 1950: 3 regarded the record as erroneous.

Flatidae

Euphanta acuminata Melichar 1902:39 [cited in Kirkaldy 1906: 461].

Medler (1986) examined the female holotype of this species. He stated that it closely resembled *Euphanta munda* (Walker) (from Australia and New Guinea) but a male specimen would be needed to determine the status of the species. No further specimens have been found at present.

Tropiduchidae

Kallitaxila sp. was collected commonly in March 2007 in Viti Levu.

CICADOMORPHA

Cicadidae

Cyclochila australasiae Donovan 1805 was listed by Kirkaldy 1907: 17 as doubtful for Fiji.

Macrostristria angularis Germar 1834 was listed by Kirkaldy 1907: 17 as doubtful for Fiji. This was also stated by Duffels (1988).

Cicadellidae

Cicadellinae

Cofana spectra (Distant) 1908: 211

= *Cofana albida* Kirkaldy 1907: 85 not *albida* Distant; misdetermination

Typhlocybinae

Jacobiella facialis (Jacobi) in Aulmann 1912b: 69 [African species - doubtful record]

Edwardsiana flavescens (Fabricius) 1794: 46 [Palaeartic species - doubtful record]

FIJI ARTHROPODS XII

(edited by N.L. Evenhuis & D.J. Bickel)

TABLE OF CONTENTS

Editors' Preface	1
Checklist and illustrated key to species of Brentidae from Fiji (Coleoptera: Curculionoidea) — <i>Beaver, R.A., Mantilleri, A. & Liu L.-Y.</i>	3
Studies of tiger beetles. CLXXVII. Notes on the tiger beetle fauna of Fiji (Coleoptera: Cicindelidae) — <i>Cassola, F.</i>	27
A checklist of Fiji Auchenorrhyncha (Hemiptera) — <i>Wilson, M.R.</i>	33
