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HYDROPHILIDAE: Review of the subtribe Acidocerina of the Southwest Pacific islands

(Coleoptera)

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Abstract

The species of the hydrophiline subtribe Acidocerina (Coleoptera: Hydrophilidae) are reviewed for the Southwest Pacific islands east of the Solomon Islands and north of New Zealand. Twelve species distributed in the genera *Chasmogenus* SHARP, *Enochrus* THOMSON, and *Helochares* MULSANT are recorded. Three species are described as new: *Chasmogenus balkei* sp.n. (Fiji: Vanua Levu), *C. punctulatus* sp.n. (Fiji: Viti Levu), and *Enochrus* (*Methydrus*) *fijiensis* sp.n. (Fiji: Vanua Levu). *Enochrus* (*Lumetus*) *cheesmanae* BALFOUR-BROWNE is found to be a junior synonym of *E.* (*Methydrus*) *nigropiceus* (MOTSCHULSKY). *Enochrus* (*Lumetus*) *tritus* (BROUN) is transferred to the subgenus *Methydrus* REY.

Key words: Coleoptera, Hydrophilidae, Hydrophilini, Acidocerina, Pacific islands, New Caledonia, Fiji.

Introduction

The Acidocerina are the largest of three principle subtribes within the diverse tribe Hydrophilini. This work reviews all previously and newly recorded taxa of this subtribe from the Southwest Pacific east of the Solomon Islands and north of New Zealand.

The Southwest Pacific Acidocerina are largely composed of Australian and other regional elements. For example, all six New Caledonian species of this subtribe are also found in Australia. Although twelve species of Acidocerina are recorded, just three species dominate the fauna, accounting for 85 % of the specimens examined for this study: *Chasmogenus nitescens* (FAUVEL), *Enochrus esuriens* (WALKER) and *E. maculiceps* (RÉGIMBART). Conversely, Fiji is found to have three endemic species, and it seems likely that others will be discovered there through additional surveys of the riparian and stream margin fauna.

The Solomon Islands appear to represent a much stronger affinity for taxa in New Guinea rather than the rest of the Pacific, and were not included in the present work, although some material from these islands was examined. The Hydrophilidae of the Hawaiian Islands were treated in recent reviews by HANSEN (1995) and SHORT & LIEBHERR (2007).

Material and methods

More than 700 specimens were examined for this study. The majority of the material reviewed herein is from New Caledonia and Fiji, with smaller collections examined from the Solomon Islands, Vanuatu, Tonga, Wallis & Futuna, Western Samoa, and the Cook Islands.

Enochrus tritus (BROUN), although probably not occurring within the range covered in this contribution, is also fully treated because of its similarity with *E. elongatulus* (MACLEAY).

Specimens were examined using a light microscope to 100 × magnification. Terminology largely follows HANSEN (1991) with the exception of the terms "mesoventrite" for "mesosternum", and "metaventrite" for "metasternum".

The specimens examined are deposited in the following collections:

CUIC	Cornell University, Ithaca, New York, USA; J.K. Liebherr
IAC	Institut Agronomique Néo-Calédonien, Pocquereux, New Caledonia; S. Cazères, C. Mille
IRSNB	Institut royal des Sciences naturelles de Belgique, Brussels, Belgium; P. Limbourg
KSEM	Natural History Museum, University of Kansas, Lawrence, USA
MFPC	Collection Martin Fikáček, Prague, Czech Republic
MNHW	Museum of Natural History, Wrocław University, Poland; M. Wanat
NHML	The Natural History Museum, London, U.K. (formerly British Museum of Natural History); M. Barclay, R. Booth
NMP	Národní muzeum v Praze, Czech Republic; M. Fikáček
NMW	Naturhistorisches Museum Wien, Vienna, Austria; M.A. Jäch, A. Komarek
NZAC	New Zealand Arthropod Collection, Auckland, New Zealand; R.A.B. Leschen
ZSM	Zoologische Staatssammlung, München, Germany; M. Balke

List of Localities

(**Locs. 2001/NC**: leg. Balke & Wewalka, **Locs. 2009/NC**: leg. Jäch)

Loc. 2001/NC 1: Dumbéa, 50 m a.s.l., near road to Mt. Koghi, 3.XI.2001. Slowly flowing stream (max. 2 m wide), shaded, forming larger pools (max. 70 cm deep), edge with leaf packs and roots, ground sandy and gravelly with few larger stones.

Loc. 2001/NC 2: Dumbéa, 150 m a.s.l., road to Mt. Koghi, Rue de Forêt, 3.XI.2001. Stream in deep gorge, slightly flowing, edges sandy/gravelly.

Loc. 2001/NC 3: Dumbéa, 50 m a.s.l., near road to Mt. Koghi, 3.XI.2001. Slowly flowing stream (max. 2 m wide and 40 cm deep), partly shaded, egde with leaf packs and roots, ground sandy and gravelly.

Loc. 2001/NC 4, 4a (JÄCH & BALKE 2010: Fig. 8): Dumbéa, 50 m a.s.l., swamp at road to upper course of River Dumbéa, 4.XI.2001 (NC 4) and 21.XI.2001 (NC 4a). Swampy area and inundated forest, larger shaded pools on red clay, with thick leaf layers, some reeds.

Loc. 2001/NC 5 (JÄCH & BALKE 2010: Fig. 9): Dumbéa, 150 m a.s.l., upper course of River Dumbéa, 4.XI.2001. Large river, 10–20 m wide and max. 3–4 m deep, slowly flowing, sun exposed, beetles taken from water holes on gravel banks and a ditch on dirt road close to the river.

Loc. 2001/NC 6: 5 km east of Pouembout, 20 m a.s.l., 6.XI.2001. Lowlands, dirt road inland to Forêt Plate, partly shaded pool (2 m², max. 50 cm deep) in otherwise dry stream bed on red clay, edges of pool with some leaves, grass and roots; water eutrophicated by cattle; surrounding area dry shrubland.

Loc. 2001/NC 7 (JÄCH & BALKE 2010: Fig. 11): 10 km east of Pouembout, 50 m a.s.l., 6.XI.2001. Lowlands, dirt road 10 km inland to Forêt Plate, small stream, slowly flowing, more or less shaded, collected from small backflows and bays at the edge, with leaves and pine needles; and larger, slowly flowing shallow stream nearby.

Loc. 2001/NC 9 (JÄCH & BALKE 2010: Fig. 10): 15 km NE Voh, 50 m a.s.l., 6.XI.2001. Almost stagnant river, 10–15 m wide and max. 1 m deep, gravelly, partly shaded, edge with dense mats of submerged vegetation; backflows with leaf packs.

Loc. 2001/NC 11: 5 km east of Koumac, 50 m a.s.l., 7.XI.2001. River Koumac, between Koumac and the Grottes Koumac, ca. 20 m wide but almost completely dry when visited, river bed with gravel, mostly sun exposed; some residual pools with thick green algal mats, water temperature > 35° C, slightly shaded residual pool at river edge, under some larger trees, in leaf packs.

Loc. 2001/NC 12 (JÄCH & BALKE 2010: Fig. 12): 13 km north of Koumac, 50 m a.s.l., 7.XI.2001. Between Koumac and Ouégoa, ca. 13 km from Koumac, stream on coral gravel besides road, partly shaded, slowly flowing, richly vegetated, on one side of bridge forming larger pool max. 1 m deep.

Loc. 2001/NC 20 (JÄCH & BALKE 2010: Fig. 18): 3 km north Pouébo, 10 m a.s.l., 10.XI.2001. Swampy meadow at roadside, large ditch with fouling water, grassy edges, bottom muddy, sun exposed.

Loc. 2001/NC 23: 9 km SSW Ouégoa, near road to Bondé, 50 m a.s.l., 11.XI.2001. Stream, partly shaded.

Loc. 2001/NC 24: west of Cols de Crève-Coeur, 100 m a.s.l., 11.XI.2001. Stream, water almost stagnant, max. 3 m wide, shaded, edge with leaf packs, in front of Cols de Crève-Coeur.
Loc. 2001/NC 29: 20–30 km west of Poindimié, ca. 350 m a.s.l., 13.XI.2001. Small stream, water almost stagnant, turbid, max. 1 m deep, ground slightly muddy, edges sandy, with clay and with thick mats of vegetation.
Loc. 2001/NC 30: Bopope, 17 km west of Pombeï, 150 m a.s.l., 13.XI.2001. Small stream, shaded, water almost stagnant, in narrow swampy valley, abundance of leaves in water, numerous pools alongside stream bed; in the midst of cultivated, sun exposed area.
Loc. 2001/NC 33: Aoupinié, 15 km SW Ponérihouen, 500–700 m a.s.l., 14.XI.2001. Stream bed in montane forest, slope very steep and rocky; water almost stagnant but clear, small residual pools with leaves and root mats.
Loc. 2001/NC 42 (JÄCH & BALKE 2010: Fig. 20): 6 km south of Thio, 50 m a.s.l., 17.XI.2001. Swampy area around a fishpond, close to agricultural school, edge with grass and emergent plants.
Loc. 2001/NC 43: 18 km north of Bouloupari, 100 m a.s.l., 17.XI.2001. Stream in open land.
Loc. 2001/NC 52: Mt. Mou, near Sanatorium, 400 m a.s.l., 23.XI.2001. Small stream, shaded, backflows with leaf packs and ditch at road, created by backflow, ground sandy/gravelly, shaded.
Loc. 2001/NC 57: 8 km N Ouégoa, camping ground, 1 m a.s.l., 10.XI.2001. At beach, at light. Sampled by G. Wewalka only.

Loc. 2009/NC 6 (JÄCH & BALKE 2010: Fig. 31): ca. 10 km NNE Nouméa, ca. 70 m a.s.l., 22°08'02"S/166°30'47"E, 23.XI.2009. River Dumbéa (south branch), ca. 30 m wide, flowing through wide unshaded gravel bed; restwater pools; sandy margins; seepages.
Loc. 2009/NC 12: ca. 10 km NW Nouméa, ca. 2 m a.s.l., 22°09'50.4"S/166°25'33.8"E, 25.XI.2009. Swamp in River Dumbéa flood plain.
Loc. 2009/NC 15 (JÄCH & BALKE 2010: Fig. 39): ca. 8 km NNW Nouméa, ca. 10 m a.s.l., 22°09'20.7"S/166°27'23.7"E, 28.XI.2009. Pools and backwaters of River Dumbéa flood plain.
Loc. 2009/NC 18 (JÄCH & BALKE 2010: Fig. 37): ca. 2 km NNE Farino, Refuge de Farino – Petite Cascade, ca. 270–340 m a.s.l., 21°38'55"S/165°46'53"E (coordinates taken at Refuge de Farino), 29.XI.2009. Rock pools and residual pools of two very small, almost dry streams (right tributaries of River Farino), flowing through degraded forest.
Loc. 2009/NC 19 (JÄCH & BALKE 2010: Fig. 40): ca. 3 km N Farino, near Petite Cascade, ca. 340 m a.s.l., 21°38'09"S/165°46'33"E, 29.XI.2009. River Farino, ca. 5–10 m wide, flowing through forest.
Loc. 2009/NC 21 (JÄCH & BALKE 2010: Fig. 38): ca. 7 km SE La Foa, ca. 20 m a.s.l., 21°44'04"S/165°53'23"E, 30.XI.2009. River Pocquereux, epipotamal, ca. 5–10 m wide, flowing through forest.
Loc. 2009/NC 22 (JÄCH & BALKE 2010: Fig. 41): ca. 2 km NE Sarraméa, near La Cuve, ca. 160 m a.s.l., 21°38'13"S/165°51'53"E, 30.XI.2009. Stream, 5–7 m wide, with large boulders, slowly flowing through forest.
Loc. 2009/NC 25 (JÄCH & BALKE 2010: Fig. 43): ca. 3 km NW Prony, ca. 120 m a.s.l., 22°18'16"S/166°48'15"E, 2.XII.2009. River, ca. 5–10 m wide, forming large blue colored pools, slowly flowing through shrubland and forest.
Loc. 2009/NC 27 (JÄCH & BALKE 2010: Fig. 46): ca. 8 km NNE Bouloupari, ca. 120 m a.s.l., 21°48'08"S/166°04'12"E, 3.XII.2009. Stream (La Wamuttu), hardly flowing, mostly over bare rock and between big boulders, with numerous rock pools, through degraded forest.
Loc. 2009/NC 28 (JÄCH & BALKE 2010: Fig. 44): ca. 1 km S Bourail, ca. 5 m a.s.l., 21°34'56"S/165°29'43"E, 4.XII.2009. Swamp in meadow near River Néra.
Loc. 2009/NC 31 (JÄCH & BALKE 2010: Fig. 48): ca. 17 km NE Népoui, ca. 110 m a.s.l., 21°13'30"S/165°05'30"E (and about 2 km upstream), 4.XII.2009. River Népoui, ca. 10–20 m wide, flowing through degraded forest and cultivated land.
Loc. 2009/NC 34 (JÄCH & BALKE 2010: Fig. 49): ca. 10 km NNE Nouméa, ca. 45 m a.s.l., 22°08'10"S/166°29'58"E and ca. 65 m a.s.l., 22°08'18"S/166°30'07"E, 5.XII.2009. River Dumbéa (south branch), ca. 30 m wide, flowing through wide unshaded gravel bed.

Checklist of the species of Acidocerina of the Southwest Pacific islands
(east of the Solomon Islands and north of New Zealand)

1.	*Chasmogenus balkei* sp.n.	Fiji
2.	*Chasmogenus nitescens* (FAUVEL)	Australia, New Guinea, Solomon Islands, **New Caledonia**, Fiji
3.	*Chasmogenus punctulatus* sp.n.	Fiji

4. *Enochrus* (*Methydrus*) *elongatulus* (MACLEAY)	Australia, **New Caledonia**, Cook Islands
5. *Enochrus* (*Methydrus*) *esuriens* (WALKER)	Asia, Australia, New Guinea, Solomon Islands, Vanuatu, **New Caledonia**, Fiji, Society Islands
6. *Enochrus* (*Methydrus*) *fijiensis* sp.n.	Fiji
7. *Enochrus* (*Methydrus*) *maculiceps* (MACLEAY)	Australia, Vanuatu, **New Caledonia**, Western Samoa
8. *Enochrus* (*Methydrus*) *malabarensis* (RÉGIMBART)	Asia, Australia, **New Caledonia**
9. *Enochrus* (*Methydrus*) *nigropiceus* (MOTSCHULSKY)	Asia, Vanuatu
10. *Helochares* (s.str.) *foveicollis* (MONTROUZIER)	Australia, New Guinea, **New Caledonia**
11. *Helochares* (s.str.) *pallens* (MACLEAY)	Africa, Southeast Asia, New Guinea, Vanuatu
12. *Helochares* (*Hydrobaticus*) *simulator* KNISCH	Bismarck Archipelago, Fiji, Tonga, Western Samoa

Key to genera of Acidocerina of the Southwest Pacific islands
(east of the Solomon Islands and north of New Zealand)

1 Elytra with distinct sutural stria on posterior two-thirds. Second (pseudobasal) segment of maxillary palps bowed outward or inward 2

– Elytra without sutural stria. Second (pseudobasal) segment of maxillary palps bowed inward (as in Fig. 10)..... ***Helochares***

2 All segments of maxillary palps bowed inward (Fig. 10)..... ***Chasmogenus***

– Second (pseudobasal) segment of maxillary palps bowed outward, with apical two segments bowed inward (Fig. 11) ..... ***Enochrus***

Chasmogenus SHARP

HEBAUER (1992) reviewed all known species in the genus, and only three new Old World species were described since that time (see SHORT & HEBAUER 2006). One species, *C. nitescens*, is wide-spread in the Pacific Region and can be common at lights. Two additional species are described here from Fiji. The aedeagi are each very diagnostic and in some cases (e.g. *C. balkei*) essential to make authoritative identifications.

I examined one unidentifiable female in poor condition from Tonga (NZAC); it represents the first record of the genus *Chasmogenus* for Tonga.

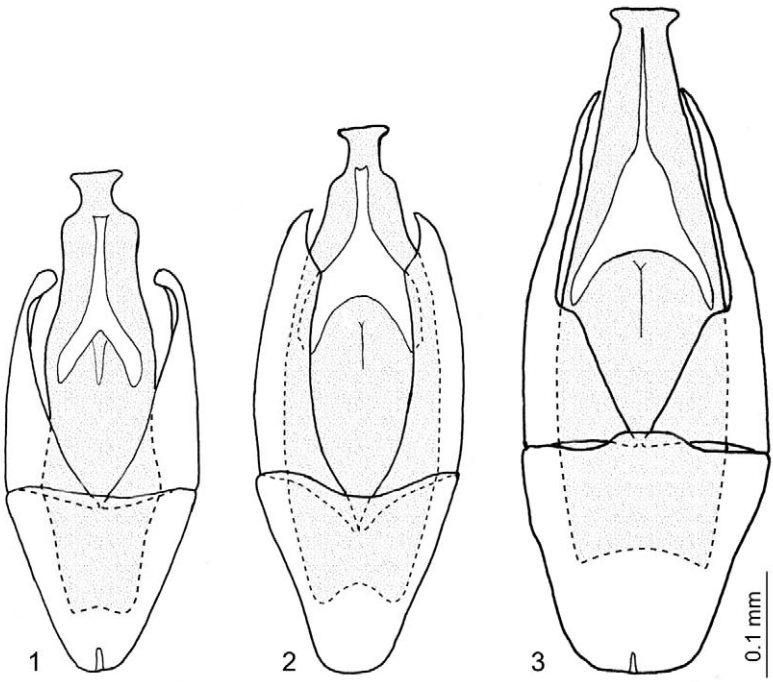
Key to species of *Chasmogenus* of the Southwest Pacific islands
(east of the Solomon Islands and north of New Zealand)

1 Ground punctation on elytra fine to moderately fine; systematic punctures distinctly larger. Clypeo-labral margin with a medial emargination (Fig. 12). Elytra generally uniform in color..... 2

– Ground punctation on elytra consisting of very fine and very coarse punctures; the coarse punctures obscuring the systematic punctures. Clypeo-labral margin curved but without emargination (Fig. 13). Elytral margins distinctly paler than elytral disc. Fiji..... ***punctulatus***

2 Aedeagus with parameres very narrow and acute apically (Fig. 3). Fiji ..... ***balkei***

– Aedeagus with parameres shorter and blunt apically (Fig. 1). Australia, New Guinea, Solomon Islands, New Caledonia, Fiji..... ***nitescens***



Figs. 1–3: Aedeagus, dorsal view, 1) *Chasmogenus nitescens*, 2) *C. punctulatus*, 3) *C. balkei*.

Chasmogenus balkei sp.n.

TYPE LOCALITY: Fiji, Vanua Levu, near Dawara, 100 m a.s.l.

TYPE MATERIAL: **Holotype** ♂ (NMW): "FIJI: Vanua Levu, Rd/ Savuasavu to west, Keka nr./ Dawara, 100m, 18.XI.2003/ leg. Balke & Wewalka, FI 026", "HOLOTYPE/ Chasmogenus/ balkei/ des. A.E.Z. Short".

Paratype: 1 ex. (KSEM): same data as holotype.

DIFFERENTIAL DIAGNOSIS: This species can only reliably be separated from the similar *C. nitescens* by the very distinctive male genitalia, including the very long, narrow and acutely pointed parameres (Fig. 3). The median longitudinal carina of the metaventrite is also more broadly elevated than in most specimens of *C. nitescens*, but this is difficult to assess without comparative material.

DESCRIPTION: Total length: 3.6–3.8 mm. Form elongate oval.

Color & Punctation: Head and pronotum dark reddish to chestnut brown, with anterolateral margins of clypeus and anterior and lateral margins of pronotum slightly paler. Elytra very dark brown, slightly darker than head and pronotum. Maxillary palps uniformly yellow. Ventral face of head medium brown with mentum, stipes and cardo distinctly paler. Ventral face of thorax light brown to dark brown. Abdominal ventrites dark brown with posterior margin of each ventrite slightly paler. Ground punctation on head moderately coarse and distinct; slightly finer

on pronotum, with distance between punctures 1.5–2.5 × the width of one puncture. Ground punctation on elytral disc similar to pronotum, becoming finer and more dispersed laterally and posteriorly. Systematic punctures on head, pronotum and elytra distinct, usually distinctly larger than ground punctation and bearing a fine short seta.

Head: Maxillary palps long, more than 1.3 × the width of head anterior to the eyes. Apical segment slightly shorter than penultimate, penultimate segment slightly shorter than segment 2. Antennae nine-segmented. Clypeo-labral margin with small medial triangular emargination. Mentum coarsely punctate, almost rugose; with distinct notch on anteromedial margin and depressed on anteromedial two-thirds.

Thorax: Elytra with distinct sutural stria on posterior three-fourths to four-fifths. Prosternum finely pubescent; tectiform, with slight, low carination in posteromedial half. Mesoventrite with evenly rounded, moderately low carina; not bearing long setae. Metaventrite with posteromedial glabrous area, about half as wide as long, glabrous area about half the total length of the metaventrite. Hind femora pubescent on basal four-fifths to seven-eighths.

Abdomen: Ventrites densely pubescent, slightly more dense on posterior half, especially on ventrites 2–5. Fifth ventrite with small apicomedial emargination, nearly twice as long a wide and lined with coarse yellow bristles. Aedeagus (Fig. 3) with parameres abruptly narrowed to a thin, acute strap on distal half. Median lobe gradually tapered, not constricted subapically.

DISTRIBUTION: Fiji (Vanua Levu).

ETYMOLOGY: Named in honor of Michael Balke, water beetle systematist and the collector of this new species.

Chasmogenus nitescens (FAUVEL, 1883)

Philydrus nitescens FAUVEL 1883: 354.
Enochrus (*Lumetus*) *nitescens* FAUVEL: ZAITZEV 1908: 388.
Helochares (*Crephelochares*) *nitescens* (FAUVEL): ORCHYMONT 1937: 154; ORCHYMONT 1939: 157.
Helochares (*Chasmogenus*) *nitescens* (FAUVEL): BALFOUR-BROWNE 1945: 117.
Chasmogenus nitescens (FAUVEL): HANSEN 1991: 156.

MATERIAL EXAMINED:

SOLOMON ISLANDS: 1 ex. (NHML): Guadalcanal Island: Honiara, 8.–12.IX.1953, mercury vapour lamp, leg. J.D. Bradley.

NEW CALEDONIA:

NORTH PROVINCE: 1 ex. (NMW): Loc. 2001/NC 6; 5 exs. (KSEM, NMW): Loc. 2001/NC 12; 1 ex. (NMW): Loc. 2001/NC 20; 1 ex. (NMW): Loc. 2001/NC 24; 4 exs. (KSEM, NMW): Loc. 2001/NC 29; 10 exs. (KSEM, NMW): Loc. 2001/NC 30; 1 ex. (NMW): Loc. 2001/NC 33; 1 ex. (NMW): Loc. 2001/NC 57.

SOUTH PROVINCE: 2 exs. (NMP): Paita, 20.III.1999, leg. S. Bilý.
9 exs. (KSEM, NMW): Loc. 2001/NC 4; 1 ex. (NMW): Loc. 2001/NC 4a; 1 ex. (NMW): Loc. 2001/NC 42.
1 ex. (NMW): Loc. 2009/NC 15; 1 ex. (NMW): Loc. 2009/NC 21.

FIJI: LAKEBA ISLAND (Lau Group): 3 exs. (NZAC): Tobou Village, 22.–23.VI.1977, leg. J.S. Dugdale. VANUA LEVU: 3 exs. (KSEM, NMW): Nakula, 5 km N. Savusavu, 5 m, 16.XI.2003, leg. G. Wewalka, M. Balke & K. Koto "FI 24"; 1 ex. (NMW); Nakula, 5 km N. Savusavu, 10 m, 17.XI.2003, leg. G. Wewalka, M. Balke & K. Koto "FI 25". ROTUMA ISLAND: 63 exs. (KSEM, MFPC, NHML): light trap, 26.IV.1971, leg. G.S. Robinson.

DIFFERENTIAL DIAGNOSIS: Total length: 3.0–4.0 mm. Throughout much of its range, it is the only known species in the genus. On Fiji, it may be easily confused with *C. balkei*, but that species has highly elongated and spinose parameres (Fig. 3), while they are short and blunt in *C. nitescens* (Fig. 1). The only other species in the Southwest Pacific, *C. punctulatus*, has much coarser dorsal ground punctation.

DISTRIBUTION: Papua New Guinea, Solomon Islands, Australia (New South Wales, Northern Territory, Queensland), New Caledonia (Fig. 16), Fiji (HANSEN 1999).

REMARKS: The most commonly encountered member of the genus in the Pacific, it is often collected in rather large numbers at lights. Newly recorded here from the Solomon Islands and Fiji.

Chasmogenus punctulatus sp.n.

TYPE LOCALITY: Fiji, Viti Levu, Lautoka Abaca, 500–700 m.

TYPE MATERIAL: **Holotype** ♂ (NMW): "FIJI: Viti Levu, Nadarivatu/ just N of pass towards/ coast, 650 m, 8.xi.2003/ leg. Balke & Wewalka, FI 008", "HOLOTYPE/ Chasmogenus/ punctulatus/ A.E.Z. Short 2006".

Paratypes: 1 ex. (KSEM): same data as holotype; 31 exs. (KSEM, NMW): Viti Levu, Lautoka, Abaca, waterfall, 500–700 m, 11.XI.2003, leg. M. Balke & G. Wewalka "FI 012"; 5 exs. (KSEM, NZAC): Viti Levu, Nandarivatu, 700 m, 21.X.1977, small stream, leg. G. Kuschel; 7 exs. (KSEM, NMW): Vanua Levu, Mt. Dalaikoro, 600 m, 14.XI.2003, leg. G. Wewalka, M. Balke & K. Koto "FI 019"; 2 exs. (KSEM, NZAC): Vanua Levu, Ndelaikoro, 800 m, litter, 27.X.1977, leg. G. Kuschel "77/131".

DIFFERENTIAL DIAGNOSIS: This species is easily distinguished from both *C. balkei* and *C. nitescens* by the very coarse punctation of the elytra, which obscures the rows of systematic punctures. The glabrous portion of the hind femora is slightly more extended distad and the median longitudinal carina of the metaventrite is slightly more broadly elevated than in *C. nitescens*.

DESCRIPTION: Total length: 3.7–3.9 mm. Form elongate oval.

Color & Punctation: Head and pronotum dark reddish to chestnut brown, with margins of clypeus and pronotum slightly paler. Elytra very dark brown, slightly darker than head and pronotum, with lateral margins distinctly paler. Maxillary palps uniformly yellow. Venter of head medium brown with mentum, stipes and cardo distinctly paler. Thoracic venter light brown to dark brown. Abdominal venter dark brown with posterior margin of each ventrite slightly paler. Ground punctation on head of mixed sizes, mostly moderatley fine to moderately coarse, with a few scattered coarse punctures; ground punctation slightly finer on pronotum, with similar pattern of multiple sized punctures. Ground punctation on elytra composed of very fine and extremely coarse punctures; finer punctures slightly more distinct on disc, and become almost obsolete posteriorly. Systematic punctures on head, pronotum and elytra similar to coarse ground punctation, making it difficult to distinguish; on head on pronotum, systematic punctures set with distinct long setae; on elytra, ground punctures are also large and may be set with setae, making the separation of systematic and ground punctures difficult.

Head: Maxillary palps long, more than 1.3 × the width of head anterior to the eyes. Apical segment slightly shorter than penultimate, penultimate segment slightly shorter than segment 2. Antennae nine-segmented. Clypeo-labral margin curved but without emargination. Mentum very coarsely punctate to rugose; with distinct notch anteromedial margin and depressed on anteromedial two-thirds.

Thorax: Elytra with distinct sutural stria on posterior three-fourths to four-fifths. Prosternum with a few fine setae; tectiform, with some rugose sculpturing centrally, and a slight, low carination in posteromedial half. Mesoventrite with evenly rounded, moderately low carina; not bearing long setae. Metaventrite with posteromedial glabrous area, more than half as long as wide, glabrous area about half the total length of the metaventrite. Hind femora pubescent on basal four-fifths to seven-eighths.

Abdomen: Ventrites densely pubescent, slightly more dense on posterior half, especially on ventrites 2–5. Fifth ventrite with small apicomedial emargination, slightly wider than deep and lined with coarse yellow bristles. Aedeagus (Fig. 2) with parameres slightly convex, with apices forming an arcuate point. Median lobe constricted subapically.

DISTRIBUTION: Fiji (Viti Levu, Vanua Levu).

REMARKS: Most specimens were collected along stream margins. The two specimens from Vanua Levu were (acc. to label data) taken from litter.

ETYMOLOGY: Named for the coarse ground punctation of the elytra.

Enochrus THOMSON

The Australian species of *Enochrus* were treated in a revision by WATTS (1998), who also examined a number of regional taxa due to the amount of overlap. I have compared New Caledonian material with conspecific specimens from Australia and agree with essentially all of the synonymies made in that work. Indeed, all five species that occur in New Caledonia also occur in Australia. The species of *Enochrus* of New Guinea were recently treated by HEBAUER (2001); this island has two species in common with the fauna treated here, both of which are wide-spread: *E. esuriens* and *E. nigropiceus*.

Compared to most regional faunas, the six species of *Enochrus* are remarkably homogeneous. Only one of the six component subgenera is represented (*Methydrus* REY) and most of the taxonomic characters helpful in species separation (i.e. carina of mesoventrite, prosternal carination) are too similar to be reliable in most cases. While the dorsal coloration is often helpful, especially on the head, this also can vary and is not always reliable. Examination of the aedeagus is recommended, and indeed essential, in some cases.

Key to species of *Enochrus* of the Southwest Pacific islands
(east of the Solomon Islands and north of New Zealand)

1 Body more than 4.5 mm long. Aedeagus with apex of parameres outwardly hooked (Figs. 8–9). Mesoventrite raised into a broad laminar carina 2

– Body less than 4.5 mm long. Aedeagus with apex of parameres inwardly curved or straight (e.g. Figs. 4–7). Mesoventrite with broad laminar carina or not 4

2 Clypeus and frons darkly colored, with a dark brown to black patch in medial half. Entire dorsum usually brown to dark brown 3

– Clypeus and frons entirely light brown to yellow, not darkened centrally. Entire dorsum usually also light brown to yellow in color. Australia, New Caledonia ..... ***elongatulus***

3 Dorsal strut of aedeagus narrow, with apex nearly even with apex of parameres (e.g. Fig. 8). New Zealand..... [***tritus***]

– Dorsal strut of aedeagus gradually tapered apically, with apex not reaching the same distal plane as apex of parameres (Fig. 9). Sri Lanka, Thailand, Indonesia, Vanuatu ..... ***nigropiceus***

4 Carina of mesoventrite raised into an acute tooth or high toothed lamina. Pronotum and elytra variously colored. Size usually greater than 3.0 mm..... 5

– Carina of mesoventrite low and evenly rounded or only with a low, poorly defined posteriorly-pointing tooth. Pronotum and elytra entirely pale, with black patch in central three-fourths. Size usually less than 3.0 mm..... ***esuriens***

5 Clypeus and frons with at least central third dark brown to black. Clypeus not broadened, distinctly emarginate along anteromedial margin (Fig. 15). Outer margins of parameres straight or bowed inward in distal half (Figs. 4, 7)..... 6

– Clypeus and frons entirely light brown to yellow, not black or darkened centrally. Clypeus very broad, only weakly emarginate along anteromedial margin (Fig. 14). Outer margins of parameres convex in distal half (Fig. 5). Fiji ..... ***fijiensis***

6 Elytral ground punctation very fine, distinctly smaller than systematic punctures. Parameres distinctly curved inward; tip of dorsal strut expanded (Fig. 4) ..... ***maculiceps***

– Elytral ground punctation coarse, obscuring systematic punctures. Parameres straight; tip of dorsal strut not expanded (Fig. 7) ..... ***malabarensis***

Enochrus (*Methydrus*) *elongatulus* (MACLEAY, 1871)

Philhydrus elongatulus MACLEAY 1871: 130.
Enochrus (*Lumetus*) *elongatulus* (MACLEAY): ZAITZEV 1908: 386.
Enochrus (*Methydrus*) *elongatus* [!] (MACLEAY): WATTS 1998: 144.
Enochrus caledonicus FAUVEL 1883: 353; ORCHYMONT 1937: 154; WATTS 1998: 144 (syn.).

MATERIAL EXAMINED:

NEW CALEDONIA:

NORTH PROVINCE: 2 exs. (MNHW): "NEW CALEDONIA (N) 20°28.6'S 164°15.6'E road Bonde-Mandjélia Mt 250 m niaouli forest 9.01.2007 at light leg. M. Wanat & R. Dobosz"; 1 ex. (MNHW): "NEW CALEDONIA (N) 20°45'S/164°53'E Tiendanite 50 m ad lucem 4.02.2004 leg. M. Wanat".

7 exs. (KSEM, NMW): Loc. 2001/NC 11.

SOUTH PROVINCE: 11 exs. (MNHW): "NEW CALEDONIA (S) 21°44.2'S 165°53.8'E Pocquereux (IAC station) 3.01.2007 30 m at light, leg. M. Wanat & R. Dobosz"; 4 exs. (MNHW): same data, but "4.01.2007"; 1 ex. (IAC): Pocquereux, 20.VI.2001, leg. S. Cazères; 4 exs. (IAC): La Foa, Nily, 34 m, 27.II.2005, leg. C. Mille; 1 ex. (IAC): La Foa, 32 m, III.2003, leg. N. Degallier; 5 exs. (NMP): Thy Territorial Park, 21.III.1999, leg. S. Bilý.

1 ex. (NMW): Loc. 2001/NC 4a.

1 ex. (NMW): Loc. 2009/NC 12; 8 exs. (NMW): Loc. 2009/NC 21.

COOK ISLANDS: RAROTONGA ISLAND: 8 exs. (KSEM, NZAC): Takuvaine Valley, 150 m, moss, 11.XI.1975, leg. A.K. Walker; 1 ex. (NZAC): Totokoitu, at light, 16.XI.1975, leg. J.S. Dugdale.

DIAGNOSIS: Total length: 4.6–5.7 mm. The large size, pale coloration of the dorsum including the clypeus, and the distinctive aedeagus (Fig. 8) will distinguish *E. elongatulus* from all other sympatric *Enochrus* species. The only other species larger than 4.5 mm (*E. nigropiceus* and *E. tritus*) are darkly colored dorsally.

DISTRIBUTION: Australia (all provinces & territories), New Caledonia (Fig. 17).

REMARKS: The primary differences between *Enochrus elongatulus* and *E. tritus* are dorsal coloration and the coarseness of the dorsal ground punctation. Both of these differences are known to be highly variable within species, especially in the genus *Enochrus*, including other island groups (e.g. WATTS 1998). As the aedeagi of the two species are essentially identical, uniformly pale specimens of *E. tritus* can hardly be distinguished from *E. elongatulus*. Indeed, it is highly probable that these two species are in fact conspecific. Specimens previously considered *E. tritus* from the Pacific outside New Zealand (e.g. Cook Islands, Tonga) are more easily accommodated under *E. elongatulus*. BROUN (1880) himself, when describing *E. tritus*, regarded the paler specimens of *E. tritus* as a separate species ("*Philhydrus variolorum*"). I refrain from establishing a formal synonymy here because I have not examined large series of the species from other islands including New Zealand.

Enochrus (*Methydrus*) *esuriens* (WALKER, 1858)

Philhydrus esuriens WALKER 1858: 209.
Enochrus (*Lumetus*) *esuriens* (WALKER): KNISCH 1924: 208.
Enochrus (*Methydrus*) *esuriens* (WALKER): ORCHYMONT 1928: 112.
Pylophilus nigriceps MOTSCHULSKY 1859: 46; SHARP 1890: 350 (syn.).
Philhydrus nigriceps (MOTSCHULSKY): GEMMINGER & HAROLD 1868: 482.

Philhydrus nigriceps REDTENBACHER 1867: 26 (secondary homonym of *Pylophilus nigriceps* MOTSCHULSKY 1859); ORCHYMONT 1928: 112 (syn.).
Philydrus pullus FAUVEL 1883: 354; BALFOUR-BROWNE 1939b: 477 (syn.); WATTS 1998: 147.
Enochrus (*Lumetus*) *pullus* (FAUVEL): ZAITZEV 1908: 388; ORCHYMONT 1937: 154.
Philydrus ornaticeps SHARP 1884: 454; SATÔ 1985: 2 (syn.).
Enochrus (*Lumetus*) *ornaticeps* (SHARP): ZAITZEV 1908: 388.

MATERIAL EXAMINED:

N E W C A L E D O N I A:

NORTH PROVINCE: 1 ex. (NMW): Loc. 2001/NC 9; 7 exs. (KSEM, NMW): Loc. 2001/NC 11.

SOUTH PROVINCE: 1 ex. (NZAC): Tomo, V.1965, leg. P. Cocheran; 5 exs. (NMP): Paita, 20.III.1999, leg. S. Bilý; 2 exs. (NMP): Thy Territorial Park, 21.III.1999, leg. S. Bilý.

1 ex. (NMW): Loc. 2001/NC 1; 1 ex. (NMW): Loc. 2001/NC 4a; 2 exs. (NMW): Loc. 2001/NC 5; 7 exs. (KSEM, NMW): Loc. 2001/NC 42.

1 ex. (NMW): Loc. 2009/NC 15; 1 ex. (NMW): Loc. 2009/NC 28; 1 ex. (NMW): Loc. 2009/NC 34.

F I J I: LAKEBA ISLAND (Lau Group): 4 exs. (NZAC): Tubou Village, 22.–23.VI.1977, leg. J.S. Dugdale.

TAVEUNI ISLAND: 13 exs. (KSEM, NZAC): Waiyevo, 28.I.1975, mercury vapour lamp, leg. P.A. Maddison.

VANUA LEVU: 12 exs. (NZAC): Labasa, 31.I.1975, mercury vapour lamp, leg. P.A. Maddison; 13 exs. (NZAC): Namale Plantation, 28.–29.I.1975, mercury vapour lamp, leg. P.A. Maddison; 5 exs. (KSEM, NMW): Nakula, 5 km N. Savusavu, 10 m, 17.XI.2003, leg. G. Wewalka, M. Balke & K. Koto "FI 25".

VITI LEVU: 79 exs. (KSEM, MFPC, NZAC): Nausori, Koronivia Research Station, various dates and collectors; 2 exs. (NZAC): Legalega research station, 20.V.1977, leg. P.A. Maddison; 1 ex. (NZAC): Suva, 'beaten at night', 9.III.1977, leg. J.C. Watt & J. Kamar; 1 ex. (NZAC): Nadi, at light, 3.III.1977, leg. J.C. Watt; 1 ex. (NZAC): Vunavutu, at light, 1[?].III.1977, leg. J.C. Watt; 55 exs. (KSEM, NZAC): Adi Cakobau School, lily pond, 11.III.1975, leg. J.A. Uluinaceva; 1 ex. (NMW): Rakiraki, Navara, 50 m, 10.XI.2003, leg. G. Wewalka, M. Balke & K. Koto "FI 11".

W A L L I S & F U T U N A: WALLIS ISLAND: 1 ex. (NMW): Lake Kikila, 6.X.2004, leg. N. Mary.

W E S T E R N S A M O A: UPOLU ISLAND: 19 exs. (KSEM, NZAC): Faleata, at light, various dates (1971–1975), leg. P.A. Maddison.

C O O K I S L A N D S: RAROTONGA ISLAND: 1 ex. (NZAC): Avatiu Valley, mercury vapour lamp, 18.X.1975, leg. J.S. Dugdale; 1 ex. (NZAC): Tikioki, mercury vapour lamp, leg. P.A. Maddison.

DIAGNOSIS: Total length: 2.5–3.1 mm. The smallest of the *Enochrus* species in the region, it is also easily recognizable by the dorsal color pattern, namely by the uniformly pale elytra and pronotum and the dark brown to black head with pale preocular patches. The very reduced and nearly rounded carina of the mesoventrite is also unique to the *Enochrus* in the Southwest Pacific islands.

DISTRIBUTION: Wide-spread from India and Japan through Southeast Asia, Australia and the Southwest Pacific including New Guinea, Solomon Islands, Vanuatu, New Caledonia (Fig. 17), Fiji, and Society Islands.

REMARKS: *Enochrus esuriens* is the most wide-spread and one of the most common species of *Enochrus* in the Pacific Region. It can be abundant at lights. The longitudual carina of the mesoventrite is always very low, although it may bear a very small, backward pointing tooth. This feature, which is also present on some Australian specimens, differs from the illustration of the carina as being evenly rounded (WATTS 1998: 149).

Enochrus (*Methydrus*) *fijiensis* sp.n.

TYPE LOCALITY: Fiji, Vanua Levu, near Dawara, 100 m a.s.l.

TYPE MATERIAL: **Holotype** ♂ (NMW): "FIJI: Vanua Levu, Rd/ Savuasavu to west, Keka nr/ Dawara, 100m, 18.xi.2003,/ leg. Balke & Wewalka, FI 026", "HOLOTYPE/ Chasmogenus/ balkei/ des. A.E.Z. Short".

Paratypes: 2 exs. (KSEM, NMW): same data as holotype.

DIFFERENTIAL DIAGNOSIS: The small to medium size, darkened central disc of the pronotum, and inwardly curved parameres of the aedeagus serve to distinguish this species from all others in the region with the exception of *E. maculiceps*. These two species differ in the shape of the clypeus (anteriorly broader in *E. fijiensis*) and the length of the maxillary palps (shorter and stouter in *E. fijiensis*). As the male genitalia of *E. maculiceps* are highly variable (WATTS 1998), this is not a highly informative character separating these two species.

DESCRIPTION: Total length: 3.1–3.5 mm. Form elongate oval.

Color & Punctation: Frons medium to dark brown with clypeus and labrum light brown to yellow, not darkened medially. Pronotum light brown to yellow laterally with central disc medium to dark brown. Elytra light to medium brown. Maxillary palps uniformly yellow. Venter of head dark brown except stipes and cardo which are light brown. Sternum and ventrites dark brown. Epipleura medium brown. Hind femora dark brown with tibiae and tarsi slightly paler. Ground punctation on head and pronotum moderately coarse; ground punctation on elytra similar to that of prontoum but becoming sparser and less impressed posteriorly. Systematic punctures on head, pronotum and elytra present but generally similar in size to ground punctation and not easily distinguishable.

Head (Fig. 14): Maxillary palps moderately short, less than the width of the head anterior to the eyes, with all segments appearing slightly thickened. Apical segment slightly shorter than penultimate segment. Segment 2 ca. as long as length of stipes. Antennae nine-segmented. Anterior margin of the clypeus broad, with a very small angulate emargination centrally. Mentum with a few coarse punctures, slightly depressed anteriorly.

Thorax: Elytra with distinct sutural stria on posterior two-thirds to three-fourths. Prosternum glabrous and without a median carina. Mesoventrite with moderately high, rectangular longitudinal carina, the distal margin in the same plane as the metaventrite, with the anterior margin bearing a small acute tooth. Metaventrite with posteromedial glabrous area slightly longer than wide, glabrous area slightly less than half the total length of the metaventrite. Hind femora pubescent on basal four-fifths.

Abdomen: Ventrites densely pubescent, becoming denser posteriorly. Fifth ventrite with distinct apicomedial emargination about as wide as deep and lined with coarse yellow bristles. Aedeagus (Fig. 5) with parameres gradually tapered in apical third and curved inward; dorsal strut distinctly expanded apically, distinctly rising above the gonopore opening.

DISTRIBUTION: Fiji (Vanua Levu).

ETYMOLOGY: The species epithet is an adjective. It refers to the type locality.

Enochrus (*Methydrus*) *maculiceps* (MACLEAY, 1871)

Philhydrus maculiceps MACLEAY 1871: 130; WATTS 1998 (lectotype designation).
Enochrus (*Lumetus*) *maculiceps* (MACLEAY): ZAITZEV 1908: 387.
Enochrus (*Methydrus*) *maculiceps* (MACLEAY): WATTS 1998: 151.
Philydrus artensis FAUVEL 1883: 353; WATTS 1998: 151 (syn.).
Enochrus (*Lumetus*) *artensis* (FAUVEL): ZAITZEV 1908: 385; ORCHYMONT 1937: 154.
Philhydrus laevigatus BLACKBURN 1888: 822; WATTS 1998: 151 (syn.).
Enochrus (*Lumetus*) *laevigatus* (BLACKBURN): ZAITZEV 1908: 387.
Enochrus (*Lumetus*) *bryani* ORCHYMONT 1927: 32; WATTS 1998: 151 (syn.).

SYNONYMY: *Enochrus bryani* was treated as a synonym of *E. maculiceps* by WATTS (1998). Unfortunately, the holotype of *E. bryani* has been destroyed, with only part of one leg remaining (WATTS 1998). The synonymy with *E. maculiceps* was based on the female paratype mentioned below under material examined, in combination with the illustration. The aedeagus of *E. bryani*, as depicted by ORCHYMONT (1927) is similar to the aedeagus of *E. fijiensis.* However, the

characters (head shape and coloration) mentioned in the diagnosis of *E. fijiensis* are not congruent with the description of *E. bryani* or *E. maculiceps*, even allowing for some intraspecific variation. Under the circumstances, I agree with WATTS (1998) in treating *E. bryani* as a synonym of *E. maculiceps*.

MATERIAL EXAMINED:

NEW CALEDONIA:

NORTH PROVINCE: 3 exs. (MNHW): "NEW CALEDONIA (N) 20°25.2'S 164°13.3'E Nehoue river, 15 m 8.01.2007 public camp site night coll. (lamp & beating) leg. M. Wanat & R. Dobosz"; 22 exs. (MNHW): "NEW CALEDONIA (N) 20°28.6'S 164°15.6'E road Bonde-Mandjélia Mt 250 m niaouli forest 9.01.2007 at light leg. M. Wanat & R. Dobosz"; 3 exs. (MNHW): "NEW CALEDONIA (N) 20°44.8'S 164°52.8'E Tiendanite 50 m 12.01.2007 leg. M. Wanat & R. Dobosz"; 2 exs. (MNHW): "NEW CALEDONIA (N) 21°07'S/164°57'E 30 m Tiéa Forest (GIE Fab Nicoli) [private sclerophyll forest reserve owned by Fab Nicoli] sclerophyllous forest 30.01.2004 ad lucem leg. M. Wanat".

6 exs. (NMW): Loc. 2001/NC 6; 7 exs. (NMW): Loc. 2001/NC 7; 14 exs. (NMW): Loc. 2001/NC 9; 1 ex. (NMW): Loc. 2001/NC 11; 3 exs. (MFPC, NMW): Loc. 2001/NC 12; 11 exs. (NMW): Loc. 2001/NC 23; 1 ex. (NMW): Loc. 2001/NC 24; 39 exs. (CUIC, KSEM, NMW): Loc. 2001/NC 29; 6 exs. (NMW): Loc. 2001/NC 30; 3 exs. (NMW): Loc. 2001/NC 33.

5 exs. (NMW): Loc. 2009/NC 31.

SOUTH PROVINCE: 1 ex. (MNHW): "NEW CALEDONIA (S) 21°35.2'S 165°46.4'E Col d'Amieu 450-470 m (6.5-7.0 km from gate) (loc 6) 6-7.01.2007 day & night leg. M. Wanat & R. Dobosz"; 1 ex. (IAC): La Foa, 10.II.2004, leg. R.M. M'Bouéri; 24 exs. (NMP): Paita, 20.III.1999, leg. S. Bilý; 1 ex. (NMP): Mt. Koghi, 22.–23.III.1999, leg. S. Bilý; 22 exs. (NMP): Thy Territorial Park, 21.III.1999, leg. S. Bilý; 2 exs. (NMP): Plaine des Lacs, Chutes de la Madeleine, 27.–30.III.1999, leg. S. Bilý; 1 ex. (NMP): Rivière Bleue (provincial park), 31.III.–4.IV.1999, leg. S. Bilý.

22 exs. (KSEM, NMW): Loc. 2001/NC 1; 2 exs. (NMW): Loc. 2001/NC 2; 1 ex. (NMW): Loc. 2001/NC 3; 13 exs. (KSEM, NMW): Loc. 2001/NC 4; 7 exs. (NMW): Loc. 2001/NC 4a; 5 exs. (NMW): Loc. 2001/NC 5; 1 ex. (NMW): Loc. 2001/NC 42; 1 ex. (NMW): Loc. 2001/NC 43; 6 exs. (NMW): Loc. 2001/NC 52.

2 exs. (NMW): Loc. 2009/NC 6; 7 exs. (NMW): Loc. 2009/NC 12; 2 exs. (NMW): Loc. 2009/NC 15; 1 ex. (NMW): Loc. 2009/NC 18; 2 exs. (NMW): Loc. 2009/NC 19; 6 exs. (NMW): Loc. 2009/NC 21; 7 exs. (NMW): Loc. 2009/NC 22; 9 exs. (NMW): Loc. 2009/NC 27; 1 ex. (NMW): Loc. 2009/NC 34.

WESTERN SAMOA: UPOLU ISLAND: 1 ex. (IRSNB): Apia, III.1924 (**paratype** ♀ of *E. bryani*).

DIAGNOSIS: Total length: 3.0–4.2 mm. This small to medium sized species is generally distinguishable by the dark pronotal disc and elytral humeral spots. The inwardly curved parameres and expanded apex of the median lobe (Fig. 4) help to distinguish this species. Most similar to *E. fijiensis*; see diagnosis of that species for comparison.

DISTRIBUTION: Australia (all provinces & territories except Tasmania), Vanuatu, New Caledonia (Fig. 18), and Western Samoa.

REMARKS: One of the most common species of *Enochrus* in New Caledonia; it is sometimes collected in large numbers.

Enochrus (*Methydrus*) *malabarensis* (RÉGIMBART, 1903)

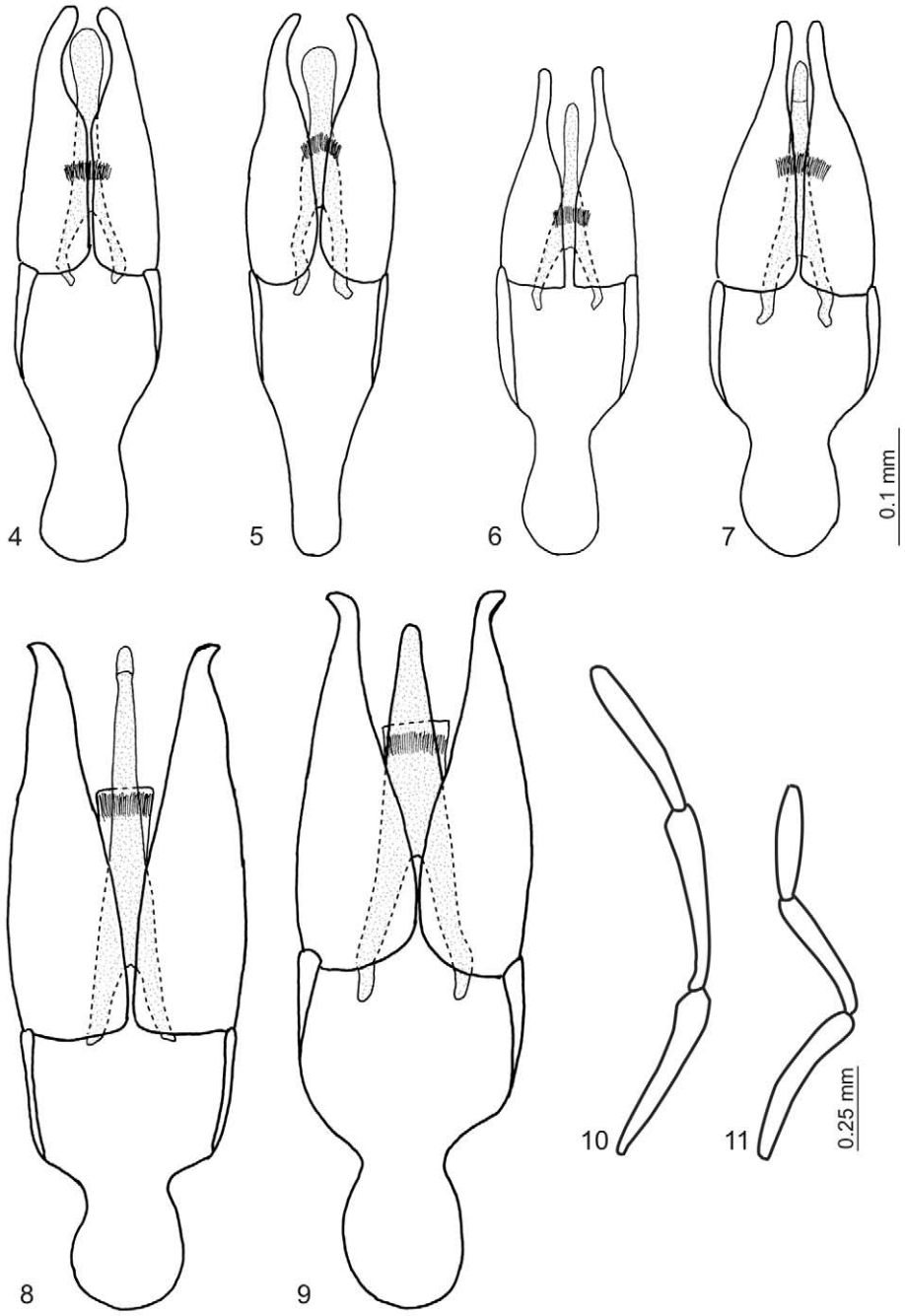
Philhydrus malabarensis RÉGIMBART 1903: 335.
Enochrus (*Lumetus*) *malabarensis* (RÉGIMBART): ZAITZEV 1908: 387.
Enochrus (*Methydrus*) *malabarensis* (RÉGIMBART): HEBAUER 1995: 11.

MATERIAL EXAMINED:

AUSTRALIA: NORTHERN TERRITORY: 6 exs. (KSEM): South Alligator River area, 35 km W Jabiru, blacklight, 9.IV.1980, leg. G. Hevel & J. Fortin.

NEW CALEDONIA:

SOUTH PROVINCE: 2 exs. (KSEM, NMP): Paita, 20.III.1999, leg. S. Bilý; 1 ex. (NMP): Thy Territorial Park, 21.III.1999, leg. S. Bilý.



Figs. 4–9: Aedeagus, dorsal view, 4) *Enochrus maculiceps*, 5) *E. fijiensis*, 6) *E. esuriens*, 7) *E. malabarensis*, 8) *E. elongatulus*, 9) *E. nigropiceus*.
Figs. 10–11: Maxillary palpus, 10) *Chasmogenus nitescens*, 11) *Enochrus maculiceps*.

DIFFERENTIAL DIAGNOSIS: Total length: 3.3–3.6 mm. Pronotum and elytra yellow to light brown. Head black with distinct yellow preocular patches. Dorsal ground punctation coarse, similar in size too and therefore obscuring the systematic punctation. Carina of mesoventrite well developed and rising to an acute tooth. It is most similar to *E. esuriens* and *E. maculiceps*. The former is usually smaller and has a very low and weakly developed carina on the mesoventrite, while the latter has much finer elytral ground punctation, a darker prontal disc, and inwardly curved parameres of the aedeagus (Fig. 7).

DISTRIBUTION: India (Kerala), Sri Lanka, Philippines, Australia (New South Wales, Northern Territory, Queensland, South Australia), New Caledonia (Fig. 19).

REMARKS: The three specimens examined here from New Caledonia agree in many aspects with the redescription of this species by WATTS (1998), including the size, dorsal punctation, and general coloration. The aedeagus is also indistinguishable from the Australian specimens examined; however, the carina of the mesoventrite is more weakly developed than in the Australian specimens. Due to the wide range of the species, I have assumed this to be intraspecific variation. The specimens were partially covered in moth scales, suggesting they were collected at light.

Enochrus (*Methydrus*) *nigropiceus* (MOTSCHULSKY, 1861)

Philhydrus nigropiceus MOTSCHULSKY 1861: 109.
Enochrus (*Lumetus*) *nigropiceus* (MOTSCHULSKY): ZAITZEV 1908: 388.
Enochrus (*Methydrus*) *nigropiceus* (MOTSCHULSKY): HEBAUER 2001: 21.
Enochrus (*Lumetus*) *cheesmanae* BALFOUR-BROWNE 1939b: 475 **syn.n.**

TYPE MATERIAL EXAMINED:

Enochrus cheesmanae: **Holotype** missing or unlabeled. **Paratypes**: 5 exs. (NHML): "New Hebrides:/ Malekula./ Malua Bay./ vi 1929/ Miss L. E. Cheesman./ B.M. 1929-410."; 1 ex. (NHML): "New Hebrides:/ Malekula,/ Ounua./ Feb. 1929./ Miss L. E. Cheesman./ B.M. 1929-234", "PARA-TYPE [yellow disc]"; 1 ex. (NHML): "NEW HEBRIDES:/ Gaua,/ Hot Springs./ 19.xii.1933./ J.R.Baker.", "PARA-TYPE [yellow disc]".

In the original description of *E. cheesmanae*, BALFOUR-BROWNE (1939b) lists 21 specimens, including 12 from Malua Bay, of which one he states was selected as the holotype. Only seven specimens of the original type series were located in the NHML; two bear paratype labels and none a holotype label. As all specimens are conspecific and as I was able to examine several paratypes from the same locality and series as the supposed holotype, I have no reservations as to the identity of this species. It is not clear, however, if the holotype is one of these unlabeled "paratype" specimens or is actually missing.

SYNONYMY: The type material and other Vanuatu specimens of *Enochrus cheesmanae* were found to be conspecific with specimens of *E. nigropiceus* from Indonesia and Thailand. Consequently, they are here synonymized.

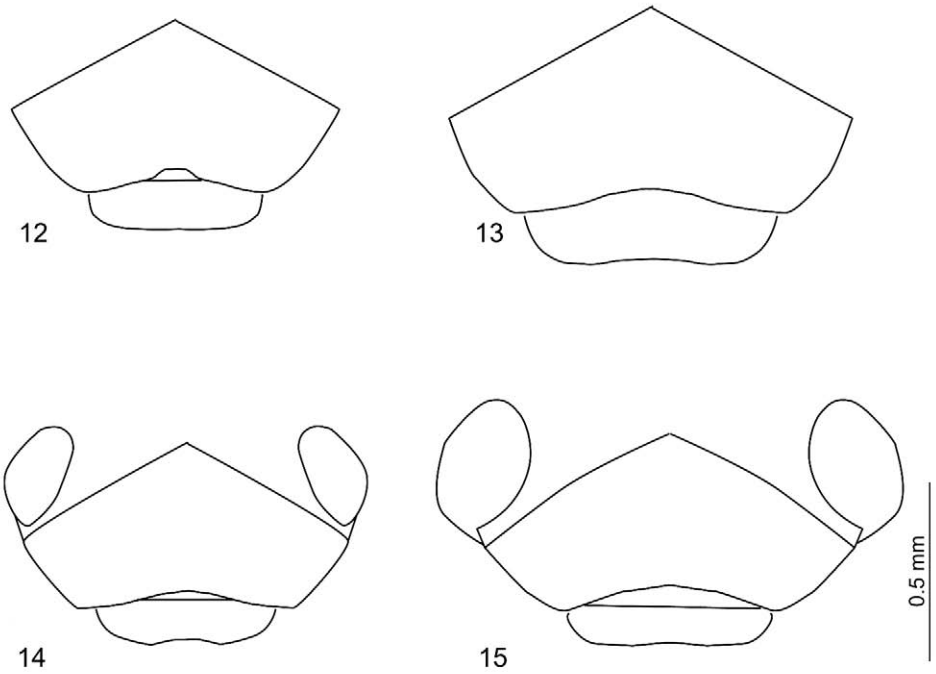
ADDITIONAL MATERIAL EXAMINED:

T H A I L A N D: 2 exs. (KSEM): Phang Nga Province, Khao Lampi-Hat Thai Mueang National Park, 1 m, pond near beach, 2.VI.2005, leg. R.W. Sites, A. Vitheepradit & T.-O. Prommi "L-824".

I N D O N E S I A: SUMATRA: 1 ex. (KSEM): Dolok Merangir, leg. H. Malicky, 4.III.1991. CERAM: 1 ex. (KSEM): Wahai, 12.II.1989, leg. S. Schödl.

V A N U A T U: ESPIRITU SANTO: 3 exs. (KSEM): 10 miles W Luganville, 18.VIII.1958, leg. B. Malkin.

DIAGNOSIS: Total length: 4.6–5.3 mm. The larger size, dark dorsal coloration, and characteristic shape of the aedeagus (Fig. 9) serve to distinguish this species. It is most similar to the generally paler *E. elongatulus*, from which it also differs in the apically narrower parameres and broader dorsal strut of the aedeagus. The dorsally projecting tooth on the dorsal strut is also less developed in *E. nigropiceus* than in *E. elongatulus*.



Figs. 12–15: Front of head showing clypeus and labrum, 12) *Chasmogenus nitescens*, 13) *C. punctulatus*, 14) *Enochrus fijiensis*, 15) *E. maculiceps*.

DISTRIBUTION: Sri Lanka, Thailand, "Indochina", Indonesia, Philippines, Vanuatu (Espiritu Santo, Malekula, and San Maria [Guau] Islands) (HANSEN 1999, HEBAUER 2001).

Enochrus (*Methydrus*) *tritus* (BROUN, 1880)

Philhydrus tritus BROUN 1880: 78.
Philydrus tritus BROUN: SHARP 1884: 473.
Enochrus (*Lumetus*) *tritus* (BROUN): ZAITZEV 1908: 389; ORCHYMONT 1937: 151.
Philhydrus variolorum BROUN 1880: 79; ORCHYMONT 1927: 32 (syn.); ORCHYMONT 1937: 151; BALFOUR-BROWNE 1945: 131.
Philydrus variolorum BROUN: SHARP 1884: 473.
Enochrus (*Lumetus*) *variolorum* (BROUN): ZAITZEV 1908: 390.

TYPE MATERIAL EXAMINED:

Philhydrus tritus: Two **syntypes** (sex unknown), deposited in NHML: First syntype: "type [red disc", "145.", "Tairua", "Philydrus/ tritus", "New Zealand./ Broun Coll./ Brit. Mus./ 1922-482.", Second syntype: "145", "Mokohinau", "New Zealand./ Broun Coll./ Brit. Mus./ 1922-482.", "Standing in/ Broun coll./ Philhydrus tritus/ det. R.G. Booth 2005".

One of the two specimens in the NHML labeled as this species is deposited in the main holdings with a red "type" disc; the second syntype is standing separately in the Broun collection. Both bear an original label with the number "145", corresponding to the species number in BROUN (1880). The first specimen is from Tairua, and the second from Mokohinau. BROUN (1880) does not mention how many specimens he examined, but does indicate he found the species at "different localities". I regard these two specimens as syntypes.

ADDITIONAL MATERIAL EXAMINED:

N E W Z E A L A N D: 1 ex. (NZAC): Northland, Waipoua State Forest, 3.II.1975, leg. J.C. Watt; 1 ex. (NZAC): Northland, Mt. Camel, 20.X.1982, leg. C.F. Butcher; 1 ex. (NZAC): Northland, Te Paki Res., Te Paki Stream,

5.II.1995, leg. J. Klimaszewski; 2 exs. (NZAC): Mokohinau Island, 28.II.1978, leg. G. Kuschel; 1 ex. (NZAC): Buller, Fletchers Creek, 9.XI.1971, leg. G. Kuschel.

DISTRIBUTION: New Zealand. Specimens from other Pacific islands cited by HANSEN (1999) are more easily accommodated under *E. elongatulus*.

REMARKS: This species is here transferred from the subgenus *Lumetus* ZAITZEV to *Methydrus* based on presence of a distinct apicomedial emargination on the fifth ventrite. This species is likely a synonym or geographical variant of *E. elongatulus*. See remarks under that species for further discussion.

Helochares MULSANT

The genus *Helochares* is very rarely encountered in the Southwest Pacific islands, although two of the three species found there are more broadly distributed in Australia or New Guinea. The genus was recently reviewed for both these regions by WATTS (1995) and HEBAUER (2001) respectively. All three species are quite distinct in size, color, and structure and easily separated without reference to the aedeagus.

Key to species of *Helochares* of the Southwest Pacific islands
(east of the Solomon Islands and north of New Zealand)

1 Body longer than 4.0 mm. Dorsum with coarse ground punctation or serial punctures; coloration variable 2

– Body less than 4.0 mm long. Dorsum with very fine ground punctation, without serial punctures; light brown in color ..... ***pallens***

2 Elytra with rows of coarse serial punctures. Dorsal coloration light to medium brown..... ***simulator***

– Elytra without rows of serial punctures. Dorsal coloration dark brown to nearly black ..... ***foveicollis***

Helochares (s.str.) *foveicollis* (MONTROUZIER, 1860)

Stagnicola foveicollis MONTROUZIER 1860: 247.
Helochares foveicollis (MONTROUZIER): BEDEL 1881: cxlviii; ORCHYMONT 1937: 154.
Philhydrus burrundiensis BLACKBURN 1890: 447; WATTS 1995: 118.
Neohydrobius burrundiensis (BLACKBURN): BLACKBURN 1898: 221.
Helochares (s.str.) *burrundiensis* (BLACKBURN): ORCHYMONT 1919: 228.

MATERIAL EXAMINED:

NEW CALEDONIA:
SOUTH PROVINCE: 1 ex. (IAC): La Foa, 4.II.2004, leg. R.M. M'Bouéri.
3 exs. (KSEM, NMW): Loc. 2001/NC 4.
1 ex. (NMW): Loc. 2009/NC 25.

DIAGNOSIS: Total length: 6.5–7.0 mm. The large size and black dorsal coloration distinguish this species from all others in the region. The extremely coarse ground punctation and greatly enlarged protibial spurs also serve to distinguish this very distinctive species.

DISTRIBUTION: Australia (Western Australia, Northern Territory, Queensland, ACT, New South Wales), Papua New Guinea, New Caledonia (Fig. 19).

REMARKS: Nothing is known about the bionomics of this species.

Helochares (s.str.) *pallens* (MACLEAY, 1825)

Enhydrus pallens MACLEAY 1825: 35.
Philhydrus pallens (MACLEAY): GEMMINGER & HAROLD 1868: 482.

Enochrus (*Lumetus*) *pallens* (MACLEAY): ZAITZEV 1908: 388.
Helochares (s.str.) *pallens* (MACLEAY): ORCHYMONT 1926: 232; ORCHYMONT 1937: 151.
Helochares parvulus REICHE & SAULCY 1856: 359; ORCHYMONT 1927: 6 (syn.); ORCHYMONT 1932: 688.
Philhydrus parvulus (REICHE & SAULCY): GEMMINGER & HAROLD 1868: 482.
Enochrus (*Methydrus*) *parvulus* (REICHE & SAULCY): ZAITZEV 1908: 384.
[?*Helochares simplex* WOLLASTON 1867: 44; ORCHYMONT 1943: 8 (syn.dub.)] unavailable (HANSEN 1999: 162).
Helochares lewisius SHARP 1873: 60; BALFOUR-BROWNE 1939a: 293 (syn.).
Helochares (s.str.) *lewisianus* [!] SHARP: ZAITZEV 1908: 382.
Helochares dispar SHARP 1903: 7; ORCHYMONT 1926: 232 (syn.); ORCHYMONT 1937: 151.
Helochares laeviusculus RÉGIMBART 1906: 261; HEBAUER 1996: 8 (syn.).
Helochares (s.str.) *pallens* ssp. *laeviusculus* RÉGIMBART: BALFOUR-BROWNE 1950: 60.

MATERIAL EXAMINED:

P A K I S T A N: 7 exs. (KSEM): Lahore, 17.XII.1986, in ponds, leg. L. Lacy.

DIAGNOSIS: Total length: 2.4–3.3 mm. The small size and lack of elytral serial punctures easily distinguish this species from other regional *Helochares*.

DISTRIBUTION: Widely distributed in Africa, the Middle East, and southern Asia. In the Pacific, it is known from Papua New Guinea and Vanuatu.

REMARKS: I have seen no material from Pacific islands. If previous records are accurate, it is likely that the species does not extend further east in the Pacific than Vanuatu.

Helochares (*Hydrobaticus*) *simulator* KNISCH, 1922

Helochares (*Hydrobaticus*) *simulator* KNISCH 1922: 104; ORCHYMONT 1937: 151.

TYPE MATERIAL EXAMINED:

Holotype ♀ (IRSNB): "♀", "Duke of York./ Mus. Godeffroy./ No. 16064", "Coll. A. Knisch/ TYPUS", "simulator Kn./ A Knisch det. 1921.", "Ex. Coll. Knisch/ No. 488-863/ Coll. d'Orchym.", "Coll./ A. d'Orchymont:".

ADDITIONAL MATERIAL EXAMINED:

There are two specimens (IRSNB) identified as *H. simulator* by A. d'Orchymont that do not have locality labels, but have a small pink-colored disc and a label that reads "H. variolosus/ n.sp. Regimb.".

F I J I: 4 exs. (IRSNB) "Fiji", det. Orchymont. LAKEBA ISLAND (Lau Group): 2 exs. (KSEM, NZAC): Tubou Village, 22.–23.VI.1977, leg. J.S. Dugdale. VANUA LEVU: 3 exs. (NMW): Mt. Dalaikoro, base, 100 m, 14.XI.2003, leg. G. Wewalka, M. Balke & K. Koto "FI 20"; 12 exs. (KSEM, NMW): Nakula, 5 km N. Savusavu, 10 m, 17.XI.2003, leg. G. Wewalka, M. Balke & K. Koto "FI 25"; 1 ex. (NZAC): Forest area near Niuvudi Navounu, mercury vapour lamp, 3.–6.IX.1975, leg. P.A. Maddison. VITI LEVU: 2 exs. (KSEM, NZAC): Nukurua, Tailevu, 11.X.1977, leg. G. Kuschel; 1 ex. (NZAC): 2 exs. (NHML): Koronivia Research Station, 6.II.1975, light trap, leg. J.A. Uluinaceva; Suva, leg. R.A. Lever; 2 exs. (IRSNB): Suva, leg. S. Evans.

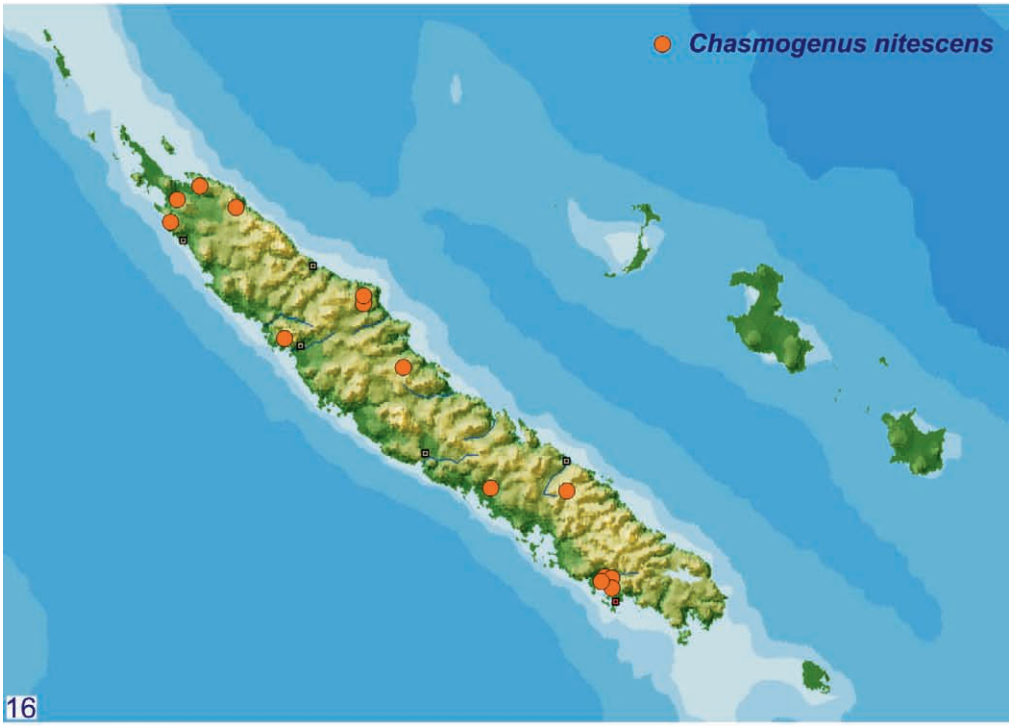
T O N G A: 1 ex. (NZAC): 'EUA ISLAND: Leipoa Lodge, 7.II.1973, mercury vapour lamp, leg. P.A. Maddison. TONGATAPU ISLAND: 1 ex. (NZAC): Bush area near Tupou College, 15.V.1975, mercury vapour lamp, leg. P.A. Maddison.

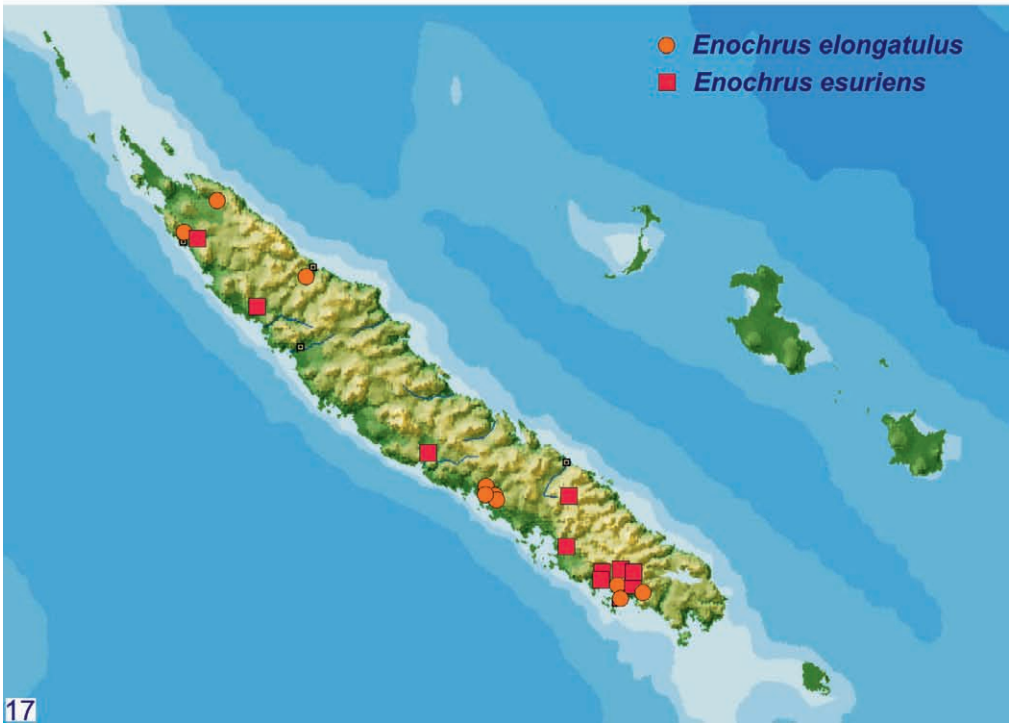
W E S T E R N S A M O A: UPOLU ISLAND: 1 ex. (NZAC): Faleta, 1975, at light, leg. P.A. Maddison.

DIAGNOSIS: Total length: 4.3–5.3 mm. The only species of the subgenus *Hydrobaticus* known to occur in the Southwest Pacific, the coarse serial punctures easily separate this species from the remaining *Helochares* species. Additionally, the brownish yellow dorsal color further separates it from the larger *H. foveicollis*.

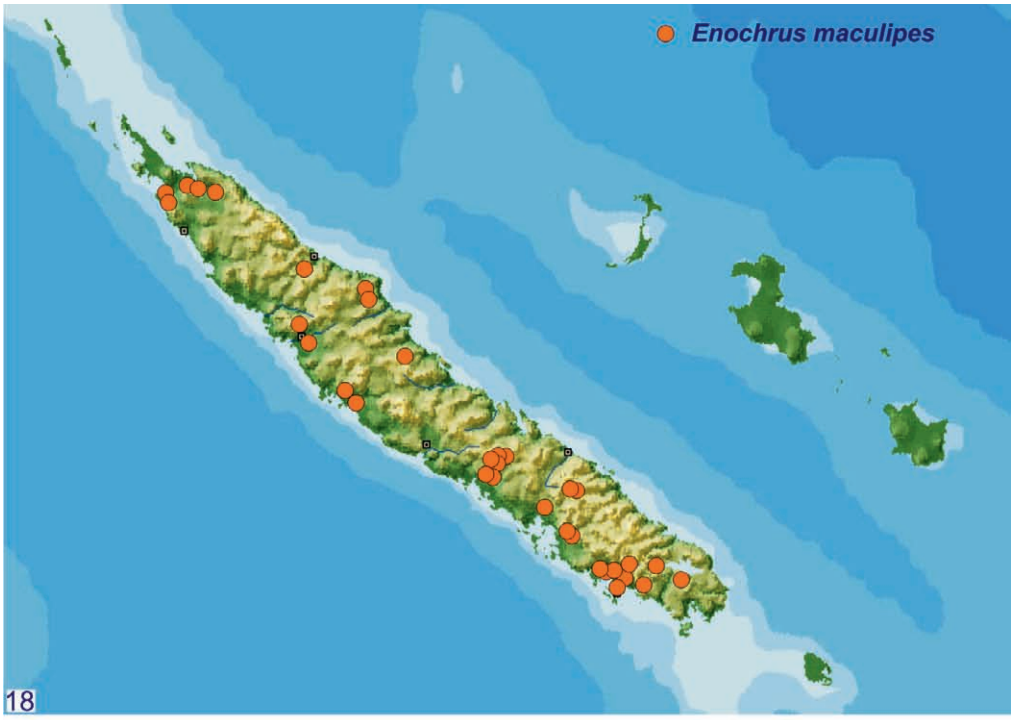
DISTRIBUTION: Bismarck Archipelago (Duke of York Islands), Fiji, Tonga, Western Samoa.

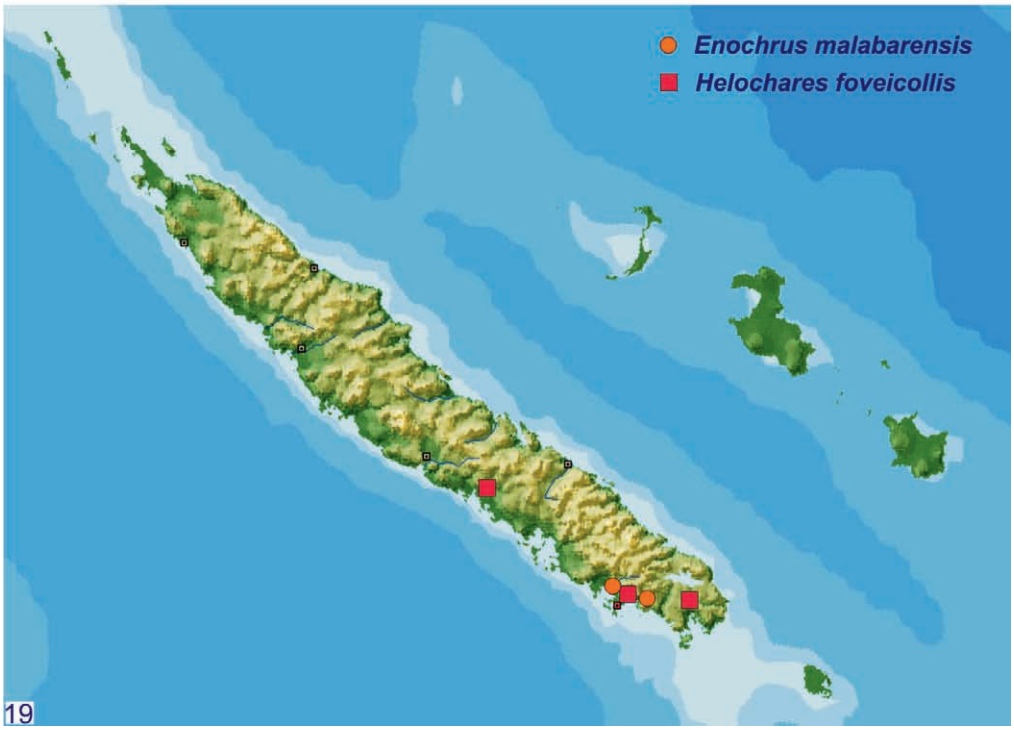
REMARKS: Although it has been attracted to lights, there are comparatively very few specimens than the more frequently encountered *Enochrus esuriens* or *Chasmogenus nitescens*. The specimens examined also are highly variable in size, but are identical in other respects.





Figs. 16–17: Geographical distribution of 16) *Chasmogenus nitescens*, 17) *Enochrus elongatulus* and *E. esuriens* in New Caledonia.





Figs. 18–19: Geographical distribution of 18) *Enochrus maculiceps*, 19) *E. malabarensis* and *Helochares foveicollis* in New Caledonia.

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