

GYRINIDAE

(Coleoptera)

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Abstract

Five species of Gyrinidae (Coleoptera) are known to occur in New Caledonia: *Aulonogyrus antipodum* FAUVEL, 1903, *Dineutus australis* (F., 1775), *Gyrinus caledonicus* RÉGIMBART, 1883, *G. convexiusculus* MACLEAY, 1871 and *Macrogyrus caledonicus* FAUVEL, 1867. More than 100 years after its description, *Aulonogyrus antipodum* is rediscovered. Faunistic and ecological data of all species are summarized. A key for identification, including habitus photographs of all New Caledonian species is provided. The male genitalia of all species are figured.

Key words: Coleoptera, Gyrinidae, *Aulonogyrus*, *Dineutus*, *Gyrinus*, *Macrogyrus*, New Caledonia.

Introduction

The Gyrinidae of New Caledonia are chiefly known through the works of MONTROUZIER (1860), FAUVEL (1883, 1903), RÉGIMBART (1883), and OCHS (1968).

MONTROUZIER (1860) mentioned only *Dineutus leucopoda* (MONTROUZIER, 1860), which was later synonymized with *Dineutus australis* (F., 1775) by RÉGIMBART (1882). FAUVEL (1883) listed five species from New Caledonia: *Dineutus australis*, *D. indus* F., *Gyrinus caledonicus* RÉGIMBART, *G. convexiusculus* MACLEAY and *Macrogyrus caledonicus* FAUVEL. However, the record of *D. indus* is obviously due to mislabelling or misidentification, since this species is endemic to the Mascarene Islands (Réunion and Mauritius) in the Indian Ocean.

FAUVEL (1903) added another new species: *Aulonogyrus antipodum*. OCHS (1968) examined the specimens collected in 1965 by the Austrian New Caledonia Expedition and summarized the knowledge of the Gyrinidae of New Caledonia, but added no further species.

Aulonogyrus antipodum, *Gyrinus caledonicus*, and *Macrogyrus caledonicus* are endemic to Grande Terre, while *Dineutus australis* and *Gyrinus convexiusculus* are widely distributed in the Australian/Oriental Regions and also occur on other New Caledonian Islands.

On the basis of additional material collected by various entomologists in the last decade, the knowledge of the New Caledonian gyrinids is updated here. The aedeagi and other diagnostic characters are illustrated. Some of these structures are here illustrated for the first time. Habitus photographs and a key for the identification of the New Caledonian species are also provided.

Material and methods

The specimens examined are deposited in the following collections:

CGW Collection Günther Wewalka, Vienna, Austria
CLH Collection Lars Hendrich, München, Germany

CPM	Collection Paolo Mazzoldi, Brescia, Italy
IAC	Institut Agronomique Néo-Calédonien, Pocquereux, New Caledonia; S. Cazères, C. Mille
IRSNB	Institut royal des Sciences naturelles de Belgique, Brussels, Belgium; P. Grootaert
MNHW	Museum of Natural History, Wrocław University, Poland; M. Wanat
NMW	Naturhistorisches Museum Wien, Vienna, Austria; M.A. Jäch
SMF	Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt am Main, Germany; A. Hastenpflug-Vesmanis, D. Kovac
ZSM	Zoologische Staatssammlung, München, Germany; M. Balke

The aedeagi were extracted and glued on the same cardboards as the beetles. Drawings were made from photographs taken with a Canon Powershot S50 camera attached to a Wild M3C dissecting microscope. The habitus photographs were taken with the same camera and microscope and processed with Photoshop software.

List of Localities

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

- 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.
- 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 25** (JÄCH & BALKE 2010: Fig. 19): 8 km south of Ouégoa, road to Mandjélia, 50 m a.s.l., 11.XI.2001. Water hole, sun exposed, open area, but two sides of hole partly shaded, water turbid, ground clay, max. 1 m deep, water at bottom cool.
- Loc. 2001/NC 27**: 9 km SSE Ouégoa, road to Mandjélia, 100 m a.s.l., 12.XI.2001. Small stream in cultivated area.
- 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 31**: ca. 25 km west of Pombeï, near Bobeito, 350 m a.s.l., 13.XI.2001. Sun exposed quarry, large pool, 5 × 15 m, about 1 m deep, ground very soft (sand/mud/clay).
- Loc. 2001/NC 47** (JÄCH & BALKE 2010: Fig. 21): 2 km west of Prony, Goro Nickel Plant, 180 m a.s.l., 19.XI.2001. Water filled doline (towards the middle > 5 m deep), water crystal clear, edge with red soil, reeds and macrophytes.
- Loc. 2009/NC 14** (JÄCH & BALKE 2010: Fig. 36): Rivière Bleue Provincial Park, between Pont Germain and Refuge Tristaniopsis, ca. 30 km NE Nouméa, ca. 160–180 m a.s.l., 22°06'03.7"S/166°39'27.8"E, 26.–27.XI.2009. River (Rivière Bleue), ca. 10 m wide, and several left tributaries, ca. 2–5 m wide, all flowing through forest.
- Loc. 2009/NC 24** (JÄCH & BALKE 2010: Figs. 42, 45): ca. 2 km NW Prony, ca. 140 m a.s.l., 22°18'36"S/166°48'33"E and ca. 125 m a.s.l., 22°18'24"S/166°48'21"E, 2.XII.2009. Two large pools, unshaded, > 100 m², 1.5 m deep. Specimens collected by M.A. Jäch & M. Madl.
- 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 33**: Mt. Koghi; ca. 5 km N Nouméa, 325 m a.s.l., 22°10'30"S/166°30'05"E, 5.XII.2009. Stream, ca. 2–10 m wide, cascades and pools in deep gorge, flowing through forest.

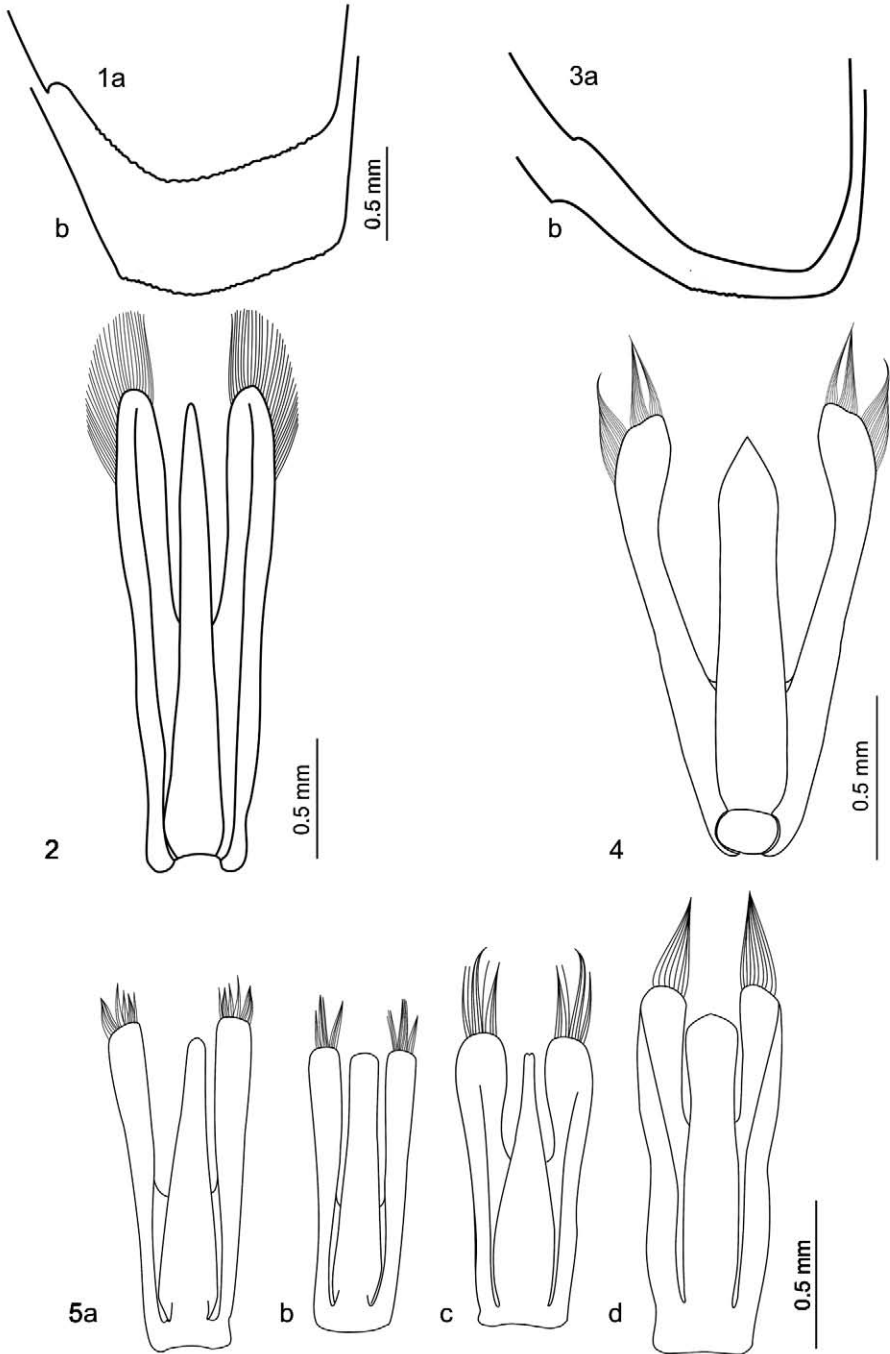
Checklist of New Caledonian Gyrinidae

<i>Aulonogyrus antipodum</i> FAUVEL, 1903	New Caledonia
<i>Dineutus australis</i> FABRICIUS, 1775	New Caledonia; Oriental and Australian Regions
<i>Gyrinus caledonicus</i> RÉGIMBART, 1883	New Caledonia
<i>Gyrinus convexiusculus</i> MACLEAY, 1871	New Caledonia; Oriental and Australian Regions
<i>Macrogyrus caledonicus</i> FAUVEL, 1867	New Caledonia

Key to New Caledonian Gyrinidae

This key includes three species (between square brackets), which have not been recorded from New Caledonia: the Australian *Aulonogyrus strigosus* FABRICIUS, 1801 (very similar to *A. antipodum*), and two species of *Gyrinus* MÜLLER, 1764 (*G. sericeolimbatus* RÉGIMBART, 1883 from the Oriental and Australian Regions, and *G. smaragdinus* RÉGIMBART, 1891 from the Oriental Region). The numbering of the elytral striae and intervals in *Gyrinus* and *Aulonogyrus* follows BRINCK (1955).

- 1 Scutellum externally visible 2
- Scutellum externally not visible; body length 7.2–8.3 mm; elytral truncature serrulate, in ♂♂ strongly convex, forming an intermediate angle (widely rounded) between sutural and epipleural angles, the latter distinct, forming a small spine, in ♀♀ weakly convex, without spine at epipleural angle (Fig. 1a–b); aedeagus as in Fig. 2. Dorsal habitus as in Fig. 10..... *Dineutus australis*
- 2 Body length less than 7 mm..... 3
- Body length more than 9 mm; tip of left elytron as in Fig. 3a–b; tarsi of males distinctly dilated, pear-shaped, with first article as long as three following articles together; aedeagus as in Fig. 4. Dorsal habitus as in Fig. 11 *Macrogyrus caledonicus*
- 3 Elytra with longitudinal rows of punctures, elytral surface between rows smooth, without punctures; unicolored black, sometimes with red, green or bronze iridescent reflections, without yellow margins (except for the African *G. haasi* OCHS). *Gyrinus* 4
- Elytra with longitudinal grooves, more evident at sides; elytral surface coarsely punctate between grooves (distinctly visible on elytral disc); color bronze with yellow margins on pronotum and elytra (in the Oriental and Australian species). *Aulonogyrus* 7
- 4 Sides of pronotum and elytra with distinct band of well impressed microreticulation; band bronze-colored, while disc of elytra and pronotum bluish-black; aedeagus as in Fig. 5c, tip distinctly notched..... [*Gyrinus sericeolimbatus*]
- Elytra and pronotum smooth and shiny, lacking microreticulation; tip of aedeagus not notched..... 5
- 5 Color black with red and green iridescent reflections; aedeagus distinctly spatulate, distally as wide as at base (Fig. 5d) [*Gyrinus smaragdinus*]
- Color black without red or green reflections; aedeagus never spatulate, at tip always narrower than at base 6
- 6 Body shape in lateral view distinctly convex (Fig. 7a); elytral intervals 8–11 in their anterior part somewhat convex; median lobe of aedeagus as in Fig. 5b, gradually narrowed from base to terminal fourth, then parallel-sided, at its apex as wide as or almost as wide as tip of parameres. Dorsal habitus as in Fig. 13..... *Gyrinus convexiusculus*
- Body shape less convex, flattened (Fig. 7b); elytral intervals 8–11 flat along entire length; median lobe of aedeagus as in Fig. 5a, gradually narrowed from base to tip, at its apex distinctly narrower than tip of parameres (slightly wider than half of parameres at tip). Dorsal habitus as in Fig. 12 *Gyrinus caledonicus*
- 7 Elytral truncature strongly convex, sutural angle of elytra obtuse, rather widely rounded (Fig. 8); epipleural angle more widely obtuse and rounded, almost obliterate; elytral intervals 8–11 subequal in width and convexity: interval 8 slightly narrower than 9 and weakly depressed, 10 narrower than other three; protibiae only weakly curved, inner margin almost straight; aedeagus as in Fig. 6b, terminal part narrow and parallel-sided for about one fifth of its length. [*Aulonogyrus strigosus*]
- Elytral truncature weakly convex, sutural angle of elytra obtuse, narrowly rounded (Fig. 9); epipleural angle more widely obtuse, narrowly rounded; elytral intervals 8–11 not subequal in width and convexity: interval 8 almost half as wide as 9 and depressed, 9 wide and distinctly convex, 10 again narrow (but slightly wider than 8) and only weakly convex, 11 almost as wide as 9 and convex; protibiae distinctly curved, inner margin concave; aedeagus as in Fig. 6a, terminal part narrow and parallel-sided about one fourth of its total length..... *Aulonogyrus antipodum*



Figs. 1–5: 1, 3) Elytral truncature of 1) *Dineutus australis*, a) male, b) female, 3) *Macrogyrus caledonicus*, a) male, b) female; 2, 4, 5) aedeagus of 2) *Dineutus australis*, 4) *Macrogyrus caledonicus*, 5) *Gyrinus* spp.: a) *G. caledonicus*, b) *G. convexiusculus*, c) *G. sericeolimbatus*, d) *G. smaragdinus*.

***Aulonogyrus (s.str.) antipodum* FAUVEL, 1903**

Aulonogyrus antipodum FAUVEL 1903: 254; RÉGIMBART 1907: 166; HELLER 1916: 240; BRINCK 1955: 100; OCHS 1968: 71.

TYPE LOCALITY: New Caledonia (“Nouvelle Calédonie”), without details.

TYPE MATERIAL STUDIED: **Holotype** ♂ (IRSNB): “N.[ouve]lle Calédonie / *Aulonogyrus antipodum* Fvl. / R.I.Sc.N.B.I.G.17.479 / Typus [red label]”.

ADDITIONAL MATERIAL EXAMINED:

SOUTH PROVINCE: 1 ♀ (CLH): Yaté District, lake between Lac en Huit and Grand Lac, 22°15'S 166°54'E, 29.VIII.2008, leg. A. Gervais “K3”.

DISCUSSION: RÉGIMBART (1907) mentioned that he saw Fauvel’s type but did not remember well the “few and not very distinctive” characters, which separate it from the related *A. strigosus*. BRINCK (1955), after retracing the holotype in the IRSNB redescribed *A. antipodum* and identified good characters to separate it from *A. strigosus*. He figured the aedeagi of both species and placed them in the subgenus *Aulonogyrus* s.str., together with two Palearctic species: *A. concinnus* (KLUG, 1834) and *A. striatus* (F., 1792).

OCHS (1968) pointed out that *A. antipodum* had not been collected since its description, and speculated that the species is either extremely rare, or that the type was mislabelled. However, the rediscovery after more than hundred years in southern Grande Terre confirms the correctness of the provenance.

DIAGNOSIS: See the above key; body length (holotype) 6.2 mm; habitus of the holotype (Fig. 9), aedeagus as in Fig. 6a.

DISTRIBUTION (Fig. 14): Endemic to New Caledonia, so far known only from the southern tip of Grande Terre.

HABITAT: The single specimen collected in 2008 was taken from a shallow lake in open land.

***Dineutus (Ciclous) australis* (FABRICIUS, 1775)**

Gyrinus australis FABRICIUS 1775: 235.

Gyrinus rufipes FABRICIUS 1801: 276.

Gyrinus dentipennis MACLEAY 1825: 30.

Gyrinus limbatus MACLEAY 1825: 30.

Gyrinus iridis HOPE 1842: 428.

Dineutes [sic!] *janthinus* BLANCHARD 1843: pl. 4, 1853: 50.

Dineutus leucopoda MONTROUZIER 1860: 245.

Dineutes [sic!] *australis*: FAUVEL 1883: 348; HELLER 1916: 240; SATÔ 1966: 3.

Dineutus australis: OCHS 1968: 73; STARMÜHLNER 1968: 17, 23.

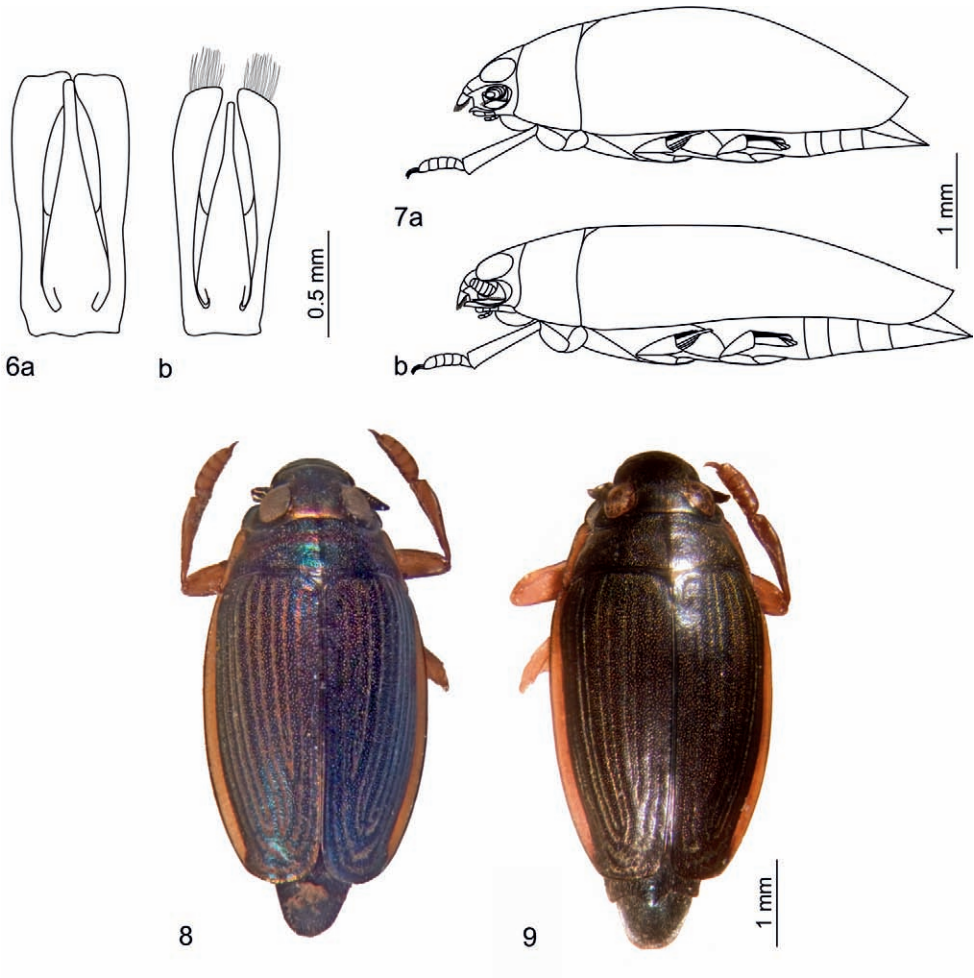
TYPE LOCALITY: Australia (“Nova Hollandia”), without details.

MATERIAL EXAMINED (New Caledonia):

NORTH PROVINCE: 3 exs. (NMW): Koumac area, Grottes Les Cresson, 60 m, 18.IX.1965, leg. Austrian New Caledonia Expedition “Loc. FNK 110” (puddle in dry stream bed); 3 exs. (MNHW, ZSM): 20°28.6'S 164°15.6'E, road Bondé – Mt. Mandjélia, niaouli forest, 250 m, night collecting, 9.I.2007, leg. M. Wanat & R. Dobosz; 2 exs. (MNHW): Tiéa Forest, “GIE Fab Nicoli” (private sclerophyll forest reserve owned by Fab Nicoli), 21°07'S 164°57'E, 30 m, night collecting, 30.I.2004, leg. M. Wanat; 1 ex. (NMW): Koniambo, Foatchiamboué Basin, 179 m, 9.I.2005, leg. C. Pöllabauer; 2 exs. (NMW): Koniambo, Confiance Basin, 22 m, 4.VIII.2007, leg. C. Pöllabauer.

2 ♀♀ (CGW): Loc. 2001/NC 23; 5 ♂♂, 2 ♀♀ (CGW): Loc. 2001/NC 25; 1 ♂, 1 ♀ (CGW): Loc. 2001/NC 27; 1 ♂ (CGW): Loc. 2001/NC 29; 41 exs. (NMW): Loc. 2001/NC 31.

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



Figs. 6–9: 6) Aedeagus of a) *Aulonogyris antipodum* (holotype, hairs on tip of parameres lost!), b) *A. strigosus*; 7) habitus in lateral view of a) *Gyrinus convexiusculus*, b) *G. caledonicus*; 8–9) habitus in dorsal view, 8) *Aulonogyris strigosus*, 9) *A. antipodum*.

SOUTH PROVINCE: 1 ex. (IAC): La Foa, Nily, 14 m, at light, 22.I.2008, leg. C. Mille; 1 ex. (IAC): La Foa, 27.I.2004, leg. R.M. M'Bouéri; 1 ex. (IAC): Pocquereux, 21°44'S 165°54'E, 20.VI.2001, leg. S. Cazères; 3 exs. (MNH): Pocquereux, IAC station, 21°35.2'S 165°46.4'E, 30 m, night collecting, 3.–4.I.2007, leg. M. Wanat & R. Dobosz; 1 ex. (MNH): Col d'Amieu, 6.5–7.0 km from gate, 21°35.2'S 165°46.4'E, 450–470 m, night collecting, 6.I.2007, leg. M. Wanat & R. Dobosz; 3 exs. (CLH, ZSM): tributary to upper course of River Dumbéa, 22°11'S 166°34'E; 9.IX.2008, leg. A. Gervais.

2 ♂♂ (CGW): Loc. 2001/NC 5.

8 exs. (NMW): Loc. 2009/NC 24.

ADDITIONAL MATERIAL (not examined):

4 exs. (SMF): Koumac area, Grottes Les Cresson, 60 m, 18.IX.1965, leg. Austrian New Caledonia Expedition “Loc. FNK 110” (puddle in dry stream bed); 1 ex. (SMF): NW Poya, River Népoui, 14 m, 13.VIII.1965, leg. Austrian New Caledonia Expedition “Loc. FNK 68” (stream in savannah).

DISCUSSION: This species has a very wide distribution in the Oriental and Australian Regions. It is placed in the monotypical subgenus *Ciclous* OCHS, 1926, which resembles the subgenus *Spinodineutes* HATCH, 1925 in the very small spine at the epipleural elytral angle, but in *Spinodineutes* this spine is more pronounced and present in both sexes, while in *D. australis* it is very small and confined to the male sex.

DIAGNOSIS: Habitus as in Fig. 10. Body length 7.2–8.3 mm. Dorsal color bronze, sometimes with green or violet sheen. Dorsal side dull, microreticulate except on pronotal disc and on a narrow band along the elytral suture (about one fourth of the elytral width) where the microreticulation is faint. Elytral truncature sexually dimorphic (Fig. 1). Aedeagus as in Fig. 2.

DISTRIBUTION (Fig. 14): New Caledonia (Grande Terre, Belep Islands and Île des Pins) (MONTROUZIER 1860, OCHS 1968, STARMÜHLNER 1968). Oriental and Australian Regions (OCHS 1968).

HABITAT: Slowly flowing streams and various kinds of stagnant water (see JÄCH & BALKE 2010: Figs. 9, 19, 42, 45, 48).

***Gyrinus (s.str.) caledonicus* RÉGIMBART, 1883**

Gyrinus caledonicus RÉGIMBART 1883: 167; FAUVEL 1883: 349, 1903: 254; HELLER 1916: 240; OCHS 1968: 71; STARMÜHLNER 1968: 18, 19.

TYPE LOCALITY: New Caledonia, without details.

MATERIAL EXAMINED:

SOUTH PROVINCE: 6 exs. (NMW): Lac en Huit, 250 m, 19.VIII.1965, leg. Austrian New Caledonia Expedition “Loc. FNK 76” (lake margin).

ADDITIONAL MATERIAL (not examined):

5 exs. (SMF): from Grand Lac, 250 m, 20.VIII.1965, leg. Austrian New Caledonia Expedition “Loc. FNK 78” (lake margin); 8 exs. (SMF): Lac en Huit, 250 m, 19.VIII.1965, leg. Austrian New Caledonia Expedition “Loc. FNK 76” (lake margin).

LOCALITY UNCERTAIN: Nine specimens of the Austrian New Caledonia Expedition deposited in the SMF with “FNK 55” (South Province, SE Nouméa, River La Coulée, 55 m) printed on the label (see also STARMÜHLNER 1968); but the “FNK 55” on the label is crossed out and replaced with “FNK 46” (North Province, Koh area, 65 m). These specimens were not mentioned by OCHS (1968).

DISCUSSION: This species is similar to the very wide-spread *G. convexusculus*, from which it is nonetheless easily separated using the characters listed in the key above.

DIAGNOSIS: Habitus as in Fig. 12. Body length 4.3–5.0 mm. Body form oval and rather elongate, weakly convex in lateral view. Dorsal side black, shining. Elytral intervals 8–11 flat. Aedeagus as in Fig. 5a.

DISTRIBUTION (Fig. 14): Endemic to New Caledonia, known with confidence only from the southern tip of Grande Terre. The occurrence of *G. caledonicus* in the North Province (see above) is uncertain and requires confirmation.

HABITAT: Taken from lakes and pools in open land.



10



11



12



13

Figs. 10–13: Habitus of 10) *Dineutus australis*, 11) *Macrogyrus caledonicus*, 12) *Gyrimus caledonicus*, 13) *G. convexusculus*.

***Gyrinus (s.str.) convexiusculus* MACLEAY, 1871**

Gyrinus convexiusculus MACLEAY 1871: 128; FAUVEL 1883: 349; HELLER 1916: 240; OCHS 1968: 70; STARMÜHLNER 1968: 13, 18, 23.

Gyrinus huttoni PASCOE 1877: 141.

Gyrinus simoni RÉGIMBART 1883: 163.

TYPE LOCALITY: Australia, Queensland, Gayndah.

MATERIAL EXAMINED (New Caledonia):

1 ex. (NMW): “[F.E.] Pipitz [collector] 1883 N.Caledon.[ia]”, “Coll. Mus. Vindobon.[ensis]”.

SOUTH PROVINCE: 4 exs. (NMW): River Blanche, 22.VII.1965, leg. Austrian New Caledonia Expedition “Loc. FNK 28” (marshy pool); 9 exs. (ZSM): Mont Dore District, pond, Road CR7 2.3 km east of road CR9, 22°18' S 166°48'E, 27.VIII.2008, leg. A. Gervais “H2”.

135 exs. (CGW, CPM, NMW): Loc. 2001/NC 47.

11 exs. (NMW): Loc. 2009/NC 24.

ADDITIONAL MATERIAL (not examined):

2 exs. (SMF): Ouénarou area, River Crique Pernod, 180 m, 17.VIII.1965, leg. Austrian New Caledonia Expedition “Loc. FNK 72” (stream in open land); 6 exs. SMF): Île des Pins, Grotte Wouintureu, 14 m, 22.IX.1965 “Loc. FNK 113” (stream in open land); 2 exs. (SMF): River Blanche, 22.VII.1965, leg. Austrian New Caledonia Expedition “Loc. FNK 28” (marshy pool).

DIAGNOSIS: Habitus as in Fig. 13. Body length 4.0–4.7 mm. Body form oval and rather elongate, distinctly convex in lateral view. Dorsal side black, shining. Elytral intervals 8–11 convex, especially in the anterior part, so that the lines of punctures are placed at the bottom of a groove. Aedeagus as in Fig. 5b.

DISTRIBUTION (Fig. 15): This species is widely distributed in the Oriental and Australian Regions. In New Caledonia it is known from Grande Terre and Île des Pins (FAUVEL 1883, OCHS 1968, STARMÜHLNER 1968).

HABITAT: In stagnant water and larger rivers (see JÄCH & BALKE 2010: Figs. 21, 42, 45).

***Macrogyrus (Stephanogyrus) caledonicus* FAUVEL, 1868**

Dineutes [sic!] *caledonicus* FAUVEL 1868: 177, pl. 1, Fig. 14.

Macrogyrus caledonicus: FAUVEL 1883: 348, 1903: 254; RÉGIMBART 1883: 454, 1907: 159; HELLER 1916: 240; OCHS 1929: 198; STARMÜHLNER 1968: 14, 24.

Macrogyrus (Cyclomimus) caledonicus: OCHS 1949: 177.

Macrogyrus (Stephanogyrus) caledonicus: OCHS 1955: 121; 1968: 72.

TYPE LOCALITY: New Caledonia (“Nouvelle-Calédonie ([leg. E.] Deplanches[!])”), without details.

MATERIAL EXAMINED:

SOUTH PROVINCE: 8 exs. (NMW): Forêt de la Rivière Tindia, 28.VII.1965, leg. Austrian New Caledonia Expedition “Loc. FNK 42” (partly shaded forest stream); 2 exs. (NMW): River Toili, between La Foa and Canala, 27.IX.1965, leg. Austrian New Caledonia Expedition “Loc. FNK 121” (shaded primary forest stream).

1 ex. (NMW): Loc. 2009/NC 14; 6 exs. (NMW: 5, ZSM: 1): Loc. 2009/NC 33.

ADDITIONAL MATERIAL (not examined):

14 exs. (SMF): Forêt de la Rivière Tindia, 28.VII.1965, leg. Austrian New Caledonia Expedition “Loc. FNK 42” (partly shaded forest stream); 1 ex. (SMF): River Farino, 28.VII.1965, leg. Austrian New Caledonia Expedition “Loc. FNK 44” (shaded forest stream); 6 exs. (SMF): River Toili, between La Foa and Canala, 27.IX.1965, leg. Austrian New Caledonia Expedition “Loc. FNK 121” (shaded primary forest stream).

DISCUSSION: This is a very distinctive *Macrogyrus* RÉGIMBART, 1882, lacking striae on the side of the pronotum and elytra (where it has instead a band of strong, bronze-colored and unpunctate microreticulation, formed by polygonal meshes), and lacking striae on the elytra.

Macrogyrus caledonicus shares these characters with four species from New Guinea, which prompted OCHS (1949) to establish the subgenus *Cyclomimus*. However, a few years later, OCHS (1955) erected the monotypical subgenus *Stephanogyrus* for *M. caledonicus*, because of differences in the elytral apex: in *M. caledonicus* the epipleural angle is distinct, marked by a small denticle, the intermediate one is blunt and rounded and the sutural one widely rounded (see Fig. 3), whereas *Cyclomimus* is characterized by three distinct angles (epipleural, sutural and a third one in between).

DIAGNOSIS: Habitus as in Fig. 11. Body length 9.2–9.8 mm, body form elongately oval, weakly convex. Dorsal side bronze. Surface of pronotum and elytral disc relatively smooth with weakly impressed microreticulation but with strong and dense punctation; marginal third of elytra dull, microreticulation strongly impressed and without punctation. Elytral truncature as in Fig. 3a–b. Aedeagus as in Fig. 4.

DISTRIBUTION (Fig. 15): Endemic to Grande Terre, where it is rather widely distributed throughout the South Province.

HABITAT: According to M.A. Jäch (personal communication) and according to the specimens collected by the Austrian New Caledonia Expedition in 1965 (see also OCHS 1968, and STAR-MÜHLNER 1968), *Macrogyrus caledonicus* is a running water dweller. It is quite rare, living in streams and rivers flowing through undisturbed forested areas (see JÄCH & BALKE 2010: Fig. 36).

Discussion

Five species of Gyrinidae are known from New Caledonia. Three of these species (*Aulonogyrus antipodum*, *Gyrinus caledonicus*, and *Macrogyrus caledonicus*) (= 60 %) are endemic to New Caledonia (Grande Terre).

While *Macrogyrus caledonicus* is widely distributed on Grande Terre, the two remaining endemic species (*Aulonogyrus antipodum*, *Gyrinus caledonicus*) are probably restricted to the very southern tip of Grande Terre (the presence of *Gyrinus caledonicus* in the North Province still needs confirmation).

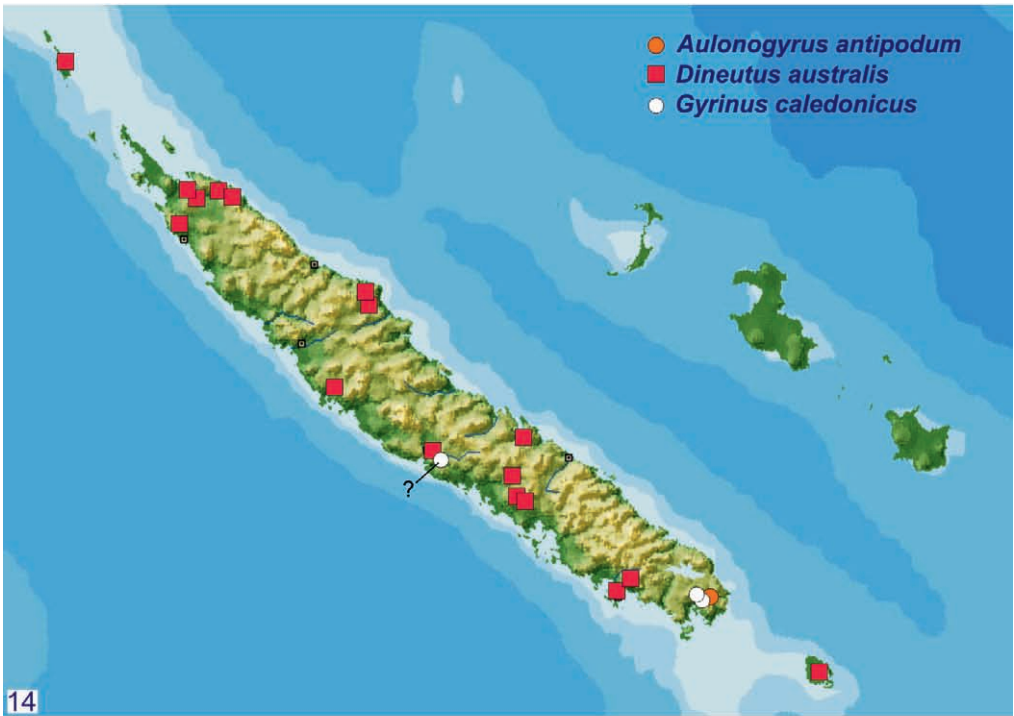
Aulonogyrus antipodum is very rare. Only one specimen has been collected since its discovery. It is threatened with extinction.

The two remaining species, *Dineutus australis*, and *G. convexiusculus*, are widely distributed in the Oriental and Australian Regions. Except from Grande Terre they are also recorded from Île des Pins (both species) and from the Belep Islands (*Dineutus australis*).

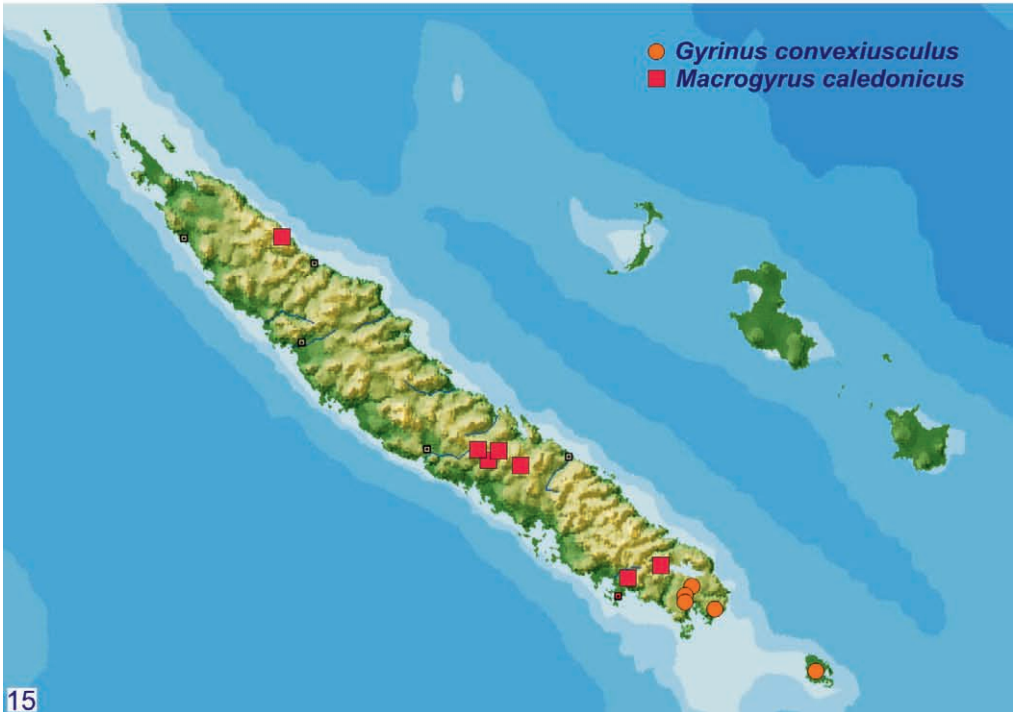
No gyrinids have so far been recorded from the Loyalty Islands.

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Figs. 14–15: Distribution of 14) *Aulonogyrus antipodum*, *Dineutus australis* and *Gyrimus caledonicus*, 15) *G. convexiusculus* and *Macrogyrus caledonicus*.

References

- BLANCHARD, C.É. 1842–1843: Voyage au Pôle Sud et dans l’Océanie sur les corvettes l’Astrolabe et la Zélée; exécuté par ordre du roi pendant les années 1837–1838–1839–1840, sous le commandement de M. Dumont-d’Urville, capitaine de vaisseau; publié par ordre du gouvernement, sous la direction supérieure de M. Jacquinot, capitaine de vaisseau, commandant de la Zélée. Insectes coléoptères. – Paris: Gide et Baudry, pls. 1 (1842), 2–4 (1843).
- BLANCHARD, C.É. 1853: Description des insectes. Tribu II. Gyrinae, pp. 49–50. – In: Hombron, B. & Jacquinot, H. (eds.): Voyage au Pôle Sud et dans l’Océanie sur les corvettes l’Astrolabe et la Zélée. Zoologie. Vol. 4. – Paris: Gide et Baudry, 422 pp.
- BRINCK, P. 1955: A revision of the Gyrinidae (Coleoptera) of the Ethiopian Region. 1. Lunds Universitets Årsskrift. n.f. Avd. 2. 51 (16). – Kungliga Fysiografiska Sällskapetets Handlingar n.f. 66 (16): 1–141.
- FABRICIUS, J.C. 1775: Systema entomologiae, sistens Insectorum classes, ordines, genera, species adiectis synonymis, locis, descriptionibus, observationibus. – Flensburgi et Lipsiae: Libraria Korte, xxxii+832 pp.
- FABRICIUS, J.C. 1801: Systema Eleutheratorum secundum ordines, genera, species; adiectis synonymis, locis, observationibus, descriptionibus. Vol. 1. – Kiliae: Bibliopolii Academici Novi, xxiv+506 pp.
- FAUVEL, A. 1868: Catalogue des Coléoptères de la Nouvelle Calédonie et dépendances avec descriptions, notes et synonymies nouvelles. – Bulletin de la Société Linnéenne de Normandie (2^e série) 1 [1866]: 172–214, pl. 1.
- FAUVEL, A. 1883: Les coléoptères de la Nouvelle-Calédonie et dépendances avec descriptions, notes et synonymies nouvelles. – Revue d’Entomologie 2 (12): 335–360.
- FAUVEL, A. 1903: Faune analytique des Coléoptères de la Nouvelle-Calédonie. – Revue d’Entomologie 22 (7–8): 203–242, 22 (9–10): 357–378, 22 (12): 360–378.
- HELLER, K.M. 1916: Die Käfer von Neu-Caledonien und den benachbarten Inselgruppen. – In: Sarasin, F. & Roux, J. (eds.): Nova Caledonia. Forschungen in Neu-Caledonien und auf den Loyalty-Inseln. A. Zoologie 2 (3), no. 12: 229–364, pls. X–XI. – Wiesbaden: C.W. Kreidels Verlag.
- HOPE, F.W. 1842: Observations on the Coleoptera of Port Essington, in Australia, with descriptions of the following new species. – The Annals and Magazine of Natural History 9 (LIX): 423–430.
- JÄCH, M.A. & BALKE, M. 2010: Introduction, pp. 1–29. – In: Jäch, M.A. & Balke, M. (eds.): Water beetles of New Caledonia (part 1). – Monographs on Coleoptera 3: IV+449 pp.
- MACLEAY, W. 1871: Notes on a collection of insects from Gayndah. – The Transactions of the Entomological Society of New South Wales 2: 79–205.
- MACLEAY, W.S. 1825: Annulosa Javanica, or an attempt to illustrate the natural affinities and analogies of the insects collected in Java by Thomas Horsfield, M.D. F.L. & G.S. and deposited by him in the museum of the honourable East-India Company. Number I. – London: Kingsbury, Parbury & Allen, XII+150 pp.
- MONTROUZIER, R.P. 1860: Essai sur la faune entomologique de la Nouvelle-Calédonie (Balade) et des Îles des Pins, Art, Lifu, etc. – Annales de la Société entomologique de France (3) 8: 229–308.
- OCHS, G. 1929: Über einige neue und bemerkenswerte Gyriniden, vorzüglich aus dem Dresdener Museum [1]. – Entomologische Blätter 25 (4): 197–200.
- OCHS, G. 1949: A revision of the Australian Gyrinidae. – Records of the Australian Museum 22 (2): 171–199.
- OCHS, G. 1955: Die Gyriniden-Fauna von Neuguinea nach dem derzeitigen Stand unserer Kenntnisse (Coleoptera, Gyrinidae). – Nova Guinea (NS) 6 (1): 87–154.

- OCHS, G. 1968: Gyrinidae (Col.) von Neukaledonien. – Cahiers de l'ORSTOM (Office de la Recherche Scientifique et Technique Outre-Mer), Série Hydrobiologie II (1): 69–73.
- PASCOE, F.P. 1877: Descriptions of new genera and species of New-Zealand. Coleoptera. Part IV. – The Annals and Magazine of Natural History 4 (19): 140–147.
- RÉGIMBART, M. 1882–1883: Essai monographique de la famille des Gyrinidae. 1^{re} partie. – Annales de la Société entomologique de France (6) 2: 379–458 [pp. 379–400 in 1882, pp. 401–458 in 1883].
- RÉGIMBART, M. 1883: Essai monographique de la famille des Gyrinidae. 2^e partie. – Annales de la Société entomologique de France (6) 3: 121–190.
- RÉGIMBART, M. 1907: Essai monographique de la famille des Gyrinidae (3^e supplément). – Annales de la Société entomologique de France 76 (2^{me} trimestre): 137–245.
- SATÔ, M. 1966: Some species of aquatic Coleoptera from New Caledonia. – Bulletin of the Osaka Museum of Natural History 19: 1–8.
- STARMÜHLNER, F. 1968: Etudes Hydrobiologiques en Nouvelle-Calédonie (mission 1965 du Premier Institut de Zoologie de l'Université de Vienne): 1. Généralités et description des stations. – Cahiers de l'ORSTOM (Office de la Recherche Scientifique et Technique Outre-Mer), Série Hydrobiologie II (1): 3–33.

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