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# New records of Heteroceridae from New Caledonia (Coleoptera: Heteroceridae)

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**Abstract**

Two species of *Heterocerus* FABRICIUS, 1792 (Coleoptera: Heteroceridae) are recorded from New Caledonia for the first time: *H. debilipes* BLACKBURN, 1903 and the very similar *H. mastersii* MACLEAY, 1871. A key to the three New Caledonian species of Heteroceridae and additional records for *H. flindersi* BLACKBURN, 1888 are provided. The distribution of these three species in New Caledonia is shown on a map. The possible synonymy of *H. debilipes* and *H. mastersii* is discussed.

**Key words**: Coleoptera, Heteroceridae, *Heterocerus*, South Pacific, New Caledonia, new records, faunistics.

## Introduction

SKALICKÝ (2010) summarized the faunistic data of the Heteroceridae from Indonesia, Papua New Guinea, Fiji, New Caledonia and New Zealand. Only a single species was known from New Caledonia by then: *Heterocerus flindersi* BLACKBURN, 1888, which had been described from New Caledonia under the name *H. caledoniae* by GROUVELLE (1903).

During the hydrobiological survey of the "La Planète Revisitée" program (http://www.laplaneterevisitee.org/en), coordinated by Philippe Bouchet (Muséum national d'Histoire naturelle, Paris, France), a second species of *Heterocerus* FABRICIUS, 1792 was discovered in New Caledonia in 2016. Eventually, the examination of some recently collected specimens and of the heterocerids stored in the Station de Recherche Agronomique de Pocquereux (La Foa, New Caledonia) revealed third species previously not known from New Caledonian.

Abbreviations:

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| CSU | coll. S. Skalický, Ústí nad Orlicí, Czechia |
| HYNC | Hydrobiology New Caledonia; referring to the locality numbers of specimens collected in the frame of the "La Planète Revisitée" program |
| NMW | Naturhistorisches Museum Wien, Vienna, Austria |
| SRAP | Station de Recherche Agronomique de Pocquereux, La Foa, New Caledonia (S. Cazère, C. Mille) |

## Key to the Heteroceridae of New Caledonia

1 Parameres firmly fused with phallobase as in Fig. 1 (*H. bredoi* group sensu CHARPENTIER 1968); elytra anteriorly completely unicoloured black (or sometimes brown) in the middle, without yellowish longitudinal stripes or diffuse paler spots[1]; total length: 2.6–5.0 mm.. *H. flindersi*

– Parameres connected with phallobase by membrane as in Figs. 2–3 (*H. elongatus* group sensu CHARPENTIER 1968); elytra usually not unicoloured on both sides of scutellum, unicoloured specimens are rare, but they do exist (e.g., one male of *H. debilipes* from Poya Municipality, NMW), all other specimens have yellowish or brownish longitudinal stripes or distinct or diffuse yellowish or reddish brown (sometimes dark brown) spots; total length: ca. 2.0–4.5 mm ..... 2

[1] See photograph at https://bie.ala.org.au/species/https://biodiversity.org.au/afd/taxa/6aab55f7-b2c9-40a6-a9b2-96f31e1e5068

2 Lateral margin of parameres more or less evenly curved towards apex in apical half (Fig. 2); total length: ca. 3.1–4.5 mm ..... *H. mastersii*

– Lateral margin of parameres concave in apical half (Fig. 3); total length: ca. 2.0–3.5 mm *H. debilipes*

Females of *H. debilipes* and *H. mastersii* cannot be separated reliably.

## New records

All specimens were identified by the second author.

### *Heterocerus debilipes* BLACKBURN, 1903

*Heterocerus multimaculatus* BLACKBURN 1888: 205 [primary homonym of *Heterocerus multimaculatus* MOTSCHULSKY, 1854 (= *H. fenestratus* THUNBERG, 1784), described from Kazakhstan (see ZAITZEV (1908: 316)]; CHARPENTIER 1968: 219 (invalid lectotype designation).

*Heterocerus debilipes* BLACKBURN 1903: 179 (type locality: "Central Australia" [Australia: South Australia, Oodnadatta]); ZAITZEV 1908: 316; ZAITZEV 1910: 55; CHARPENTIER 1968: 218 (lectotype designation); SAZHNEV 2023: 5.

*Heterocerus blackburni* ZAITZEV, 1908: 316 [replacement name for *Heterocerus multimaculatus* BLACKBURN, 1888]; ZAITZEV 1910: 55; CHARPENTIER 1968: 218 (synonymy).

TYPE LOCALITY: *H. multimaculatus*: Australia (South Australia, Adelaide); *H. debilipes*: "Central Australia" (according to original description), but according to CHARPENTIER (1968) the "type" is labelled: "Ood.", which obviously refers to Oodnadatta in northern South Australia.

TYPE MATERIAL: *Heterocerus multimaculatus* was described after a single specimen (holotype by monotypy); therefore the lectotype designation of CHARPENTIER (1968) is invalid (see also: https://biodiversity.org.au/afd/taxa/Heterocerus_debilipes).

MATERIAL EXAMINED:

NORTH PROVINCE: 1 ♂ (NMW): HYNC 349a: Koumac Municipality, Koumac Town, Centre d'hébergement "Riquet" Bailly, ca. 25 m a.s.l., 20°33'25"S 164°17'16"E, XI.2016, leg. M.A. Jäch (NC 50a), at light; 4 ♂♂, 3 ♀♀ (CSU, NMW): Poya Municipality, N of Poya Town, Poya River at Route Territoriale 1, 21°20'26.7"S 165°9'26.8"E, 12.XI.2021, leg. J. Schultz, trodden from muddy river bank.

DISTRIBUTION: Australia, New Caledonia (first record), New Zealand.

In New Caledonia, this species is so far known only from the North Province (Fig. 4).

### *Heterocerus flindersi* BLACKBURN, 1888

*Heterocerus flindersi* BLACKBURN 1888: 205; ZAITZEV 1908: 318; ZAITZEV 1910: 57; CHARPENTIER 1968: 230 (lectotype designation); SKALICKÝ 2010: 398; SAZHNEV 2023: 6.

*Heterocerus indistinctus* BLACKBURN 1891: 134 (type locality: Australia: Victoria); ZAITZEV 1908: 316; ZAITZEV 1910: 59; CHARPENTIER 1968: 230 (lectotype designation, synonymy).

*Heterocerus caledoniae* GROUVELLE 1903: 201 (type locality:New Caledonia: Nouméa Municipality: Anse Vata); ZAITZEV 1908: 316; ZAITZEV 1910: 55; CHARPENTIER 1968: 230 (lectotype designation, synonymy).

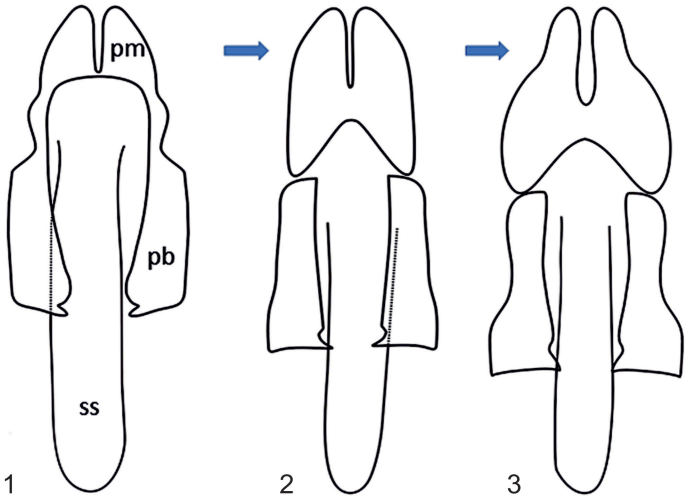
TYPE LOCALITY: Australia (South Australia, Port Lincoln).

MATERIAL EXAMINED (see also SKALICKÝ 2010):

NORTH PROVINCE: 2 ♂♂ (CSU, NMW): Poya Municipality, N of Poya Town, Poya River at Route Territoriale 1, 21°20'26.7"S 165°9'26.8"E, 12.XI.2021, leg. J. Schultz, trodden from muddy river bank.

SOUTH PROVINCE: 2 exs. (SRAP): La Foa Municipality, Station de Recherche Agronomique de Pocquereux near La Foa, ca. 25 m a.s.l., 21°44'9.50"S 165°53'44.90"E, VII.2012, leg. R.M. M'Bouéri, "solar pest killer 13"; 1 ex. (SRAP): same locality, altitude and coordinates, but VI.2014, leg. S. Cazère, "solar pest killer 13"; 1 ♂ (CSU): Bourail Municipality, Néra River, 23.XI.2021, leg. J. Schultz, in mud.

DISTRIBUTION (according to CHARPENTIER 1968): Indonesia: Sulawesi, West Papua (Manokwari, Teluk Doreh); Papua New Guinea (Duke of York Islands); Australia; New Caledonia.




Figs. 1–3: Schematized images of the tegmata of 1) *Heterocerus flindersi*, 2) *H. mastersii* and 3) *H. debilipes*. pb: phallobase, pm: paramere, ss: supporting sheath. Arrows point at lateral (external) margin of parameres to show the position of the diagnostic characters. Not to scale.

In New Caledonia, this species is rather widely distributed along the west coast of Grande Terre (Fig. 4), from Kaala Gomen Municipality (North Province) to Dumbéa and Nouméa municipalities (South Province).

### *Heterocerus mastersii* MACLEAY, 1871[2]

*Heterocerus mastersii* MACLEAY 1871: 173.

*Heterocerus mastersi* [incorrect subsequent spelling of *H. mastersii*]: ZAITZEV 1908: 319; ZAITZEV 1910: 60; CHARPENTIER 1968: 214 (lectotype designation); SAZHNEV 2023: 8.

*Heterocerus australasiae* WATERHOUSE 1874: 536 (type locality: Australia: Western Australia); ZAITZEV 1908: 316; ZAITZEV 1910: 55; CHARPENTIER 1968: 214 (lectotype designation, synonymy).

*Heterocerus victoriae* BLACKBURN 1891: 133 (type locality: Australia: Victoria); ZAITZEV 1908: 321; ZAITZEV 1910: 62; CHARPENTIER 1968: 214 (lectotype designation, synonymy).

TYPE LOCALITY: Australia (Queensland, Gayndah). Erroneously, the type locality of this species was indicated as "N. S. Wales" by ZAITZEV (1908, 1910).

MATERIAL EXAMINED:

SOUTH PROVINCE: 2 ♂♂ (SRAP): La Foa Municipality, Station de Recherche Agronomique de Pocquereux near La Foa, ca. 25 m a.s.l., 21°44'9.50"S 165°53'44.90"E, VII.2012, leg. R.M. M'Bouéri, "solar pest killer 13"; 1 ♂, 3 ♀♀ (CSU, NMW): Yaté Municipality, Lake Yaté at Route Provinciale 3, ca. 160 m a.s.l., 7.XI.2021, leg. J. Schultz, in mud – six additional females from this locality could not be unambiguously identified as either *H. debilipes* or *H. mastersii*.

DISTRIBUTION: Australia, New Caledonia (first record).

In New Caledonia, this species is so far known only from the South Province (Fig. 4).

[2] The exact publication date is not unambiguously specified in the original publication; it is assumed that the second part of the second volume of the Transactions of the Entomological Society of New South Wales (pp. 79–205), which includes the description of *H. mastersii*, was published in 1871 (see also http://hbs.bishopmuseum.org/dating/transentsocnsw.html).


Fig. 4: Distribution of *Heterocerus debilipes*, *H. flindersi* and *H. mastersii* in New Caledonia.

### Discussion on the specific distinctness of *Heterocerus debilipes* and *H. mastersii*

*Heterocerus debilipes* and *H. mastersii* are currently regarded as distinct species. A number of variable characters, mainly concerning the colouration, were used by CHARPENTIER (1968) to distinguish these two species. *Heterocerus debilipes* is on average smaller than *H. mastersii*; in *H. debilipes*, the scutellary stripes are usually longer, more oblique and adjoining the elytral suture behind the scutellum, whereas in *H. mastersii* the scutellary stripes are usually shorter, parallel and not reaching the suture (see CHARPENTIER 968: figs. 1–2). However, as usual in Heteroceridae, the colour pattern is extremely variable and often blurred, allowing no unambiguous identification in many cases. CHARPENTIER (1968: 219) himself admitted that "All intermediate types occur within the [two] species".

According to CHARPENTIER (1968), the parameres of *H. mastersii* are "subparallel", while in *H. debilipes* the parameres are "converging anteriorly", and their sides are "more or less concave". Just like the colour pattern, the parameres in these two species are quite variable; they can be wide or slim, apically rounded or acute and more or less emarginate subapically.

In Australia, both "species" have the same distribution, and it cannot be excluded that the differences in the shape of the weakly sclerotized parameres are based on individual variability and that *H. debilipes* is just a junior synonym of *H. mastersii*. Molecular data would certainly be useful to confirm the specific status of *H. mastersii* and *H. debilipes*.

## Conclusions

Three species of *Heterocerus* are currently known from New Caledonia, but two of these, *H. debilipes* and *H. mastersii*, are very similar and might even be synonyms.

While *H. debilipes* and *H. mastersii* are each known only from two localities, *H. flindersi* is by far the most common and most wide-spread species in New Caledonia, currently known from nine localities.

Most specimens of Heteroceridae recorded from New Caledonia so far were collected on the west coast of Grande Terre (Fig. 4) at low altitudes (2–50 m a.s.l.), either at light or in the mud at natural water bodies (habitat photographs were published by JÄCH & BALKE (2010: fig. 19) and SKALICKÝ (2010: fig. 1)); four specimens (of *H. mastersii*) were collected in an artificial reservoir (Lake Yaté) at ca. 160 m a.s.l. in the very south of Grande Terre. No specimens have been found on the hitherto still poorly studied east coast or on any of the smaller islands of New Caledonia.

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