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Review of the Rhyparini (Coleoptera: Scarabaeidae: Aphodiinae) of eastern Melanesia and Polynesia, with descriptions of new species

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Abstract

The Rhyparini (Coleoptera: Scarabaeidae: Aphodiinae) of the small island nations in eastern Melanesia (Fiji, New Caledonia, Vanuatu) and Polynesia (Samoa) are reviewed. New distributional records, keys, and illustrations of the three genera and 10 species for the region are presented. *Monteitheolus* Howden & Storey, 2000, is considered a **new synonym** of *Hadrorhyparus* Howden, 1995, resulting in *Hadrorhyparus fijiensis* (Howden & Storey, 2000), **new combination.** Generic limits of *Antecessorirhyparus* Minkina, 2020, are reviewed. The recently described, *Antecessorirhyparus papuanus* Minkina & Jákl, 2024, from Papua New Guinea, is discussed and is here placed in *Rhyparus* Westwood, 1845, becoming *Rhyparus papuanus* (Minkina & Jákl), **new combination**. Three **new species** are described: *Antecessorirhyparus samoaensis* (Samoa), *Hadrorhyparus vitiensis* (Fiji), and *Rhyparus vanuatuensis* (Vanuatu). The widespread species *Rhyparus helophoroides* Fairmaire, 1893, and variable *Rhyparus breviceps* Paulian, 1984, are reported from Samoa and are possibly adventive (recent immigrants). A lectotype is **here designated** for *Rhyparus rugatus* Arrow, 1935, from Vanuatu.

Key words: Oceania, South Pacific, taxonomy, new species, new records, adventive

Introduction

While examining Rhyparini (Coleoptera: Scarabaeidae: Aphodiinae) in the New Zealand Arthropod Collection, Auckland (NZAC), undescribed species of *Antecessorirhyparus* Minkina, 2020 and *Rhyparus* Westwood, 1845 were found from island nations in eastern Melanesia and Samoa. This initiated a search leading to the discovery of additional new species and country records for the region. There are many recent scattered papers describing new taxa from the Asian-Australian Rhyparini. Only four works review members of *Rhyparus* from Melanesia or neighboring areas: the Philippines by Anichtchenko *et al*. (2021) and Ochi *et al*. (2021), New Guinea to the Solomons by Stebnicka (1998), and the Solomon Islands by Minkina *et al*. (2025). None covers the entire diversity of the Rhyparini of the areas discussed. Expanding on these works, the purpose of this article is to review all Rhyparini occurring in the small island nations east of the Solomon Islands (Fiji, New Caledonia, Samoa, and Vanuatu), describe new species, report new country records, and to provide keys and illustrations of all species.

Materials and Methods

Cleaning of specimens is frequently needed. They were soaked in light detergent water over night to soften dirt and relax the body. Larger chunks and encrustations were gently picked and broken up with a fine pin. Then the surfaces were cleaned with a fine hairbrush. If the encrustations were still present, they could be softened with a short (5–10 minute or more) soaking in 5% KOH. For some species, materials are extremely rare. Thus, individuals were

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handled gently and in general, not exposed to rigors of dissection. Enough information was available externally for study and description.

Label data for holotypes are given verbatim with a single forward slash "/" separating lines and a double forward slash "//" separating labels. Our comments for labels are in brackets "[ ]". Unless noted with the previous symbols for verbatim transcription, label data for paratypes and other materials are paraphrased and standardized. Previously described species are only diagnosed. Terminology for dorsal carinae follows Krikken & Huijbregts (1987) and Howden (2003).

Synonymy lists for each taxa include only references of relevance for taxonomic or nomenclatural events. These taxa are briefly mentioned in many publications, regional lists or catalogues, a growing number of website catalogs, *etc*., none of which are not cited here.

Scanning electron microscope images were taken with a JEOL JSM-5510LV electron microscope, set at a low accelerating voltage (5 kv) to image the unique specimen that was not sputter coated. Most photographs were taken using a Syncroscopy Auto-Montage system with a JVC 3-CCD, KY-F75U digital camera through a Leica Z16 APO lens. Images of *Rhyparus rugatus* Arrow, 1935 were taken with a Canon EOS 5D Mark III with a Canon MP-E 65mm macro lens. Images of the holotypes of *Hadrorhyparus pecki* Howden, 1995, were provided by Patrice Bouchard (CNC) and those of *Monteitheolus fijiensis* Howden & Storey, 2000 were provided by Geoff Thomas (QMA).

Materials studied are deposited in the following institutions:

BPBM—Bernice P. Bishop Museum, Honolulu, Hawaii, United States of America [Jeremy Frank]

CMNC—Canadian Museum of Nature, Gatineau, Quebec, Canada [Andrew Smith]

CNC—Canadian National Collection, Ottawa, Ontario, Canada [Patrice Bouchard]

CSCA—California State Collection of Arthropods, Sacramento, California, United States of America [Alexey Tishechkin]

FSCA—Florida State Collection of Arthropods, Gainesville, Florida, United States of America [Kyle Schnepp]

INHS—Illinois Natural History Survey, Champaign, Illinois, United States of America [Tommy McElrath]

ISEA—Łukasz Minkina collection, deposited in Institute of Systematics and Evolution of Animals Polish [Łukasz Przybyłowicz, Marek Banasiak]

MCZ—Museum of Comparative Zoology, Cambridge, Massachusetts, United States of America [Crystal Maier]

MHNG—Muséum d'Histoire Naturelle, Geneva, Switzerland [Giulio Cuccodoro]

NHML—Natural History Museum, London, United Kingdom [Max Barclay]

NZAC—New Zealand Arthropod Collection, LandCare Research, Auckland, New Zealand [Richard Leschen]

QMA—Queensland Museum, South Brisbane, Queensland, Australia [Geoff Thompson, Karin Koch, Nicole Gunter]

USNM—United States National Museum, Smithsonian Institution, Washington, District of Columbia, United States of America [Gino Nearns]

Results

The following rhyparine species are recognized from the study region:

Antecessorirhyparus octovirgatus (Schmidt, 1916) – Fiji

Antecessorirhyparus samoaensis Skelley & Minkina, **new species** – Samoa

Hadrorhyparus fijiensis (Howden & Storey, 2000), **new combination** – Fiji

Hadrorhyparus pecki Howden, 1995 – Fiji

Hadrorhyparus vitiensis Skelley & Minkina, **new species** – Fiji

Rhyparus breviceps Paulian, 1984 – New Guinea, Solomon Islands, American Samoa

Rhyparus fijiensis Minkina, Anichtchenko, Vasiljeva, & Skelley, 2022 – Fiji

Rhyparus helophoroides Fairmaire, 1893 – widespread, including New Caledonia, Samoa, Vanuatu

Rhyparus rugatus Arrow, 1935 – Vanuatu

Rhyparus vanuatuensis Skelley & Minkina, **new species** – Vanuatu

Key to Rhyparini genera and species of Fiji, New Caledonia, Samoa, and Vanuatu

For comparison with potentially related taxa in the broader region, this key includes species reported from the Solomon Islands (Minkina *et al*. 2025). An asterisk "*" indicates species not presently known from the study region.

1 Metatibia greatly enlarged, broad, lobed or twisted (Figs. 10, 17, 23); elytra with caudal bulb small, trichome present or not; Fiji 2
- Metatibia narrow entire length, flattened, not enlarged or modified; elytra with caudal bulb large, trichome present and distinct; widespread 4
2 Body length > 4 mm; pronotum with posterior medial surfaces of intercostae bearing numerous large setae; elytron with caudal bulb reduced to small tubercle, not projecting, with patches of setae at apical end of discomedian costa, lacking trichome (Fig. 20) . . . . . *Hadrorhyparus pecki* Howden, 1995
- Body length < 4 mm; pronotum with posterior medial surfaces of intercostae appearing glabrous; elytron with caudal bulb present, projecting upward, trichome present or not 3
3 Pronotal lateral margin sinuate, nearly straight, not lobed (Fig. 23); elytra with small punctures at base of intercostae; with caudal trichome structure present, but not strongly setose (Fig. 27); metatibia strongly sinuate and lobed . . . . . *Hadrorhyparus vitiensis* Skelley & Minkina, **new species**
- Pronotal lateral margin with deep emargination between distinct anterior and median lobes (Fig. 10); elytra with large, deep punctures at base of intercostae; with caudal trichome reduced, apparently absent (Fig. 14); metatibia appearing twisted, somewhat sinuate, not lobed . . . . . *Hadrorhyparus fijiensis* (Howden & Storey, 2000)
4 Elytra with intervals between costa raised, glossy, only slightly less prominent than alternating costae (Figs. 1, 5) 5
- Elytra with intervals between costa flattened, dulled, distinctly different than alternating costae (Figs. 28, 30, 32, 34, 40) . . . 6
5 Pronotum with paramedian costae not distinctly convergent anteriorly; median costal interval with minute punctures only; all costal intervals flattened posteriorly (Figs. 1, 4); Fiji . . . . . *Antecessorirhyparus octovirgatus* (Schmidt, 1916)
- Pronotum with paramedian costae distinctly converged in anterior third; median interval with numerous large punctures and two distinct pits at basal third; lateral costal intervals convex posteriorly, almost appearing as short costae (Figs. 5, 8); Samoa . . . . . *Antecessorirhyparus samoaensis* Skelley & Minkina, **new species**
6 Body length < 5.5 mm (most < 5mm); abdominal ventrites 2–3 distinctly crenate along anterior margin (Fig. 31) 7
- Body length > 6 mm; abdominal ventrites 2–3 smooth along anterior margin (Figs. 35, 41) 8
7 Pronotum with posterior third of median intercosta usually bearing some dense punctures; elytral intercostae rarely with visible setae between rows of punctures; metatibia of male with inner margin swollen at basal third then flattened or concave to apex which lacks an inner apical tooth (Fig. 32); last abdominal ventrite of male with prominent median keel (Fig. 33); widespread . . . . . *Rhyparus helophoroides* Fairmaire, 1893
- Pronotum with posterior third of median intercosta lacking punctures; elytral intercostae with macrosetae between rows of punctures; metatibia of male with inner margin regularly rounded entire length to a large inner apical tooth; last abdominal ventrite of male lacking prominent median keel (see figures in Minkina *et al*. 2025); Solomon Islands, eastern Papua New Guinea . . . . . * *Rhyparus guadalcanalensis* Minkina, Skelley, Jákl, Král, & Li, 2025
8 Clypeus anterior margin on each side obtusely angled (Fig. 37); elytral intercostal 3, between discolateral and posthumeral costae, lacking costal remnant and third median row of punctures (rarely with a few minute punctures (Figs. 28, 34); mesotarsus and metatarsus with ventral surface densely pilose, hiding surface; abdominal ventrites with distinct triangular fovea on each side (Fig. 35); female with pygidium normal (held more perpendicular to axis of body), lacking apical process; terminal abdominal ventrite not shortened medially for pygidium 9
- Clypeus anterior margin on each side with acute tooth (Fig. 40); elytral intercosta between discolateral and posthumeral costae with a costal remnant at base (Figs. 32, 40) and a median third row of small punctures nearly to apex; mesotarsus and metatarsus with ventral surface lacking or weakly pilose, surface visible; abdominal ventrites punctate, lacking fovea on each side; female with pygidium depressed (held along longitudinal axis of body), with apical process; terminal abdominal ventrite shortened medially to receive pygidium (Figs. 33, 43) 10
9 Elytral intercostal surface rugose with two to three rows of punctures, which can be obscured by rugosity; caudal trichome small; caudal bulb with two conical, prominent lobes (Figs. 34, 37); Vanuatu . . . . . *Rhyparus rugatus* Arrow, 1935
- Elytral intercostal surface smoothly flattened between two rows of punctures; caudal trichome large; caudal bulb with two rounded, less prominent lobes (Figs. 28, 29); New Guinea, Solomon Islands, American Samoa . . . . . *Rhyparus breviceps* Paulian, 1984
10 Pronotum with intercostae densely punctate, punctures in posterior half separated by a diameter or more (Fig. 30); elytral intercostae glossy, with opalescent sheen; median puncture row of third intercosta rarely reaching midlength; female with apex of pygidium narrowly truncate (Fig. 31); Fiji . . . . . *Rhyparus fijiensis* Minkina, Anichtchenko, Vasiljeva, & Skelley, 2022
- Pronotum with intercostae coarsely, densely punctate, punctures in posterior half separated by less than a diameter; elytral intercostae matt, lacking sheen; median puncture row of third intercosta surpassing midlength, often reaching apex; female with apex of pygidium acutely rounded, not truncate (Fig. 43) 11
11 Elytra with gradual swelling at posterior apex of discomedial costae; juxtasutural costae in lateral view near apex more angled ventrally (Fig. 40); female with anterior furrow of last ventrite distinctly narrower medially than laterally (Fig. 43); Vanuatu . . . . . *Rhyparus vanuatuensis* Skelley & Minkina, new species
- Elytra with abrupt, bulbous swelling at posterior apex of discomedial costae; juxtasutural costa in lateral view near apex evenly

rounded; female with anterior furrow of last ventrite not narrowed medially (see figures in Minkina *et al*. 2025); Solomon Islands . . . . . **Rhyparus malaitaensis* Minkina, Skelley, Jákl, Král, & Li, 2025

Antecessorirhyparus Minkina, 2020

Antecessorirhyparus Minkina, 2020a: 37. Type species *Rhyparus octovirgatus* Schmidt, 1916, by original designation.

Diagnosis. *Antecessorirhyparus* is distinguished from other genera of Rhyparini by the combination of the following: Body elongate, parallel sided; length 3.4–5.0 mm. Pronotal lateral margin sinuate, anterior and intermediate lobes weak; costae low. Elytral costal intervals convex, elytral costae only weakly higher than intervals; discomedial costa with postcostal bulb bearing a dorsal tuft of setae; with caudal bulb entire (not deeply notch dorsally in caudal view). Metaventrite lacking lateral depressions on disc. Abdominal ventrite 2–5 strongly crenate along broad anterior groove; with large triangular fovea on each side.

Comments. Prior to this work, *Antecessorirhyparus* contained two species: *A*. *octovirgatus* (Schmidt, 1916) from Fiji (Minkina 2020a), and *A*. *papuanus* Minkina & Jákl, 2024, that was recently described from Papua New Guinea (Minkina & Jákl 2024). With the new species described here, we can better define the generic limits of *Antecessorirhyparus*. The diagnosis above lists characters shared between *A. octovirgatus* and *A*. *samoaensis*, **new species**. However, several of these characters are not shared with *A. papuanus*, whose character states are shared with some species of *Rhyparus.* Based on this refined generic definition, *A. papuanus* is here transferred to the genus *Rhyparus*, becoming *Rhyparus papuanus* (Minkina & Jákl, 2024), **new combination**. However, *R*. *papuanus* remains an unusual species whose affinities within the broadly defined genus *Rhyparus* remain unclear. In several characters (larger body size, abdominal ventrites having smooth and narrow anterior furrow, abdominal ventrites lacking lateral fossae, dense pronotal punctation, low elytral costae, *etc*.), *R*. *papuanus* is similar to species with a modified female pygidium (Minkina *et al*. 2022, 2023, 2025). A female of this species may help resolve its relationships.

As discussed by Minkina (2020a), *A. octovirgatus* and now *A*. *samoaensis*, **new species,** share some characters with *Leptorhyparus* Howden, 2003 (Howden 2003; Minkina 2020b; Skelley 2021), and *Lioglyptoxenus* Pittino, 2006 (Pittino 2006). While some characters (abdominal ventrite crenulation and lateral fossa) would indicate closer relationship to other regional taxa like *R*. *guadalcanalensis* or *R*. *helophoroides*.

Antecessorirhyparus octovirgatus (Schmidt, 1916)

Figures 1–4

Rhyparus octovirgatus Schmidt, 1916: 101. Type locality: Fiji, Viti Levu.
Antecessorirhyparus octovirgatus (Schmidt, 1916). Minkina 2020a: 37 (redescription, combination).

Diagnosis. *Antecessorirhyparus octovirgatus* is distinguished by its small, parallel-sided body, length 3.7–5.0 mm (Figs. 1–3). Pronotum with paramedian costae straight and weakly converging anteriorly (Fig. 4); all intercostal areas flattened, dull, with only minute punctures; lateral margin weakly sinuate, lobes small. Elytron length two times pronotal length; discomedian costa with a caudal tuft of setae long; intercostal areas convex, almost same height as costae; and caudal bulb interrupting juxtasutural costa, which does not attain elytral apex.

Distribution. Fiji (Viti Levu).

Material examined. Holotype female from Fiji, Viti Levu, is deposited in Swedish Museum of Natural History, Stockholm, Sweden, labeled NHRS-GULI 000070205, and illustrated by Minkina (2020a). A second female was examined: Fiji: Viti Levu, Mount Victoria, W.M. Mann (1 FSCA). There is no date of collection on the second specimen, but likely 1915–1916 (Mann 1921).

Comment. As expected, there is variation between the two specimens of *A*. *octovirgatus*, including the body size (holotype being larger), body color (holotype being nearly black), as well as subtle differences in prominence of costae, puncture sizes, curvature of caudal bulbs, *etc*. (compare Figs. 1–4 with illustrations in Minkina 2020a). More materials are needed to evaluate these variations. They are within acceptable limits to consider these the same species.

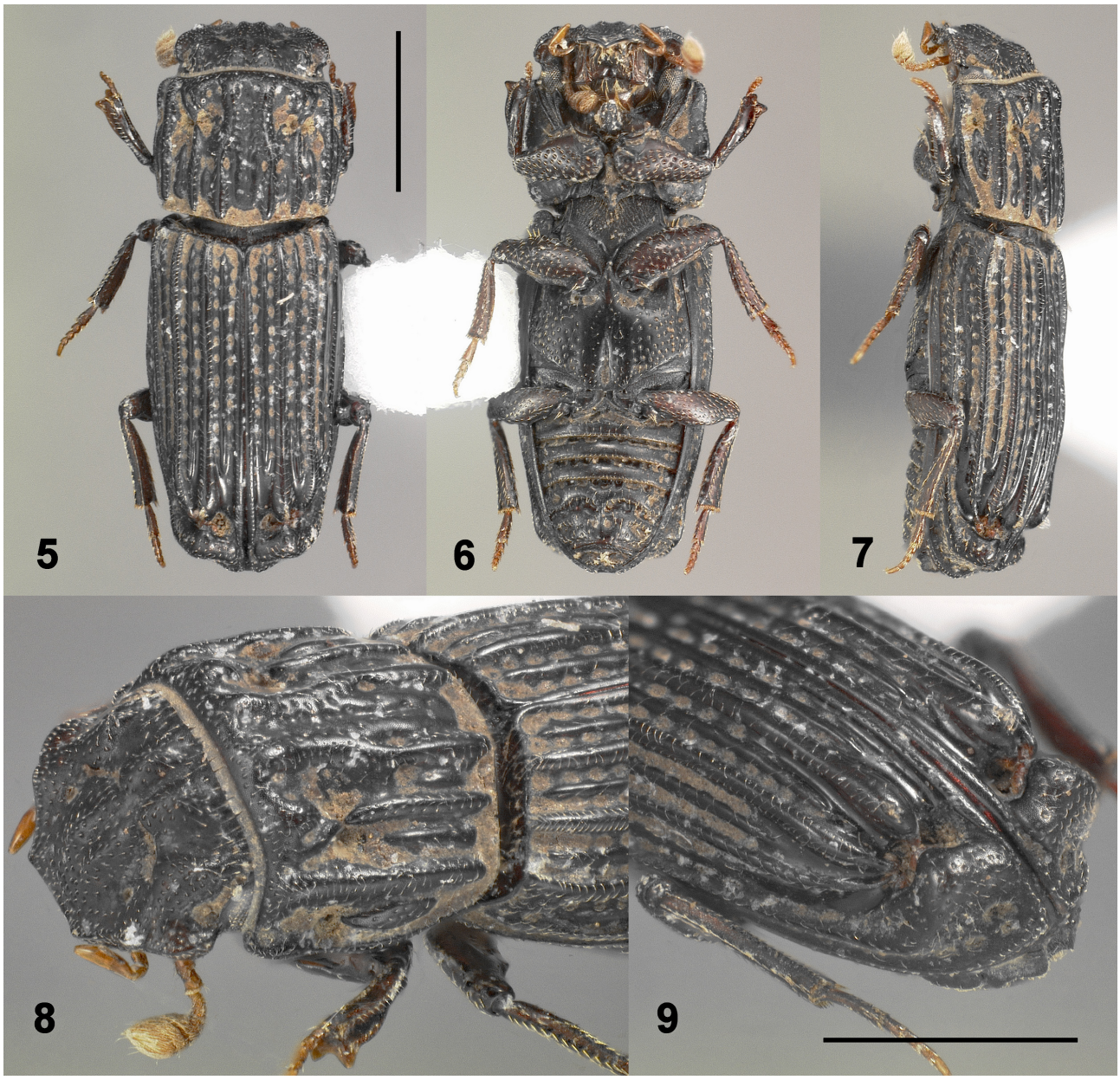
FIGURES 1–4. *Antecessorirhyparus octovirgatus* (Schmidt, 1916) female (FSCA). **1)** Habitus, dorsal view; **2)** habitus, ventral view; **3)** habitus, lateral view; **4)** head and pronotum, dorsal oblique anterior view. Scale lines = 1.0 mm.

Antecessorirhyparus samoaensis Skelley & Minkina, new species

Figures 5–9

Diagnosis. *Antecessorirhyparus samoaensis* is distinguished by its small, parallel-sided body, length 3.4 mm (Figs. 5–7). Pronotal paramedian costae constricted on anterior third; anterior and posterior parts of paramedian costae parallel with each other (Fig. 8); median intercostal area with large punctures on most of surface and distinct lateral

pits at basal third; lateral intercostal areas convex and shiny in posterior half, with only minute punctures; lateral margin almost straight, lobes indistinct. Elytron with length two times pronotal length; discomedian costa with a caudal tuft of setae short (Fig. 9); intercostal areas convex, almost same height as costae; and caudal bulb not interrupting juxtasutural costa, which attains elytral apex.



FIGURES 5–9. *Antecessorirhyparus samoaensis* Skelley & Minkina, new species, holotype female (NZAC). **5)** Habitus, dorsal view; **6)** habitus, ventral view; **7)** habitus, lateral view; **8)** head and pronotum, dorsal oblique anterior view; **9)** elytral apex, dorsal oblique caudal view. Scale lines = 1.0 mm.

Description. Holotype female. Body length 3.4 mm, width 1.2 mm. Elongate-oval, flattened, dark brown, glossy, appearing almost glabrous, partly clothed with fine, pale yellow setae on head and all longitudinal costae on pronotum and elytra. **Head.** Surface glossy, transversely sub-hexagonal. Clypeus trapezoidal in outline, anteriorly truncate, anterior margin upturned with obtuse, distinct tooth on each side of medial third, lateral thirds sinuous. Genae distinctly excavated anterior of eyes. Clypeocentral disc distinctly convex with two short and wide costae; peridiscal impression visible on basal half. Frons with four frontodiscal costate. Head covered by very irregularly spaced, fine to moderate punctures; all punctures with short, pale yellow setae. **Pronotum.** Surface glossy, widest in middle, with paramedian, discolateral, posthumeral, and submarginal costae evident. Costae on each side with

very small punctures bearing very small setae. Paramedian costae constricted at anterior third, anterior and posterior parts parallel with each other. Discomedian costa distinctly interrupted by fovea on anterior third. Submarginal costa complete. Costal intervals 1–3 with large puncture near anterior margin, convex and costate in posterior half; interval 1 (median) between paramedian pronotal costae with numerous large punctures and distinct pores at basal third; interval between submarginal costa and lateral margin convex medially only. Lateral margin nearly straight, with indistinct anterior and intermediate lobes. **Elytra.** Surface glossy; each elytron with nine elevated costae and nine striae. Costae on each side with a row of very small punctures bearing very short setae. Odd numbered costae slightly higher than even numbered costae, corresponding to juxtasutural, discomedian, discolateral, and posthumeral costae. Elytral humerus at base of posthumeral costa bearing short macrosetae. Striae with large punctures, which weakly indents costal margins. Postdiscal bulbs at caudal apex of discomedian and discolateral moderately developed; apex of discomedian costa with short setal tuft. Caudal bulbs large, laterally truncate, not interrupting juxtasutural costa, which attains elytral apex. Caudal trichomes small. **Venter.** Surface weakly glossy. Metaventrite flattened, in the middle with distinct deep longitudinal median impression in posterior half, impression narrowing anteriorly; disc on either side with punctation large and regularly spaced, decreasing in size anteriorly and laterally, all punctures bearing short setae. Abdominal ventrites 2–5 with transverse anterior groove in which are large deep large punctures; laterally ventrites with 1–2 large punctures in shallow depression, rest of surface with scattered fine punctures bearing short setae. Abdominal ventrite 5 (last) with two large medial punctures, weakly longer in middle, with rather shallow furrows laterally. Pygidium with triangular fovea on each side of median carina. **Legs.** All femora weakly glossy, with moderately deep, distinct punctures; all punctures bearing very short setae. Mesotibia and metatibia weakly widened to narrow truncate apex. Mesotarsus and metatarsus with first tarsomere elongate, as long as next three tarsomeres combined.

Distribution. Samoa.

Material examined. The holotype female deposited at NZAC: "Aleisa Cave 1800' / Upolu, W. Samoa / 2.IV.69 A.K. Walker / cave entrance // Damp leaf litter / under large / tree roots // Aleisa Cave / #183 // [yellow paper] N.Z.Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand // [red paper] HOLOTYPE ♀ / *Antecessorirhyparus* / *samoaensis* Skelley / & Minkina 2025".

Etymology. Toponymic. Named for the country where it occurs.

Comments. *Antecessorirhyparus samoaensis* in western Polynesia, is presently the only known species of Rhyparini that is endemic and suspected to be native to Samoa. Two other species, *R. helophoroides* and *R. rugatus*, are widespread and suspected to have recently arrived in Samoa (see comments under those species).

Hadrorhyparus Howden, 1995

Hadrorhyparus Howden, 1995: 23–25, figs 1–4. Type species: *Hadrorhyparus pecki* Howden, 1995: 25, by original designation.

Monteitheolus Howden & Storey, 2000: 180–182. Type species: *Monteitheolus fijiensis* Howden & Storey, 2000: 182, by original designation. **New Synonymy.**

Diagnosis. *Hadrorhyparus* shares many characters with *Termitodiellus* Nakane, 1961: body not parallel sided, posteriorly convergent. Pronotum relatively large, broadest anteriorly, distinctly wider than long; lateral margin explanate, lobes notably dorsoventrally flattened. Elytra appearing short, notably narrowing caudally; widest near base humerus; posthumeral costa prominent at base, often reduced or absent by mid length; caudal trichome reduced or absent. Mesotibia flattened, variably triangular, gradually dilated toward apex; blade-like male mesotibial inner apical spur projecting along the axis of tibia, not perpendicular to tibia (*Termitodiellus*-type: see Skelley 2007). The most notable derived characters that readily distinguish *Hadrorhyparus* from the morphologically diverse *Termitodiellus* are the greatly enlarged metathoracic legs, with modified and broadly triangular metatibia, and a reduction of the caudal bulb and trichome on the elytra.

Comments. The derivation of the name *Hadrorhyparus* was not stated by Howden (1995). "*Hadros*" is Greek for well developed or bulky. The type species is large and bulky in appearance, when compared to more typical *Rhyparus* or *Termitodiellus*. Because of their smaller size and more elongate body, this bulky condition is not obvious in other species now placed in the genus.

Termitodiellus has many diverse species, probably many are still undescribed, and is widespread from

southeastern Asia and Indonesia into Oceania (Krikken & Huijbregts 1987; Jiang & Wang 2020; Minkina & Kakizoe 2020; Anichtchenko & Vasiljeva 2021), but none are known east of New Guinea. It seems highly possible that the geographically isolated *Hadrorhyparus* and *Monteitheolus* are part of a broader *Termitodiellus* lineage with more modified metathoracic legs.

The most unusual character for *Monteitheolus* stated by Howden & Storey (2000) is a deep pit on each side of the central discal area of the head in which there "appears to be a number of eye facets". These pits are present in all rhyparines but do not possess ocular facets. Studying the new photographs of the holotype (Fig. 15), the pits are obvious in the peridiscal groove, being similar to those of *H. pecki*, but no facets are visible. We feel this is simply a misinterpretation by the authors, and all other potential generic characters are shared with *Hadrorhyparus*.

Hadrorhyparus vitiensis, **new species** has a mix of characters previously distinguishing *Hadrorhyparus* from *Monteitheolus*, as well as possessing unique characters (*e.g.*, elytral trichome present). Upon studying the type of *M. fijiensis*, we find its metathoracic leg development to be intermediate between *Hadrorhyparus* and *Termitodiellus.*

Instead of adding additional generic names to a highly derived tribe needing more detailed study at a generic level, our present conclusion is that *Hadrorhyparus* and *Monteitheolus* are similarly modified members of a broadly distributed and diverse *Termitodiellus* lineage. There are many undescribed new species of *Termitodiellus* known from scattered regions of Indonesia. Generic and species relationships within *Termitodiellus* need further study, after its known diversity is better described. For now, we consider these Fijian species, all with modified metatibiae and small to reduced caudal bulbs of the elytra, to be a single genus. Thus, we synonymize *Monteitheolus* under *Hadrorhyparus* and place our new species in *Hadrorhyparus*.

Hadrorhyparus fijiensis (Howden & Storey, 2000), new combination

Figures 10–16

Monteitheolus fijiensis Howden & Storey, 2000: 182. Type locality: Fiji, Vanua Levu, Mount Delaikoro.

Diagnosis. *Hadrorhyparus fijiensis* is distinguished by its length 2.6 mm and width 1.3 mm (Figs. 10–12). Clypeal margin with weak fringe of setae; surface with deep peridiscal groove and pits (Fig. 15). Pronotal lateral margin with deep emarginations, with two distinct lobes (Fig. 13); submarginal costa lobe like, not reaching posterior angle. Elytron with dorsal intercostal surfaces medially smooth, glabrous and glossy, setae only near costae; submarginal costa distinct posteriorly, distinctly curving upward into small but distinct caudal bulb; trichome not visible in groove between discomedian costa and caudal bulb (Fig. 14). Metaventrite short, distance between mesocoxa and metacoxa less than or equal to width (long axis) of metacoxal; median groove is a rounded depression. Metafemur with posterior margin sinuate, with strong posterior marginal face entire length. Metatibia enlarged, dorsal (posterior margin) sinuate, not lobed, appearing simply twisted (Figs. 10–11).

Distribution. Fiji (Vanua Levu).

Material examined. Holotype female (QMA, photo examined, Fig. 10–15, gender based on mesotibia lacking apical tooth): "FIJI: VANUA LEVU: / Mt Delaikoro / 21 July 1987 / G. Monteith // Q.M. Berlesate No. 785 / 16.35'S. 179.20'E. / Rainforest 700m / Sieved litter // [red paper] HOLOTYPE / [handwritten] Monteitheolus / fijiensis / Howden + Storey // [yellow paper] QM Reg. No. / T46169 // [handwritten] Illustrated / G. Thompson / March, 1997 // [lavender paper] Photographed / Specimen" (Fig. 16).

Comments. Of the three species here considered be *Hadrorhyparus*, *H. fijiensis* is most similar to *Termitodiellus* in body shape, with a broad pronotum having large pronotal lateral marginal lobes, and with metatibia slightly enlarged and only twisted (not lobed).

Hadrorhyparus pecki Howden, 1995

Figures 17–22

Hadrorhyparus pecki Howden, 1995: 25, figs. 1–4. Type locality: Fiji, Viti Levu, Navai, Mount Tomanivi.

FIGURES 10–16. *Monteitheolus fijiensis* Howden & Storey, 2000, holotype female (QMA). **10)** Habitus, dorsal view; **11)** habitus, ventral view; **12)** habitus, lateral view. **13)** Head and pronotum, oblique view; **14)** elytral apex; **15)** dorsal oblique habitus; **16)** Labels. Photos © Queensland Museum, Geoff Thompson, used with permission. Scale lines = 0.25 mm.

FIGURES 17–22. *Hadrorhyparus pecki* Howden, 1995, male, Viti Levu (NZAC). **17)** Habitus, dorsal view; **18)** habitus, ventral view; **19)** habitus, lateral view; **20)** elytra and metathoracic legs, oblique lateral view. **21)** male genitalia, lateral view; **22)** male genitalia, caudal view. Scale lines = 1.0 mm.

Diagnosis. *Hadrorhyparus pecki* is distinguished by its robust body, length 4.0–4.9 mm (Figs. 17–19). Clypeal margin with weak medial fringe of setae. Pronotal lateral margin with deep emargination, with large flattened anterior and intermediate lobes; submarginal costa arching inward posteriorly to a more rounded posterior angle. Elytron with discomedian costa with patch of setae on reduced postdiscal bulb; dorsal intercostal surfaces rugose with evenly distributed long setae; submarginal costa weak posteriorly, curving slightly up and into greatly reduced caudal bulb; trichome absent (Fig. 20). Metaventrite short, distance between mesocoxa and metacoxa less than or equal to width (long axis) of metacoxal; median groove evident by large, nearly circular pit in posterior half. Mesofemur of male with elongate apical spur (Figs. 17–18), female lacking spur. Metafemur with posterior margin sinuate, with strong posterior marginal face entire length. Metatibia enlarged, dorsal (posterior margin) with large

median notch with large basal and apical lobes. Male genitalia with basal piece and parameres almost equal in length (Figs. 21–22).

Distribution. Fiji (Viti Levu, Vanua Levu).

Material examined. Holotype female (CNC): "FIJI: Viti Levu, Navai / base of Mt. Tomanivi, / 1000m., 22. VIII.[19]78 / S. Peck, moss on logs // [red paper, handwritten] HOLOTYPE / Hadrorhyparus / pecki / H. Howden // [red paper, printed] HOLOTYPE / Hadrorhyparus / pecki / H. Howden, 1995 / CNC No. 22943 // [white paper, with blue border] CNC / 312433".

Two additional specimens were studied: **FIJI: Viti Levu:** Nadarivatu, 1000 m, 17.X.1977, G. Kuschel, litter and wood, 77/120 (1 ♀ NZAC). **FIJI: Vanua Levu:** Savusavu Saddle, 500 m, 26.X.1977, G. Kuschel, litter and wood, 77/129 (1 ♂ NZAC).

Comments. The mesotibial inner apical tooth of the male is not much larger than on the females. Observed subtle variations are based on a few specimens from different islands. More materials are needed to better understand the variations within the species, sexual dimorphism, and between the populations on different islands. For now, all are within the range of variation to be considered a single species.

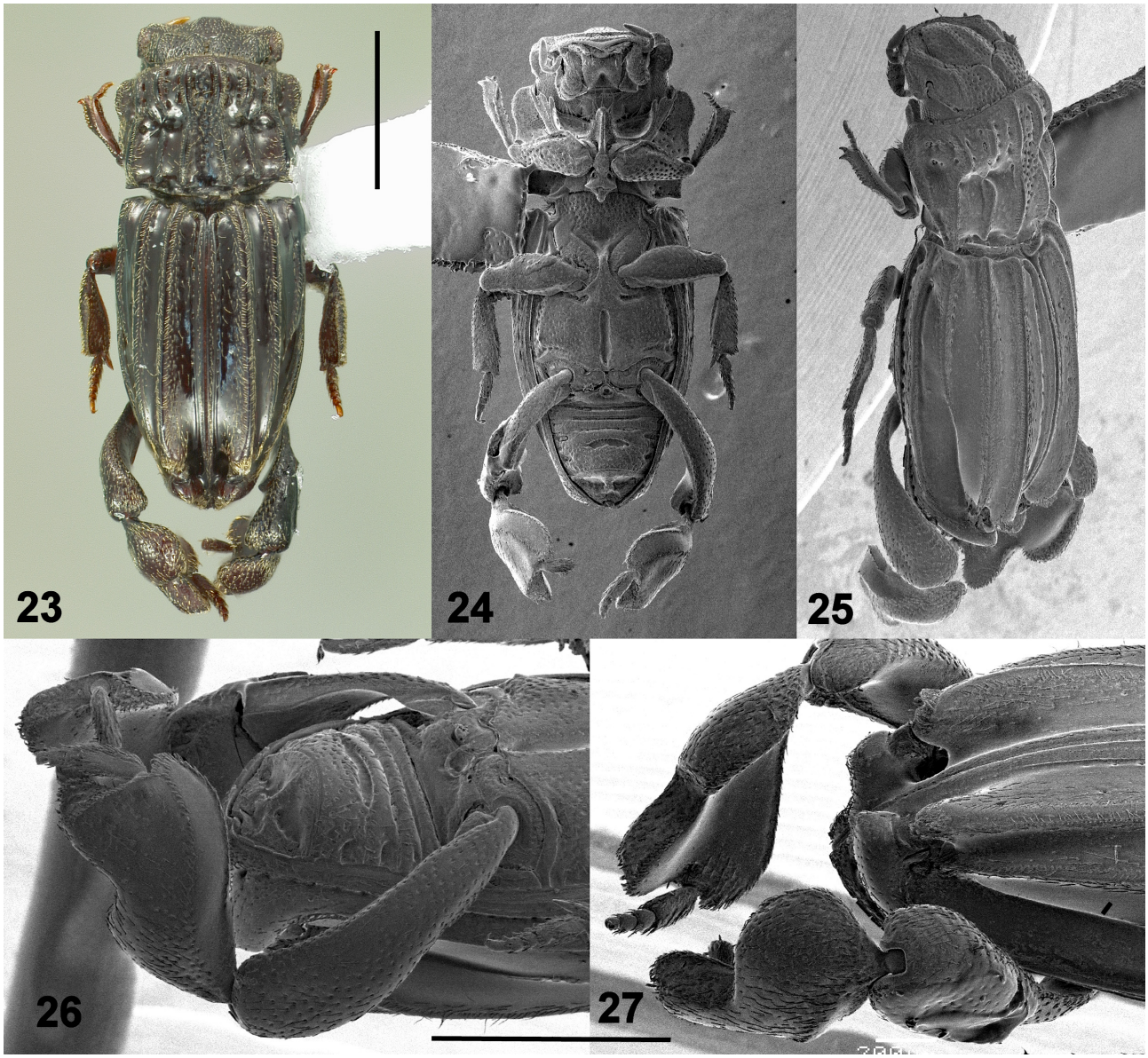
Hadrorhyparus vitiensis Skelley & Minkina, new species

Figures 23–27

Diagnosis. *Hadrorhyparus vitiensis* is recognized by the more parallel-sided body (when compared with other species in the genus), length 3.4 mm (Figs. 23–25). Pronotal lateral margin explanate and weakly sinuate, nearly straight, without sharply defined anterior and median lobes; submarginal costa straight posteriorly reaching sharp posterior angle. Elytron with dorsal intercostal surfaces medially smooth, glabrous and glossy, long setae only near costae; submarginal costa distinct posteriorly, distinctly curving upward into distinct caudal bulb; trichome present (Fig. 27). Metaventrite long, distance between mesocoxa and metacoxa nearly equal to width (long axis) of metacoxal; median groove evident as deep longitudinal groove. Metafemur with posterior margin straight, with weak posterior surface visible only medially (Fig. 26). Metatibia enlarged, dorsal (posterior margin) with large median notch with large basal and apical lobes.

Description. Holotype male. Body length 3.4 mm, width 1.3 mm; generally elongate, tapering posteriorly; dorsally glossy, ventrally weakly glossy; color red-brown. **Head**. Surface dulled, covered by rather regularly spaced, coarse punctures bearing short setae. Clypeus anterior margin gently, widely rounded to shallow emargination before gena, lateral angles indistinct; anterior margin lacking medial setal fringe; gena gently rounded, weakly protruding. Clypeocentral disc distinctly convex, ringed by a strong peridiscal impression, with weakly evident pair of anteriorly convergent costae. Frons with four weak longitudinal costae. **Prothorax**. Pronotum shiny, with six distinct convex costae and seven longitudinal intercostae, and prominent lateral margin. All costae on each side with row of minute punctures bearing short, fine setae. Paramedian costa reduced in anterior third, but not interrupted; converging anteriorly. Discolateral costae interrupted near middle. Submarginal costa reduced in anterior third, but not interrupted; straight, continuous sharply angled posterior lateral angle. Median intercostal (between paramedian costa) coarsely punctate, fewer punctures posteriorly. Other intercostae with two rows of coarse punctures anteriorly, lacking punctures and glossy posteriorly. Lateral margin sinuate; anterior and medial lobes weakly distinguished by shallow emargination, similarly weakly rounded; pronotum widest at anterior lobe. **Elytron**. Each elytron with six elevated costae (including lateral margin) and five flat intervals. All costae on each side with row of minute punctures bearing short, fine setae. Discomedian costa straight, similar development to slight caudal swelling (postdiscal bulb), which has patch of short setae, swollen end projects posteriorly to cover part of caudal bulb. Discolateral costa straight, similar development but gradually reducing in size to caudal end; costa with a small patch of short setae at apex, not apically swollen. Posthumeral costa prominent basally, reducing to fine carina at middle; fine carina continues to apex. Submarginal costa straight, evenly developed to apex, where it turns upward into caudal bulb. Caudal bulb almost circular in dorsal view, vertically elongate in caudal view; projecting to nearly reach apex of discomedian costa; with distinct trichome present between caudal bulb and discomedian costa. All elytral intervals medially flattened, highly glossy, lacking punctures; each side of intervals are rows of small setal bearing punctures. **Venter** (Fig. 24) moderately shiny, with microreticulation. Prosternal process well developed, posteriorly hastate. Mesoventrite with evenly distributed coarse puncture. Metaventrite flattened in middle, surface

with evenly distributed coarse punctures bearing short setae, with distinct shallow median longitudinal groove; sides of median impression with flattened surface and rows of small punctures; anterolateral juxtacostal impression small, groove like; length between mesocoxa and metacoxa nearly equal with width of metacoxae. **Abdomen**. Abdominal ventrites shiny, with weak microreticulation, with single transverse row of fine punctures, laterally with small depression; ventrites 2–3 very short, ventrite 4 longer, not a long as ventrite 5, ventrites 4–5 appear to be fused, surface of ventrite 5 with evenly distributed coarse punctures bearing fine setae. Pygidium in middle with weak Y-shaped ridge separating transverse depression on each side. Profemur ventral surface with large, dense, well-defined puncture bearing short setae. **Legs**. Protibia narrow with three small apical teeth. Mesofemur ventral surface with large, dense, weakly-defined puncture bearing short setae; posterior face broad, distinct from base to apex. Mesotibia somewhat flattened, triangular, expanding to broad flattened apex; distinct inner apical spur projecting in same axis with tibia, length almost equal to apical tibial width. Metafemur ventral surface with large, dense, weakly-defined puncture bearing short setae; elongate, swollen at apical third; posterior margin straight, with posterior face present only medially. Metatibia greatly enlarged; inner surface smooth, strongly concave; ventral (anterior) margin evenly curved, broad; dorsal (posterior) margin strongly sinuate, with large median notch separating large basal and apical lobes; outer surface with evenly scattered coarse punctures bearing fine setae, punctures become less distinct on apical half; apex broadly truncate and flattened. **Male genitalia**. Aedeagus was not dissected from holotype.



FIGURES 23–27. *Hadrorhyparus vitiensis* Skelley & Minkina, new species, holotype male (USNM). **23)** Habitus, dorsal view; **24)** habitus, ventral view; **25)** habitus, lateral view; **26)** metathoracic legs, oblique-ventral view; **27)** elytra and metathoracic legs, oblique-dorsal view. Scale lines = 1.0 mm.

Variation. Only the holotype male is known. Females are expected to have the mesotibial spur smaller than the male.

Distribution. Fiji (Viti Levu).

Material examined. The holotype male (USNM): "Nadarivatu, / Viti Levu, Fiji / W. M. Mann // [handwritten] with Triglyphothrix pacificum Mann. // Collection / W M Mann // [cursive handwriting in red ink] Aphodiinae / allied to Termi. / todius Wasm.? / (Krit. Verz. 1894) [referring to the publication describing *Termitodius* Wasmann, 1894] // [red paper] HOLOTYPE ♂ / *Hadrorhyparus* / *vitiensis* / Skelley & Minkina". There is no date of collection on the specimen, but W.M. Mann was a Sheldon Traveling Fellow of Harvard University (Cambridge, Massachusetts, United States of America) in 1915–1916, collecting insects that lived with ants in Fiji (Mann 1921).

Etymology. Toponymic. According to historians (*e.g.*, Schultz 1974), Fiji, is a spelling based on the pronunciation of island name by residents of Tonga. However, the indigenous people of "Fiji" call the islands, Viti, as in Viti Levu. We honor their name for the islands and name this species, "*viti-ensis*", meaning "from Viti", and by extension "from Fiji".

Comments. The holotype of this species was collected with "*Triglyphothrix pacifica* Mann, 1921" (Hymenoptera: Formicidae), which now goes by the name *Tetramorium manni* Bolton, 1985. The genus *Tetramorium* Mayr, 1855, is reported to be mostly predatory, but can live in cavities in logs, twigs, or in the soil. Such habitats are also occupied by termites, which might have been prey for the ant. Present information indicates *Termitodiellus* and possibly other genera are associated with termites. However, enlarged metatibiae are seen in some ant associated Histeridae (*e.g.*, *Terapus* Marseul, 1863). These tibial modifications may be benefits that allow them to live with ant hosts. Since most rhyparine habits and hosts are unknown, different taxa may associate with differing social insects. Field work and appropriate observations will confirm if the hosts are ants or termites, or potentially both.

Rhyparus Westwood, 1845

Rhyparus Westwood, 1845: 93. Type species: *Rhyparus desjardinsi* Westwood, 1845: 93, by monotypy.

Diagnosis. Member of Rhyparini, with pronotal costae, hastate posterior prosternal process and distinctly modified elytra apex with bulbs and trichome. Body elongate, weakly to more distinctly parallel-sided body Pronotal lateral margin with anterior and median lobes present. Elytral costae raised and intervals flattened (distinctly different); caudal bulb present, if divided into small lobes, trichome not divided. Metaventrite surface smooth, lacking distinct discal fovea on either side of midline. Male mesotibia and metatibia with inwardly directed apical spine (*Rhyparus*-type tibia: see Skelley 2007).

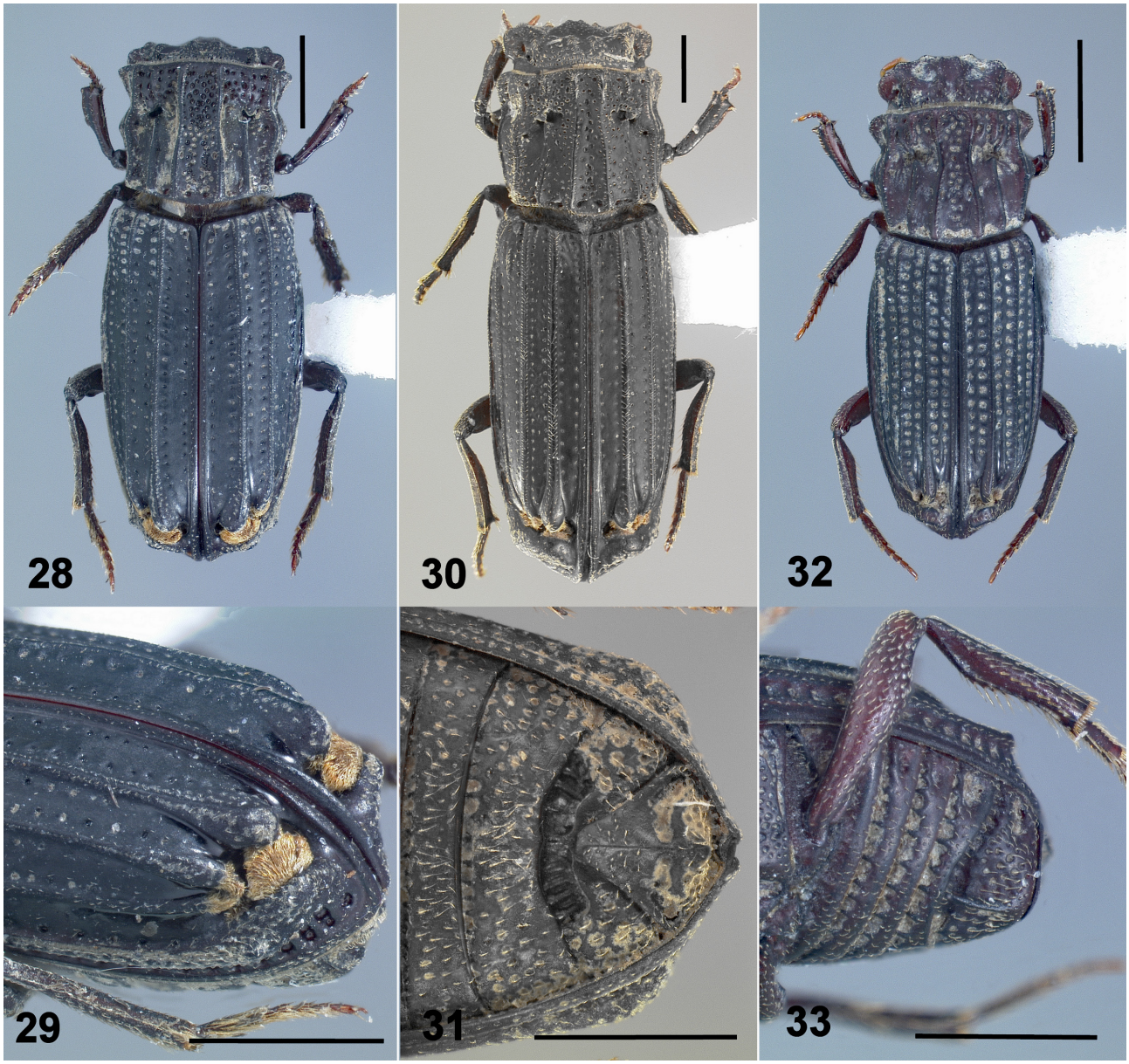
Comments. *Rhyparus*, as presently understood, is a diverse pantropical genus. Many members can be collected at light, others from leaf litter. Those that come to light can be common in collections because of this behavior. Their habits are poorly known and new, localized species are being discovered frequently (*e.g.*, Skelley & Smith 2024; Minkina *et al.* 2025), especially in these remote, under sampled, island nations, and when more focused sampling techniques are used, *e.g.*, litter extractions. The *Rhyparus* species discussed in this paper belong to more widespread complexes of species that require detailed revisionary work.

Rhyparus breviceps Paulian, 1984

Figures 28–29

Rhyparus breviceps Paulian, 1984: 472–474, fig. 1. Type locality: "Papua New Guinea, Morobe, umg. Kaiapit". Stebnicka 1998: 847 (redescription).

Diagnosis. A member of the genus *Rhyparus*, distinguished by the length 7.0–7.9 mm (Fig. 28). Pronotum with triangularly prominent anterior and intermediate lobes; prominent pronotal carina; median intercostal punctation coarse. Elytral intercostae smooth; first elytral intercostal with two rows of punctures; large trichome on caudal bulb (Fig. 29); caudal bulb with lobes triangularly rounded. Abdominal ventrites 2–4 not (or weakly) crenate anteriorly with triangular fovea on each side. Mesotarsus and metatarsus with ventral surface densely pilose, obscuring surface.



FIGURES 28–33. *Rhyparus* species. **28)** *Rhyparus breviceps* Paulian, female from Papua New Guinea, dorsal habitus; **29)** *Rhyparus breviceps* Paulian, female from Papua New Guinea, elytral apex, oblique-caudal view; **30)** *Rhyparus fijiensis* Minkina, Anichtchenko, Vasiljeva, & Skelley, dorsal habitus male paratype; **31)** *Rhyparus fijiensis* Minkina, Anichtchenko, Vasiljeva, & Skelley, abdominal ventrites female paratype; **32)** *Rhyparus helophoroides* Fairmaire, male from New Caledonia, dorsal habitus; **33)** *Rhyparus helophoroides* Fairmaire, male from New Caledonia, abdominal ventrites, ventral-oblique view. Scale lines = 1.0 mm.

Distribution. New Guinea (Stebnicka 1998), Solomon Islands (Minkina *et al*. 2025), and American Samoa.

Material examined (3 total). Holotype deposited in MHNG from Papua New Guinea and the following from the study region: **American Samoa**: Tuitula, Fagatoga, 10.I.1964, N.R. Spencer (2 BPBM, 1 FSCA).

Comments. While similar to *R. rugatus* in many ways, *R. breviceps* is easily distinguished from other regional species by the obtuse clypeal tooth on each side of anterior margin, distinct lateral lobes on pronotum, smooth elytral intercostae; and large elytral trichome. See comments under *R. rugatus*.

The presence of *R. breviceps* on American Samoa represents a very distant and potentially isolated population for this group of *Rhyparus*. However, these specimens are not distinguishable from *R. breviceps*, falling within a range of variation seen in materials from New Guinea and the Solomons. For now, they are considered *R. breviceps*, as there is a possibility the species may have recently migrated to the islands. See comments under *R. helophoroides*.

Rhyparus fijiensis Minkina, Anichtchenko, Vasiljeva, & Skelley, 2022

Figures 30–31

Rhyparus fijiensis Minkina, Anichtchenko, Vasiljeva, & Skelley, 2022: 86–88. Type locality: Fiji, Viti Levu Island, Navai.

Diagnosis. A member of the genus *Rhyparus* distinguished from other species by the larger body size, length 5.9–7.8 mm (Fig. 30). Head with clypeal margin sharply toothed. Pronotal lateral margin strongly sinuate and lobed; costa low and straight; surface evenly coarsely punctate with punctures separated by a one or more puncture diameter. Elytral costae low, straight; discomedian costa with postdiscal swelling abrupt, bulbous; intercostae glossy, with opalescent sheen. Abdomen of female with apical ventrite shortened medially; female pygidium depressed into last ventrite, surface weakly carinate medially with truncate apex (Fig. 31).

Distribution. Fiji (Vanua Levu, Viti Levu).

Material examined. A total of 28 specimens as cited in Minkina *et al.* (2022).

Comments. This is one of the species having modified female apical abdominal ventrite and pygidium (Minkina *et al*. 2022, 2023, 2025). See discussion under *Rhyparus vanuatuensis*, new species.

Rhyparus helophoroides Fairmaire, 1893

Figures 32–33

Rhyparus helophoroides Fairmaire, 1893: 145. Type locality: "Bornéo occ., Sambas; Java, Simpar et Kemanglen, rés. Tegal".
Rhyparus helephoroides [sic] Fairmaire. Schmidt 1910: 91; and other authors.
Rhyparus amamianus Nakane, 1956: 123. Type locality: Japan, Amani Ōshima, Sumiyo. Ochi 2001: 2–3 (synonymy).
Rhyparus australiae Lea, 1923: 19–20. Type locality: Australia, Queensland, Cairns District. Stebnicka 1998: 845 (synonymy).
Rhyparus orousseti Paulian, 1981: 111–112, fig. 1c. Type locality: Philippines, Luzon, Mountain Province, Baguio. Stebnicka 1998: 845 (synonymy).
Rhyparus risbeci Paulian, 1934: 220. Type locality: "Nouvelles-Hébrides" [Vanuatu]. Stebnicka 1998: 845 (synonymy).

Diagnosis. A member of the genus *Rhyparus* distinguished by the length 3.2–4.5 mm (Fig. 32). Body elongate, elytra laterally rounded, surface weakly glossy, dark reddish brown to black; pronotal and elytral costa well defined. Head surface with small, scattered punctures; anterior clypeal margin with obtuse tooth on each side. Pronotum with median intercostal area bearing scattered coarse punctures on entire surface; posterior half of lateral intercostae impunctate or with minute punctures; costa distinct along anterior margin; anterior and medial lobes on lateral margin distinctly triangular, prominent, anterior lobe slightly less prominent than median lobe. Elytra with intercostae flattened, each with two rows of large, deep, circular punctures, distance between rows of punctures narrow; trichome between caudal swellings of costae and caudal bulb small; caudal bulb rounded dorsally, with shallow depression separating weak internal and external lobes. Metaventrite with scattered coarse punctures on surface, distinct median groove and post mesocoxal pits present, lateral surfaces lacking fovea. Abdominal ventrites 2–5 with deep, strongly crenate anterior groove, ventrites with triangular fovea on each side; surface of ventrites 2–4 with fine punctures, ventrite 5 with scattered coarse punctures; ventrite 5 of male with strong median carina from anterior to posterior margin (Fig. 33), female with remnant carina on anterior half. Mesotibia of male with inner margin curved to prominent apical tooth; mesotibia of female with inner margin nearly straight, lacking apical tooth. Metatibia of male with inner margin swollen at basal third, then flattened or concave to apex, which lacks an inner apical tooth; metatibia of female with similar curvature, but much less pronounced. Mesotarsus and metatarsus setose ventrally, not dense, surface visible.

Distribution. Indonesia, Malaysia, Philippines, Taiwan, Japan, Korea, Papua New Guinea, Australia, the Solomon Islands, New Caledonia, and Vanuatu (Stebnicka 1998; Ochi 2001; Théry & Bordat 2012; Ochi *et al.* 2021; Choi & Lim 2022; Anichtchenko *et al.* 2022; Minkina *et al.* 2025). To this list we add American Samoa and Samoa, and several islands from Vanuatu. This species was initially reported in Vanuatu [New Hebrides] as "*R. risbeci* Paulian, 1934", without a specific locality or island being named.

Material examined (95 Total). The following from the study region: **NEW CALEDONIA: Northern Province:** Aoupinie, top camp, 21°10'44"S, 165°18'10"E, 750 m, 3.XI.2001, G. Monteith, mercury vapor lamp (1 QMA); Tiakan Beach, 21°2'20"S, 165°24'13"E, 5 m, 30.IV.2005, G. Monteith, mercury vapor lamp (6 QMA);

Southern Province: Pocquereux, near La Foa, 23–29.I.2005, P. Jolivet, at light (3 FSCA); Pocquereux, near La Foa, 350 m, 27.I.2005, P. Jolivet, night gleaning (1 FSCA); Farino Refuge, 21°38'56"S, 165°46'54"E, 220 m, 3.V.2005, G. Monteith, mercury vapor lamp (1 QMA).

VANUATU: Ambrym Island: 22.VIII-4.IX.1967, J. & M. Sedlacek (19 BPBM, 2 FSCA); **Efate Island:** Villa, VIII.1950, N.L.H. Krauss (1 BPBM); **Espiritus Santo Island:** [no further locality] 2.III.1945, R.W. Alrutz, INHS 850,485 (1 INHS); [no further locality] 6.III.1945, R.W. Alrutz, INHS 850,478 (1 INHS); Cumberland Peninsula, low Penaoru River at 14.9611°S, 166.6331°E, 100 m, 27.XI.2006, R. Kitching, ultraviolet light IS100B (sub) (1 FSCA); Cumberland Peninsula, low Penaoru River at 14.9611°S, 166.6331°E, 100 m, 25.XI–1.XII.2006, A.K. Tischenkin AT784, lights at camp, (1 CSCA, 1 FSCA); **Tanna Island:** Lenakel, 0–200 m, I.1981, N.L.H. Krauss (1 BPBM); **Pentecost Island:** 4–5.IV.1964, R. Straatman, light trap (1 BPBM).

AMERICAN SAMOA: Tutuila Island: Fagatoga, 1.XI.1963, N.R. Spencer (2 BPBM); Fagatoga, 4.XI.1963, N.R. Spencer (1 FSCA); Fagatoga, 30.XII.1963, N.R. Spencer (1 BPBM); Fagatoga, 10.I.1964, N.R. Spencer (1 BPBM); Pago Pago, 11.X.1963, N.R. Spencer (1 BPBM); Tafuna, 6.VII.1964, N.R. Spencer (1 BPBM); Tafuna, 22.IX.1964, N.R. Spencer (2 BPBM); Tafuna, 13.X.1964, N.R. Spencer (2 BPBM); Taputimu, 29.X.1963, N.R. Spencer (1 BPBM); Taputimu, 7.XI.1963, N.R. Spencer (1 BPBM); Taputimu, 5.XI.1963, N.R. Spencer (1 BPBM); Taputimu, 8.XI.1963, N.R. Spencer (2 BPBM); Taputimu, 26.XI.1963, N.R. Spencer (1 BPBM); Taputimu, 4.II.1964, N.R. Spencer (1 BPBM); Taputimu, 13.II.1964, N.R. Spencer, light trap (1 FSCA); Taputimu, 4.III.1964, N.R. Spencer, light trap (1 BPBM); Taputimu, 23.III.1964, N.R. Spencer, light trap (1 BPBM); Taputimu, 25.III.1964, N.R. Spencer, light trap (2 BPBM); Taputimu, 24.VI.1964, N.R. Spencer (1 BPBM); Taputimu, 25.VI.1964, N.R. Spencer (1 BPBM); Taputimu, 29.VI.1964, N.R. Spencer (1 BPBM); Taputimu, 13.X.1964, N.R. Spencer (3 BPBM).

SAMOA: Upolu: Afiamalu, III.1962, R.W. Taylor, at light trap (1 MCZ); [Apia], Alafua, 6.I.1970, P.A. Maddison, at light (1 NZAC); [Apia], Moto'otua, 11–12.XI.1975, P.A. Maddison, mercury vapor light (2 NZAC); [Apia], Nafanua, 20.II.1975, P.A. Maddison, mercury vapor light (1 NZAC); [Apia], Utumapu [road near Fagali'i Airport], 16.VII.1971, P.A. Maddison, mercury vapor lamp (2 NZAC); Utumapu, 26.VII.1971, P.A. Maddison, mercury-cadmium-zinc lamp (1 FSCA); Utumapu, 20.IX.1971, P.A. Maddison, super actinic lamp (2 FSCA, 1 NZAC); [Apia], Viavase [road near Fagali'i Airport], 1.II.1971, P.A. Maddison, at light (1 FSCA); Viavase, 10.IV.1973, P.A. Maddison, super actinic lamp (6 NZAC); Viavase, 10.VI.1973, P.A. Maddison, mercury vapor 500 w lamp (3 NZAC); Faleanniu [handwritten, Faleasiu?], 12.V.1973, P.A. Maddison, super actinic lamp (4 NZAC).

Comments. The three species here recorded from Samoa (*A. samoaensis*, *R. breviceps*, and *R. helophoroides*) extend the Rhyparini over 1000 km east from the nearest endemic members of the tribe in Fiji. Notably, the Samoan record for *R. helophoroides* is over 2200 km east of the previous record in Vanuatu, while *R. breviceps* is over 3000 km east from its report in the Solomon Islands (Minkina *et al.* 2025).

Rhyparus breviceps and *R. helophoroides* are known from multiple island groups, that are widely separated from Samoa. Considering the collection dates in Samoa of both species, with none prior to 1960 and so many after that, it seems likely that one of two things may have happen: 1) a lack of collecting efforts in the region prior to the 1960s, or 2) the species recently immigrated to the islands and established. During and after World War II, there was a strong allied presence and movement between islands in the lower Pacific Theatre. This included activities between the Solomon Islands, Samoa, and many island nations between.

Being described four times in various regions may illustrate the movement of *R. helophoroides* and its recognition after arrival. Most species of *Rhyparus* are usually more regionally restricted. Other inquilines with social insects are known to have followed their hosts or to possibly shift to native hosts after arrival. Two examples of inquiline Coleoptera immigrations into the North America are *Martineziana dutertrei* (Chalumeau, 1983) (Scarabaeidae: Aphodiinae; Woodruff 1973) and *Trichoideus desjardinsi* Guérin-Méneville, 1838 (Endomychidae: Pleganophorinae; Skelley & Burgess 1995).

These facts would indicate that *R. breviceps* and *R. helophoroides* could have recently migrated with human help and are not native to Samoa. Although not presently known from Fiji, *R. helophoroides* is expected to be found there and on other islands in the region.

Rhyparus rugatus Arrow, 1935

Figures 34–39

Rhyparus rugatus Arrow, 1935: 159–160. Type locality: "New Hebrides" [Vanuatu], Malekula Island, Ounua.

Diagnosis. A member of the genus *Rhyparus*, distinguished by the larger body size, length 6.0–7.5 mm (Figs. 34–38). Pronotum with triangularly prominent lateral anterior and intermediate lobes; costa prominent, carinate; median intercostal punctation coarse. Elytra with intercostae strongly rugose; first elytral intercosta with three rows of punctures (rarely two, often obscured by rugosity); small trichome on prominent caudal bulb which has two sharply defined external lobes (Figs. 34–35, 37). Mesotarsus and metatarsus with ventral surface densely pilose, hiding surface. Male genitalia with basal piece about four times longer than parameres (Fig. 38). Known only from Vanuatu.

Redescription. Body large, length 6.0–7.5 mm, width 2.3–2.7 mm; black, dulled. **Head** with clypeal anterior margin on each side obtusely angled; gena distinct; centroclypeal disc with indistinct punctures, bearing two short, weak longitudinal ridge at middle; frontal costa distinct. Pronotal and elytral costae distinctly raised, sharply defined; in lateral view, slightly undulating. **Pronotum** with paramedian costae convergent and less distinct at mid-length; median intercostae with large irregular punctures occupying most of surface; more lateral intercostal lacking distinct punctures on posterior half; lateral margin bearing distinct triangular anterior and medial lobes. **Elytra** with intercostae somewhat flattened, strongly rugose; first intercosta usually with three (rarely two) rows of punctures; second, third and fourth intercostae with two rows of punctures; third (humeral) intercostal lacking costal remnant at base); discomedial costa weakly swollen at caudal end, which has a small patch of short setae; caudal bulb with two distinct, conical prominent lobes, one at posterior end of submarginal costa and one posterior of discomedian costa; caudal trichome small, trichome on anterior margin of caudal bulb notably smaller than bulb; surface posterior to caudal bulb with single row of very large punctures, separate by distinct longitudinal carinae. **Venter.** Metaventrite smooth, surface with coarse punctures; median longitudinal groove narrow, with weak longitudinal ridges on each side. **Abdomen** with ventrites coarsely punctate, each with distinct triangular fovea on each side. Abdominal ventrites 2–3 smooth or weakly crenate along anterior groove; ventrite 4 moderately crenate; ventrite 5 with anterior groove very deep, slightly widest medially, strongly crenate deep in groove, surface of male with short weak median carina anteriorly. Pygidium of male and female, with strong median carina and deep triangular fossae on each side. **Legs.** Profemur with ventral surfaced coarsely deeply punctate, mesofemur and metafemur each less coarsely punctate; mesofemur with two teeth on posterior margin. Mesotibia of male with inner margin distinctly sinuate, with distinct inner apical tooth; tooth lacking in female. Metatibia of male with small inner apical tooth. Mesotarsus and metatarsus with ventral surface densely pilose, hiding surface. **Genitalia** of male with long tubular basal section, paramere length less than ¼ length of basal section.

Variation. The series available shows a lot of variation in the strength of the elytral surface rugosity. A few have the surface nearly smooth, most have the rugosity obscuring the coarse punctures. Some are so rugose that the coarse punctures are obscured. There is also variation in the number of puncture rows in the first costal interval, the majority having three rows. The lectotype shows an intermediate state between smooth and strongly rugose, and two or three rows of punctures. Other variation is notable in the shape of the lobes on the caudal bulb. Most are somewhat conical, some are more flattened, others (like on the lectotype) they are nearly cylindrical.

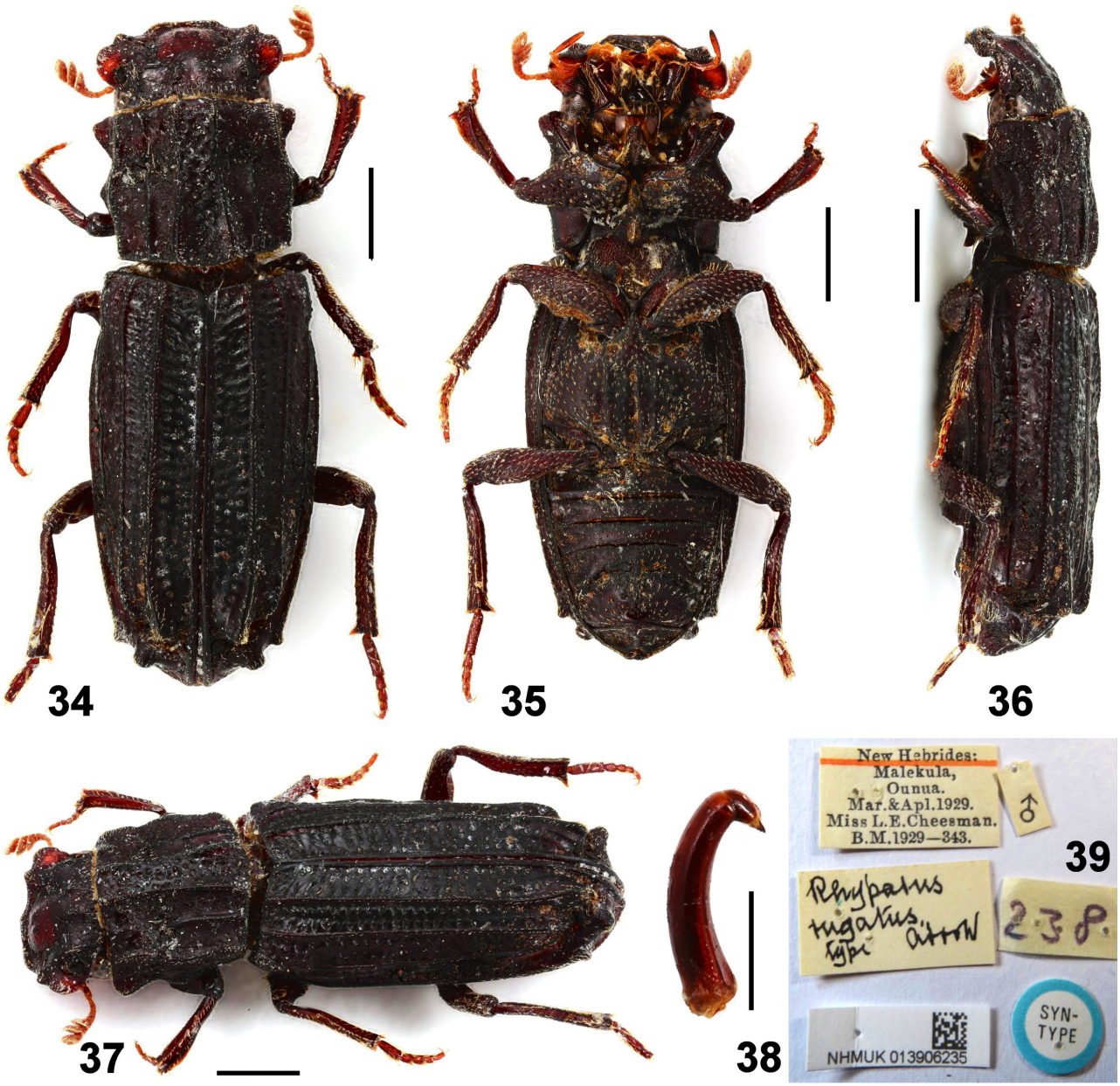
Distribution. Vanuatu (Malekula, Pentecost, Tanna islands).

Material examined. The **lectotype male** (NHML, **here designated**): "New Hebrides: [with orange underline] / Malekula, / Ounua. / Mar. & Apl. 1929. / Miss L. E. Cheesman. / B.M. 1929—343. // ♂ // [handwritten, cursive] Rhyparus / rugatus / Type Arrow // [handwritten] 238 // [QR Code label] NHMUK 013906235 // [circular label with blue outline] SYN- / TYPE // [red label] LECTOTYPE ♂ / *Rhyparus rugatus* / Arrow, des. Skelley / & Minkina 2024" (Fig. 39). **Paralectotypes,** two female specimens (NHML), both similarly labeled: "New Hebrides: [with orange underline] / Malekula, / Ounua. / Feb. 1929. / Miss L. E. Cheesman. / B.M. 1929—234. // [handwritten] 232 // [circular label with blue outline] SYN- / TYPE // [yellow label] PARALECTOTYPE / *Rhyparus rugatus* / Arrow, des. Skelley / & Minkina 2024". They have QR Code labels "NHMUK 016194810" and "NHMUK 016194811".

Other materials (61 total). Vanuatu [New Hebrides]: Tanna Island, Lenakel, 0–150 m, I.1977, N.L.H. Krauss, Coll., Bishop Museum, Acc. #1977.81 (1 BPBM); Tanna Island, Lenakel, 0–200 m, III.1980, N.L.H. Krauss, Coll., Bishop Museum, Acc. #1980.128 (6 BPBM, 2 FSCA); Pentecost Island, 4–5.IV.1964, R. Straatman, light trap (37 BPBM, 4 CMNC, 7 FSCA, 4 ISEA).

Comments. Arrow (1935) stated studying three specimens when he described *R. rugatus*, but did not designate a holotype. To stabilize nomenclature to a single specimen, we here designate the illustrated syntype (Figs. 34–38) as the lectotype of *R. rugatus*. There are two paralectotypes from the same collection.

Rhyparus rugatus belongs to a complex of species that needs revision. To help with this future work, we redescribe, illustrate, and designate a lectotype for *R. rugatus*. Stebnicka (1998) stated *R. rugatus* might by a synonym of *R. breviceps* from New Guinea and the Solomon Islands (Minkina *et al.* 2025). However, she had a limited number of specimens available for study. With the available series of specimens, we see that some individuals have variations where certain characters are similar to *R. breviceps*. However, none has the combination of all characters at the same time as seen in normal *R. breviceps*. These consistent differences and their isolated distributions warrant retaining them as distinct species.



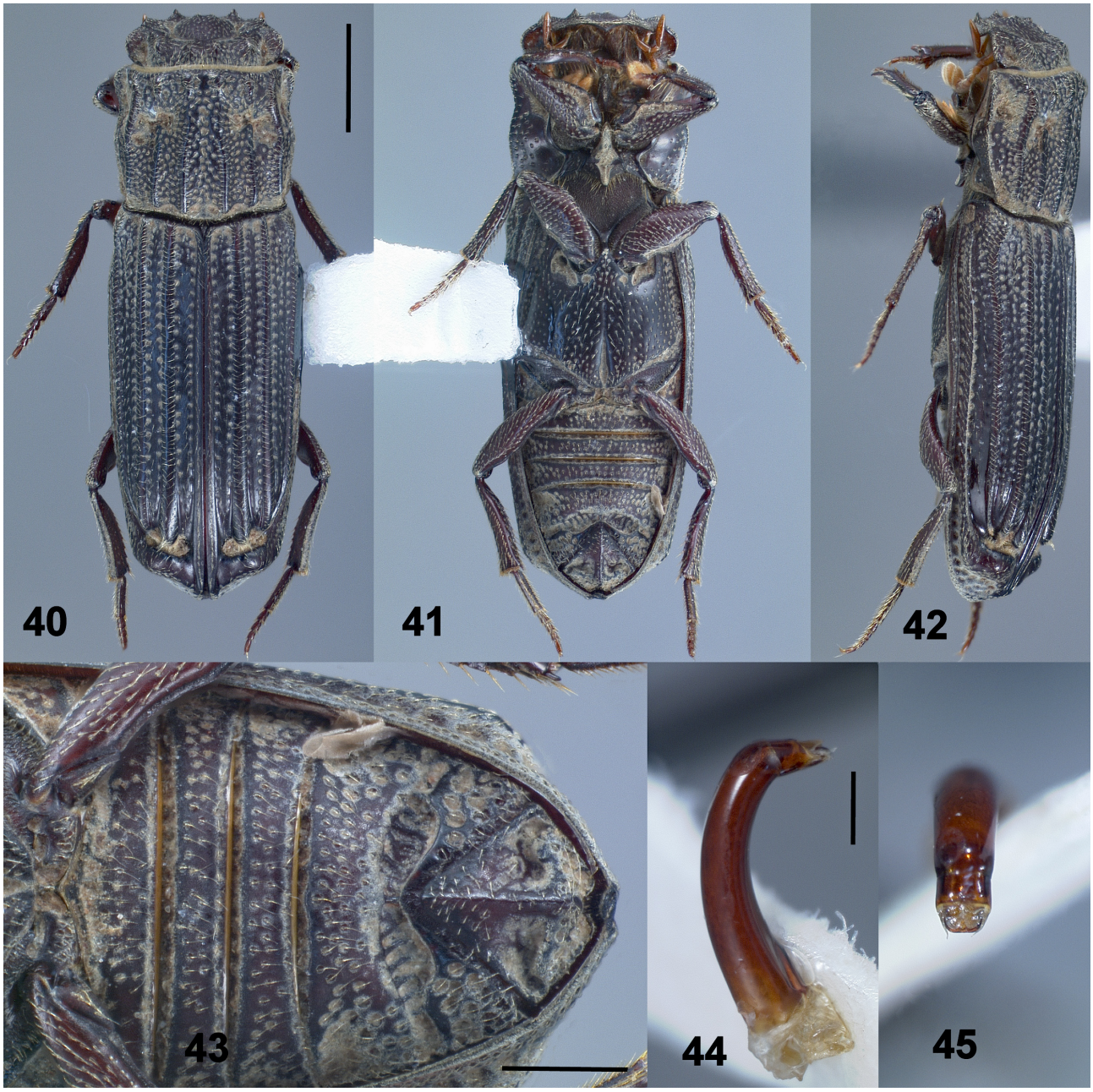
FIGURES 34–39. *Rhyparus rugatus* Arrow, lectotype male (NHML). **34)** Habitus, dorsal view; **35)** habitus, ventral view; **36)** habitus, lateral view; **37)** oblique dorsal habitus; **38)** genitalia, lateral view; **39)** labels. Scale lines = 1.0 mm.

***Rhyparus vanuatuensis* Skelley & Minkina, new species**

Figures 40–45

Diagnosis. *Rhyparus vanuatuensis* is distinguished from other species in the genus by its larger body size, length 5.7–6.6 mm (Figs. 40–42). Head with clypeal margin sharply toothed. Pronotum with lateral margin sinuate and weakly lobed; costa low and straight; surface evenly coarsely and densely punctate. Elytra with costae low, somewhat flattened, straight; costae with rows of long setae on each side (rubbed off on a few); intercostal 3 with a basal remnant of a costa; intercostal 3 with reduced third, medial row of punctures; discomedial costa gradually widening at caudal apex, not bulbous; juxtasutural costa in lateral view angled at apex. Abdominal ventrites lacking triangular fossa on each side; female last abdominal ventrite shortened medially; female pygidium depressed into last ventrite, surface weakly carinate medially with acute apex (Fig. 43).

Description. Holotype female. Length 5.7 mm, width 1.8 mm. Elongate, parallel sided, flattened, dark brown, surface generally dulled, partly clothed with fine, pale yellow setae on head and all longitudinal costae on pronotum and elytra. **Head.** Surface glossy, transversely sub-hexagonal. Clypeus trapezoidal in outline, anteriorly truncate in anterior view, concave between teeth in dorsal view; anterior margin upturned with sharp tooth on each side of medial third, lateral thirds concave to obtuse tooth anterior of clypeogenal junction. Gena prominent lobe laterally, distinctly excavated anterior of eyes. Clypeocentral disc convex with two short costae evident only as small tubercles visible in dorsal view; peridiscal impression strong basally, weak anteriorly. Frons with four short, distinct frontodiscal costae. Head covered with moderate to coarse punctures; coarse punctures at base of head, smaller punctures on clypeocentral disc; punctures with short, pale yellow setae. **Pronotum.** Surface dulled, costae glossy, widest in middle, with paramedian, discolateral, posthumeral, and submarginal costae distinct. Costae on each side with very small punctures bearing very small setae. Paramedian costae complete, most prominent at anterior margin, slightly reducing in prominence at weak constriction near anterior third, distinct and weakly diverging to posterior margin. Discomedian costa nearly straight, distinctly interrupted by fovea on anterior third, present at anterior margin. Submarginal costa complete, sinuate. All costal intervals equally, coarsely, densely punctured; puncture separated by half a diameter or less, rarely with flattened area in between. Lateral margin complete, sinuate with weakly produced anterior and intermediate lobes. **Elytra.** Surface with costae somewhat glossy, flattened intervals dulled; each elytron with five elevated costae separated by five flattened intervals. Costae moderately convex, low, not sharply convex; on each side with a row of very small punctures bearing long setae. Juxtasutural costa complete from base to apex, prominent behind caudal bulbs, angled ventrally. Discomedian costa straight from base to apex; gradually swelling at apex to small postdiscal bulb that has a weak tuft of setae at dorsal apex. Discolateral and posthumeral costae narrow entire length, curving inward at apex into trichome; basally a short accessory costa over humerus between discolateral and posthumeral costae. Submarginal costa narrow entire length turning inward to caudal bulb. Elytral humerus at base of posthumeral costa bearing punctures with short setae. Striae with large punctures, within a strial punctures separated from each other by a diameter or less, between striae in the flattened interval separated by a puncture diameter or slightly more; punctures weakly crenating costal margins. Costal intervals flattened, dulled, with large strial puncture appearing somewhat rugose; first and second costa interval with two strial puncture rows and few randomly scattered smaller punctures on interval; third costal interval between discolateral and posthumeral costae with two strial puncture rows and a third smaller row on interval, third row begins basally at the remnant accessory costa with punctures becoming gradually smaller as progressing posteriorly nearly to caudal trichomes; fourth costal interval with two strial puncture rows and randomly scattered puncture on interval basally, punctures becoming smaller and stop at apical quarter where interval becomes glossy to trichome. Caudal trichomes small, narrowed. Caudal bulbs large, laterally truncate, transverse, in dorsal view strongly rounded laterally and curving posteriorly to blunt point medially, broadly rounded dorsally in posterior view; upper part of bulb glossy with minute puncture, posteriorly with coarse punctures, surface between bulb and caudal margin strongly alutaceous with large punctures. **Venter.** Surface weakly glossy, with abdomen dulled. Metaventrite flattened, in the middle with distinct deep longitudinal median impression in posterior third, impression narrowing anteriorly; disc on either side with punctation large and regularly spaced more than one diameter apart, decreasing in size anteriorly and laterally, all punctures bearing short setae. Abdominal ventrites 2–4 with narrow transverse anterior groove that is smoothly margined and lacking large punctures; laterally ventrites lacking triangular depression on each side, rest of surface with scattered moderate punctures bearing short setae. Terminal abdominal ventrite shortened medially, with large anterior groove narrowed medially. Pygidium depressed, held on longitudinal axis with body; with complete central carina, ending with acute, triangular apex. **Legs.** All femora weakly glossy, with moderately deep, distinct punctures; all punctures bearing very short setae. Mesofemur robust, with posterior margin bearing a single blunt angulation at middle. Metafemur narrow, moderately widened at apical third. Protibial with inner apical tooth not projecting medially. Mesotibia and metatibia lacking inner apical tooth and concave inner margin.



FIGURES 40–45. *Rhyparus vanuatuensis* Skelley & Minkina, new species. **40)** Habitus, dorsal view, holotype female; **41)** habitus, ventral view, holotype female; **42)** habitus, lateral view, holotype female; **43)** abdominal ventrites, holotype female; **44)** male allotype genitalia, lateral view; **45)** male allotype genitalia, caudal view. Scale lines = 1.0 mm.

Allotype male. Body length 6.5 mm, width 2.1 mm. Abdominal ventrite 5 (last) as long as preceding two ventrites medially; surface evenly coarsely punctured, punctures separated by one diameter; medially with small carina on anterior half, ending at anterior margin which has a narrow, puncture filled groove extending to lateral margin. Pygidium with central carina weak, but complete, basally with ridges extending laterally to form base of transversely elongate fovea on each side of median carina. Protibia with tridentate apex; inner apical tooth projecting medially; medial margin concave in apical third. Mesotibia with apex truncate; large medially projecting tooth on inner apical angle; inner margin concave in apical third. Metatibia weakly widened to truncate apex; large medially projecting tooth on inner apical angle; inner margin weakly concave in apical third. Mesotarsomere 1 as long as mesotarsomeres 2–4 combined. Metatarsomere 1 as long as metatarsomeres 2–5 combined. Male genitalia with basal piece long (Figs. 44–45); parameres short, rounded in caudal view, length a fifth of basal piece length.

Variation. Length 5.7–6.6 mm, width 1.8–2.1 mm. The accessory costa over humerus is obsolete in some,

hidden in coarse punctation. The dorsal punctation varies a little in size and number. The pronotal punctation is always dense, coalescing in some.

Distribution. Vanuatu (Espiritus Santo Island).

Material examined. Holotype female and allotype male (FSCA): "VANUATU: Espiritus Santo I. / Cumberland Peninsula, / Saratsi Range at 14.9657°S / 166.6521°E. 700m. Flight / intercept FL7A-4. 30.xi-1-xii. / 2006. A.K. Tischenkin, AT827 /". Holotype with additional label on red paper "HOLOTYPE ♀/ Rhyparus / vanuatuensis / Skelley & Minkina". Allotype with additional label on blue paper "ALLOTYPE ♂ / *Rhyparus* / *vanuatuensis* / Skelley & Minkina".

Paratypes (24 total). All known specimens were from the same area: **VANUATU:** Espiritus Santo Island, Cumberland Peninsula, Saratsi Range at 14.9641°S, 166.6479°E, 600 m, 4–6.XI.2006, A.K. Tischenkin AT606, flight intercept FL6B-1 (3 CSCA); [same locality] 4–6.XI.2006, A.K. Tischenkin AT607, flight intercept FL6C-1 (1 BPBM; 2 CSCA); [same locality] 28–29.XI.2006, A.K. Tischenkin AT806, flight intercept FL6A-12 (1 CSCA); [same locality] 30.XI–1.XII.2006, A.K. Tischenkin AT822, flight intercept FL6B-13 (3 CSCA); [same locality] 30.XI–1.XII.2006, A.K. Tischenkin AT823, flight intercept FL6C-21 (1 FSCA); [same locality, different coordinates] at 14.9657°S, 166.6521°E, 700 m, 27–28.XI.2006, A.K. Tischenkin AT801, flight, intercept FL7A-1 (2 CSCA; 1 FSCA); [same locality] 29–30.XI.2006, A.K. Tischenkin AT818, flight intercept FL7A-3 (1 CSCA); [same locality, same data as holotype and allotype] (1 BPBM; 1 CSCA; 2 FSCA; 2 ISEA; 2 NHML).

Etymology. Toponymic. Named for the country where this species occurs.

Comments. *Rhyparus vanuatuensis* belongs to a complex of species readily distinguished from all others by the depressed female pygidium (Minkina *et al.* 2022, 2023, 2025). A female holotype was chosen because males are difficult to distinguish. However, both males and females of species in this complex share similar elongate, parallel-sided bodies; dentate clypeus; weakly lobed pronotal lateral margins; low, flattened, straight elytral costae; densely, evenly coarsely punctate pronotal surface; short accessory costae over the elytral humerus; metaventrite lacking discal depressions on each side; abdominal ventrites with narrow anterior grove and small punctures, and lack a lateral triangular fovea on each side. These species differ from each other in details of dorsal punctation, elytral costal development, female pygidial structure and other characters. The majority of species in this complex appear to have speciated on many of the isolated islands or island groups in Indonesia.

Considering all of the species in this group, *R. vanuatuensis* shares an acute or narrowly rounded apex (not truncate) of the female pygidium with four other species. Three of these species (*R. bacanensis* Minkina, Anichtchenko, Vasiljeva, & Skelley, 2022 from Moluccas, Bacan Island; *R. malaitaensis* Minkina, Skelley, Jákl, Král, & Li, 2025 from the Solomon Islands; and *R. obiensis* Minkina & Jákl, 2024 from Moluccas, Obi Island) have the caudal apex of the discomedian elytral costa rapidly widening, almost bulbous apex, while it is gradually widening to the apex in *R. vanuatuensis*. The other species, *R. argopurensis* Minkina & Jákl, 2024 (Java), shares details of the acute female pygidium and gradually swelling discomedian costa with *R. vanuatuensis*. They differ in having widely separate distributions, and *R. vanuatuensis* having long setae on the elytral costae, while *R. argopurensis* has short setae. Additionally, *R. vanuatuensis* have lateral lobes of pronotum less distinctly sinuate, median caudal bulbs less distinctly developed with no sinuation between median and external caudal bulbs.

Extra-regional *Rhyparus*

Two of the four *Rhyparus* species known to occur in the neighboring Solomon Islands (Minkina *et al.* 2025) also occur in this region (*R. breviceps* and *R. helophoroides*). The following two species from the Solomon Islands are not known to occur in this study region, but are included in the key for comparative purposes.

Rhyparus malaitaensis Minkina, Skelley, Jákl, Král, & Li, 2025

Rhyparus malaitaensis Minkina, Skelley, Jákl, Král, & Li, 2025: 568–571. Type locality: Solomon Islands, Malaita Island, south coast Hahorarumu Uru, Tribal Area.

Material examined. Type materials as cited and illustrated in the description of Minkina *et al.* (2025) from the Solomon Islands.

Comments. This species also belongs to the complex of species where the females have a modified apical abdominal ventrite and pygidium (see comments under *R. vanuatuensis*). It appears that each island region in Indonesia may have a different localized species in this complex.

Rhyparus guadalcanalensis Minkina, Skelley, Jákl, Král, & Li, 2025

Rhyparus guadalcanalensis Minkina Skelley, Jákl, Král, & Li, 2025: 564–567. Type locality. Solomon Islands, Guadalcanal Island, Karukiki.

Material examined. Type materials as cited and illustrated in the description of Minkina *et al*. (2025) from the Solomon Islands.

Comments. While similar to *R. helophoroides* in many ways, *R. guadalcanalensis* are easily distinguished by pronotal characters and male sexual dimorphisms. Additionally, it belongs to group of small species similar to *R. helophoroides* where each island region in Indonesia may have a different localized species in the complex. They are endemics sympatric with the widespread *R. helophoroides*.

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