

Microdytes bantasensis sp. nov., the first semi-subterranean diving beetle from Indonesia

(Coleoptera: Dytiscidae: Hyphydrini)

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Suprayitno, N., Hendrich, L., Narakusumo, R. P. & Balke, M. 2026. *Microdytes bantasensis* sp. nov., the first semi-subterranean diving beetle from Indonesia (Coleoptera: Dytiscidae: Hyphydrini). Spixiana 49(1): 61–65.

Microdytes bantasensis sp. nov. (Coleoptera: Dytiscidae, Hyphydrini) is described from the island of Bali, Indonesia. It is well characterized by its small eyes, the flattened body, the pale dorsal and ventral coloration, and the shape of the median lobe. Morphology and collecting circumstances indicate that *M. bantasensis* sp. nov. is a semi-subterranean species, showing a transition from epigeal to subterranean life. Altogether 39 species of Dytiscidae are now known from Bali.

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Introduction

The diving beetle genus *Microdytes* J. Balfour-Browne, 1946 comprises 56 described species (Okada et al. 2023, Nilsson & Hájek 2026). They are classified in the tribe Hyphydrini of the subfamily Hydroporinae. These small diving beetles are usually found in small seeps, springs, and streams, with a few known to inhabit subterranean and hygropetric environments (Wewalka 1997, Wewalka et al. 2007, Sheth et al. 2020, Okada et al. 2023). The genus is distributed throughout southern and southeastern Asia, from Nepal to southern India to southern China, southern Japan, The Philippines, and Indonesia (Nilsson & Hájek 2026). So far, only one species, the widespread *M. elgae* Hendrich, Wewalka & Balke,

1995, was recorded from Bali (Hendrich & Balke 1995, Suprayitno et al. 2017, 2022).

Intensive field work of the first author in the past decade, as part of a citizen science project dealing with the diving beetles of Bali (Suprayitno et al. 2017, 2022), revealed the high diversity of the Balinese fauna. Here, we describe a new species of *Microdytes* collected in a small Balinese stream.

The reduced eyes and wings, light pigmentation, and the peculiar collecting circumstances indicate that this is an evolutionary transition from epigeal to stygobitic life. Very similar scenarios have in fact already been discovered in other diving beetle taxa (see Balke & Ribera 2020).

With our present discovery, 39 species of Dytiscidae are now known from Bali.

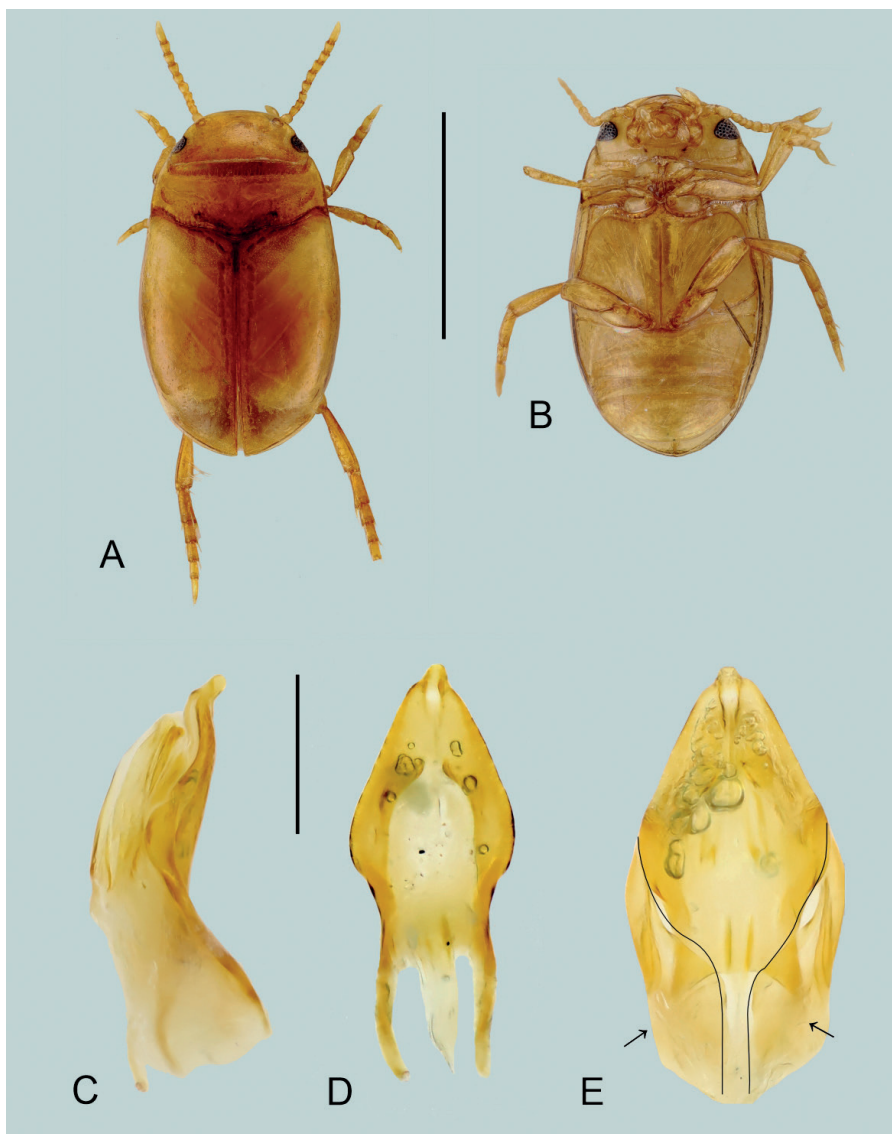


Fig. 1. Habitus of *Microdytes bantasensis* sp. nov.; **A.** dorsal view, paratype, male; **B.** ventral view of female paratype (scale bar: 1 mm). Male genitalia of *Microdytes bantasensis* sp. nov. (holotype); **C.** lateral view of median lobe; **D.** ventral view of median lobe; **E.** ventral view of median lobe with both parameres (see black arrows), outlined by a thin black line (scale bar: 0.1 mm). Photos by M. Balke and L. Hendrich.

Material and methods

Beetles were examined with a Leica M205C dissecting microscope with magnification ranging from 10× to 160×. The description of morphological characters follows previous work on *Microdytes* beetles (e.g., We-walka et al. 2007). Male genitalia were studied and illustrated in wet condition. The following abbreviations were used: TL, total body length; TL-H, total body

length without head; and MW, maximum body width.

The terminology denoting the orientation of the genitalia follows Miller & Nilsson (2003). Prior to dissection, dry specimens were soaked in hot water for a few minutes. Genitalia were extracted by inserting an insect pin into the abdominal opening.

Images were taken with a Canon EOS R camera. We used Mitutoyo 10× (habitus) and 20× (genital structures) ELWD Plan Apo objectives. These were attached

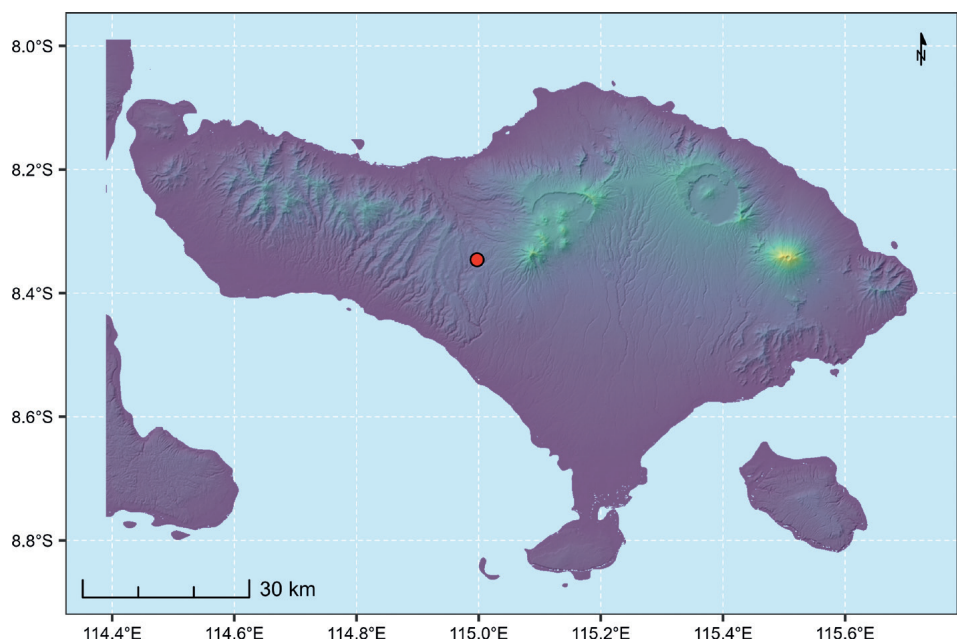


Fig. 2. Geographic distribution of *Microdytes bantasensis* sp. nov. on Bali.

to a Carl Zeiss Jena Sonnar 3.5/135 MC, used as a focus lens. Illumination was provided by three LED segments SN-1 from Stonemaster (<https://www.stonemaster-onlineshop.de>). Image stacks were generated with the Stackmaster macro rail (Stonemaster), and images were then assembled using Helicon Focus 4.77.

Label data of type material are cited within quotation marks. The specimens included in this study are deposited in the following collections:

MZB	Museum Zoologicum Bogoriense, Bogor, Java, Indonesia
ZSM	Zoologische Staatssammlung München, Munich, Germany

Taxonomy

Microdytes bantasensis sp. nov.

Type locality: Bantas village, Bali, Indonesia.

Type material. Holotype: Male, “Indonesia, Tabanan, Pajahan, Pupuan, Bantas village, 530 m, 8.3460°S, 114.9974°E, 23.v.2021, N. Suprayitno leg. (BALI_NS_2021_109)” (MZB). – **Paratypes:** 2 females, with same data as holotype (MZB, ZSM).

Description

Measurements. Holotype: TL 1.45 mm; TL-H 1.3 mm; TW 0.85 mm.

Body shape moderately elongate and apically truncate (Fig. 1A). Outline of body without distinct

discontinuity at base. Colour of beetle testaceous, broadly paler laterally and apically, pronotum darkened at base (Fig. 1).

Head. Large; eyes strongly reduced and small; frontal part of head flattened with anterior margin unbeaded; labrum not covered by anterior clypeal edge in anterior view; punctures very sparse and fine, finely microreticulate; antennomeres 1–9 short and slightly expanded in apical half, last antennomere twice as long as wide. Antenna not modified in male.

Pronotum. Posterior angle slightly produced posteriorly; lateral bead fine, slightly broader posteriorly; punctures irregular, very sparse, moderately fine; coarse but small punctures along anterior and posterior margins; without any microreticulation.

Elytra. Anterolateral angle not extended anteriorly; surface shiny; small punctures irregular and very sparse and moderately fine, with traces of two rows of coarser punctures alongside suture; without any microreticulation.

Ventral side. Neck of prosternal process with fine border and moderately broad, apex rounded, lateral bead of process broad and in-between concave so that lateral bead virtually forming a container; apex reaching metaventricle; metaventral wing posterior to procoxae narrow; metacoxae not soldered to abdomen. Punctures coarse and restricted to proximal section of metaventricle, appearing only rudimentarily on metaventral wings, and lacking microreticulation.



Fig. 3. Habitat of *Microdytes bantasensis* sp. nov. at Tabanan, Pajahan, Pupuan, 530 m. **A.** Shallow stream, shaded by second growth vegetation with a thin layer of mud on a gravelly bottom. The kitchen strainer used is circled in black. Above on the left, a living specimen of the new species; **B.** Almost dry stream bed with only a film (C) of water and rotten leaves, and small depressions (D) dug by the first author in the otherwise dry riverbed. The small picture shows all three specimens when freshly collected with their not faded colour. Photos by N. Suprayitno.

Ventrites I-III tightly fused, with sutures nearly imperceptible; edge of last ventrite with fine border and very broadly rounded distally (Fig. 1B).

Legs. Length of metatarsal claws unequal, size of anterior metatarsal claw reduced.

Male. Median lobe in lateral view barely curved and in ventral view widened in middle, and strongly tapering towards tip (Fig. 1C,D). Parameres slender and attached here to median lobe, depicted together with it in Fig. 1E. In the attempt to remove them and photograph them separately, they were too severely damaged. Antennae not modified (Fig. 1A); pro- and mesotarsal segments not enlarged.

Female. One female is slightly larger than the holotype.

Variation. The paratypes vary in size: TL 1.45–1.50 mm; TL-H 1.30–1.35 mm; TW 0.85–0.90 mm. When freshly collected, the darker coloration on the elytra was more prominent in all three specimens (Fig. 3D). Presumably, the specimens were faded due to prolonged storage in high-proof alcohol.

Etymology. This species is dedicated to the Balinese Bantas village where the type material has been collected. The species name is an adjective in the nominative singular.

Differential diagnosis. *Microdytes bantasensis* sp. nov. is easily defined by the following combination of characters: (1) eyes greatly reduced, (2) integument with minimal pigmentation and translucent, (3) body flattened dorsoventrally, (4) shape of male genitalia. The new species differs from almost all other species of *Microdytes* by its body being not globular, but relatively elongate. It can be separated from the subterranean *Microdytes trontelji* Wewalka, Ribera & Balke, 2007, described from Hainan, China, by the size, coloration and form of the median lobe.

Distribution. Indonesia, Bali. Only known from the type locality (Fig. 2).

Habitat. The beetles were collected during the Balinese dry period when the temporarily water-carrying stream (Fig. 3A,B,C) was almost dry. Smaller hollows were dug at the edge of the otherwise dry stream bed (Fig. 3D), and the beetles seeped with the water into these hollows and could then be captured with the sieve. At least two specimens were resting deep between the stones and the gravel bottom.

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