Koleopterologische Rundschau	95	35–43	Wien, October 2025

A new species of *Hydrovatus* MOTSCHULSKY, 1853 from India, and new records of *H. maai* BISTRÖM, 1997 (Coleoptera: Dytiscidae)

G. WEWALKA, O. BISTRÖM* & J. HÁJEK

Abstract

Hydrovatus keralensis sp.n. (Coleoptera: Dytiscidae: Hydrovatinae) is described from India (Kerala State). Habitus and male genitalia of the new species are illustrated as well as the median lobes of two similar species, *H. maai* BISTRÖM, 1997 and *H. similis* BISTRÖM, 1997. *Hydrovatus maai* is recorded for the first time from three countries: China (Guangdong, Hainan), Thailand, and Vietnam, as well as from two provinces of Indonesia (East Kalimantan, West Kalimantan), and from one state in Malaysia (Pahang). A distribution map for all three species treated herein is provided.

Key words: Coleoptera, Dytiscidae, taxonomy, new species, new records, China, India, Indonesia, Malaysia, Thailand, Vietnam.

Introduction

Hydrovatus MOTSCHULSKY, 1853 is a genus of diving beetles so far comprising 217 species, 45 of which occur in the Oriental Region (see NILSSON & HÁJEK 2025). GHOSH & NILSSON (2012) recorded 17 species from India. In addition to these 17 species, MANIVANNAN & MADANI (2011) described *H. sringeriensis* from Karnataka, and *H. vaziranii* was described by KUMAR et al. (2020) from Tamil Nadu. Together with the new species described below, 20 species of *Hydrovatus* are now known from India.

Material and methods

Specimens are deposited in the following institutions and private collections:

CAS	Coll. Andre Skale, Gera, Germany
CGW	Coll. Günther Wewalka, Vienna, Austria
MZH	Finnish Museum of Natural History, Helsinki, Finland
NMPC	National Museum of the Czech Republic, Prague, Czechia
NMW	Naturhistorisches Museum Wien, Vienna, Austria

Abbreviations: TL (total length of beetle); TL-H (total length without head); MW (maximum width); CWBS (China Water Beetle Survey, see JÄCH & JI 1998).

Label data of type specimens are cited between quotation marks. Comments are given between square brackets. The terminology to denote the orientation of the genitalia follows MILLER & NILSSON (2003).

Photographs were made with a Nikon SMZ25 binocular provided with a Nikon DS-Ri2 camera. Final pictures are focus stacks combined with ZereneStacker and further edited in Adobe Photoshop.

Hydrovatus keralensis sp.n.

TYPE LOCALITY: India, Kerala State, Pathanamthitta District, 5 km S of Ranni, ca. 9°21'N 76°47'E.

*Contribution to the study of Dytiscidae 94.

Fig. 1: *Hydrovatus keralensis*, paratype, habitus. Photograph by P. Malinen.

TYPE MATERIAL: **Holotype** ♂ (NMW): "S-INDIA, Kerala (14) 5km S Rani [Ranni] 1.1. 1994 76°47'E 9°21'N leg. Boukal & Kejval", "♂" [printed white labels], "HOLOTYPUS Hydrovatus keralensis sp.n. Wewalka & Bistr. [Biström] 2025" [printed red label], "NHMW-ZOO-COL-0012933" [printed white label]. **Paratypes**: 3 ♂♂, 10 ♀♀ (CGW: 1 ♂, 3 ♀♀, MZH: 1 ♂, 1 ♀, NMW: 1 ♂, 6 ♀♀ [0012934–40]): same locality data as the holotype; 1 ♂ (NMPC): "INDIA mer. – Kerala Cardamon Hills, 50 km NW [should read NE] Pathanamthitta near Pambaiyar 300 m", "(77°05'E, 9°25'N) [coordinates estimated] 6. – 9. V. 1994 Z. Kejval leg.", "*Hydrovatus maai* Biström det. O. Biström-08" [printed white labels]; 1 ♂ (NMPC): "S-INDIA, Kerala State, Kallar env., 30 km NE of Trivandrum, valley of riv. Kallar, 77°05′E 8°45′N [coordinates estimated], ca 300-500m, 28-30.vi.1999, Z. Kejval & M. Trýzna leg.", "*Hydrovatus maai* Biström det. O. Biström-08" [printed white labels]. The paratypes are provided with red paratype labels.

ADDITIONAL MATERIAL EXAMINED: 1 ♀ (NMW): "INDIA, Goa Benaulin Beach 5 km W Margao 21.-24.9.1991 leg. R. SCHUH". This specimen agrees very well with the type series, but we do not designate it as paratype.

DESCRIPTION: Holotype: Habitus (Fig. 1): Body oblong-oval, slightly attenuated to apex, broadest almost in middle; moderately convex; pronotum and head moderately broad. Measurements: TL 2.00 mm, TL-H 1.80 mm, MW 1.20 mm.

Colouration (Fig. 1): Head reddish-brown, slightly darker near insertion of antennae, along medial margin of eyes and on vertex. Pronotum reddish-brown, dark brown along posterior margin, slightly paler at lateral sides. Elytron almost uniformly dark brown, laterally slightly paler but without distinct colour pattern. Ventral surface pale reddish-brown to reddish-brown. Legs, antennae and palpi yellowish-brown to reddish-brown.

Structures and surface sculpture: Head: Clypeus subtruncate, margin with very fine bead; punctation on head very fine, sparse and irregular, with coarser punctures along medial margins of eyes and in two dimples near fronto-clypeal suture; with distinct microreticulation. Pronotum with lateral margins finely bordered; finely sparsely and irregularly punctate; with coarser punctures along anterior margin, and with few short longitudinal wrinkles along posterior margin; with distinct microreticulation. Elytron with fine and sparse punctation, irregular in distribution (Fig. 2), less impressed near suture, at lateral side and apically with a longitudinal row of more distinctly impressed punctures in anterior half of disc; highly polished; with fine microreticulation. Ventral surface: Prosternal process margined, medial surface almost flat and impunctate; punctation on lateral parts of metaventrite, metacoxae and ventrites 1 and 2 sparse, coarse and irregular in distribution; without microreticulation.

Male sexual characters: Pro- and mesotarsomeres 1–3 minimally enlarged, with tuft of adhesive setae. Antennae not modified. Median lobe in lateral view (Fig. 3a–b) with a short curved apical spur, and on ventral side with a distinct swelling in apical third. Paramere (Fig. 4) apically broad, with hardly perceptible hook.

Female: Identical to male in habitus, without modified protarsomeres.

Variation: Colouration varies slightly from pale reddish-brown to dark reddish-brown. The longitudinal row of more distinctly impressed punctures on elytral disc is more or less distinctly developed. Measurements: TL 2.00–2.20 mm, TL-H 1.8–1.90 mm, MW 1.20–1.35 mm.

AFFINITIES: *Hydrovatus keralensis* very much resembles *H. maai* BISTRÖM, 1997, originally described from Borneo, in habitus, size (TL 2.20–2.40 mm), colouration and surface sculpture, and has a similar aedeagus, but in the latter the median lobe is significantly slenderer in apical third in lateral aspect (Figs. 5–6), has a more distinct dorsal swell shortly behind apex; in *H. maai*, the apical spur is comparatively strongly built, longer, straightened at base and distinctly curved at apex.

Figs. 2–4: *Hydrovatus keralensis*, paratype, 2) elytral punctation, 3) median lobe in lateral view, a) total view, b) apex enlarged, 4) right paramere in lateral view. Photographs by P. Malinen.

Figs. 5–7: Median lobe in lateral view: 5) *Hydrovatus maai*, paratype from Nias (Indonesia), 6) *H. maai*, specimen from Hainan, CWBS loc. 185 (China), 7) *H. similis*, paratype from Luzon (Philippines). Photographs by P. Malinen.

Hydrovatus keralensis is also very similar to *H. similis* BISTRÖM, 1997 from the Philippines (distribution mapped in Fig. 8) in habitus, colouration and size (TL 2.14–2.18 mm), but *H. similis* has a more pronounced elytral punctation, and the median lobe (Fig. 7) has no distinct swelling in apical third on the ventral side in lateral aspect, and the apical spur is shorter and more curved from base to apex.

Another species resembling *H. keralensis* in colouration, size (TL 2.08–2.72 mm), habitus and structures is the very common and widespread *H. acuminatus* MOTSCHULSKY, 1860, but this species can be distinguished by the microreticulation on the lateral parts of the metaventrite and metacoxae, and by the completely different median lobe (see BISTRÖM 1997: figs. 752–753).

In his revision of the genus *Hydrovatus*, BISTRÖM (1997) defined 15 species groups and placed *H. maai* and *H. similis* in the "Species group 4 (sp. gr. *confossus*)", which contains 73 almost exclusively African and three Oriental species, namely *H. fractus* SHARP, 1882, *H. maai* and *H. similis* (see also NILSSON & HÁJEK 2025: 186–188). Due to its similarity to *H. maai* and *H. similis*, *H. keralensis* should belong to this species group.

HABITAT: At the type locality, the specimens were collected in rice fields (D. Boukal, pers. comm.).

ETYMOLOGY: This species is named after the Indian state of Kerala. The name is used as an adjective.

DISTRIBUTION (Fig. 8): India: Goa, Kerala.

New records

Hydrovatus maai BISTRÖM, 1997

UNPUBLISHED DATA:

CHINA: Guangdong Prov.: 1 ♂, 1 ♀, 1 ex. (NMPC): Danxia Shan National Park, Wo Long Gang Forest Walkway, 25°1.3'N 113°44.5'E, 100 m, 23.–26.IV.2013, leg. J. Hájek & J. Růžička; Hainan Prov.: 2 ♂♂, 1 ♀ (NMW): 20 km SW Qionghai, Baishiling Scenic Spot, 15 m [CWBS loc. 185: stream and pools under bridge close to main gate of park area, unshaded, slightly polluted (JÄCH & JI 1998)], 14.I.1996, leg. L. Ji & M. Wang; 1 ♀ (NMW): Baoting County, Tongza [Tongshi], Mao'an, 250 m, [CWBS loc. 200: rice field (see JÄCH & JI 1998: fig. 5)], 20.I.1996, leg. L. Ji & M. Wang; 1 ♀ (NMW): Ladong County, Jianfeng Mts., 10 km E Jianfeng, 700 m [CWBS loc. 212: spring-fed pools and small stream, ca. 2–3 m wide, potamal, flowing through pastures and shrub, margins with grass, mud and sand (see JÄCH & JI 1998: fig. 10)], 23.I.1996, leg. L. Ji & M. Wang.

INDONESIA: East Kalimantan Prov.: 1 ♂, 1 ♀ (NMPC): PT Fajar Surya Swadaya [area] ca. 55 km W of Balikpapan, 1°16.4'S 116°21.1'E, 82 m, 23.XI.–1.XII.2011, leg. J. Hájek, J. Schneider & P. Votruba; West Kalimantan Prov.: 1 ♀ (NMW): Nanga Sarawai env., Tontang, 24.VII.–2.VIII.1993, leg. J. Schneider.

MALAYSIA: West Malaysia, Pahang State: 14 exs. (CGW: 4 exs., NMW: 9 exs.): Endau-Rompin National Park, 50 km NE of Kuala Rompin, Kampung Tebu Hitam, 9.–30.IV.2008, leg. P. Cechovský; 1 ♂, 2 ♀♀ (NMW): Endau-Rompin National Park, Selendang, 100 m, 28.II.–12.III.1995, leg. M. Štrba & R. Hergovits; 1 ♂, 1 ♀, 1 ex. (NMPC): Tasik Chini (lake), primeval forest surrounding lake, 2.–5.III.2007, leg. V. Hula; East Malaysia, Sarawak State: 1 ♂, 1 ♀ (NMW): Serian, Tapah vill. ca. 50 km S Kuching, pond near road, 18.II.1993, leg. H. Zettel (2) & M.A. Jäch (5).

THAILAND: Trat Prov.: 3 exs. (CAS: 1 ♂, 1 ♀, CGW: 1 ♂): Ko Kut (island) [11°39'10.98"N 102°32'2.74"E, spring-fed pool near shore], 30.X.–20.XI.2023, leg. A. Skale (Fig. 9); Yala Prov.: 88 exs. (10 exs. CGW, 2 exs. MZH, 1 ♂ NMPC, 75 exs. NMW): Betong Distr., Gunung Cang dun vill., ca. 5°54'N 101°10'E, 26.III.–23.IV.1993, leg. J. Horák & J. Strnad.

VIETNAM: Hà Nôi Prov.: 4 ♀♀ (NMW): Hanoi, at light, 20.–30.IV1991, leg. E. Jendek; Thua Thien Hué Prov.: 1 ♂ (CGW): ca. 30 km SE Hué, pools, ca. 5 m, 7.II.2012, leg. G. Wewalka; Dongnai Prov.: 1 ♂, 1 ♀ (NMW): Nam Cat Tien National Park, at light, 27.VI.–12.VII.1995, leg. S. Saluk; 4 ♀♀ (NMW): Nam Cat Tien National Park, 1.–15.V.1994, leg. P. Pácholatko & L. Dembický.

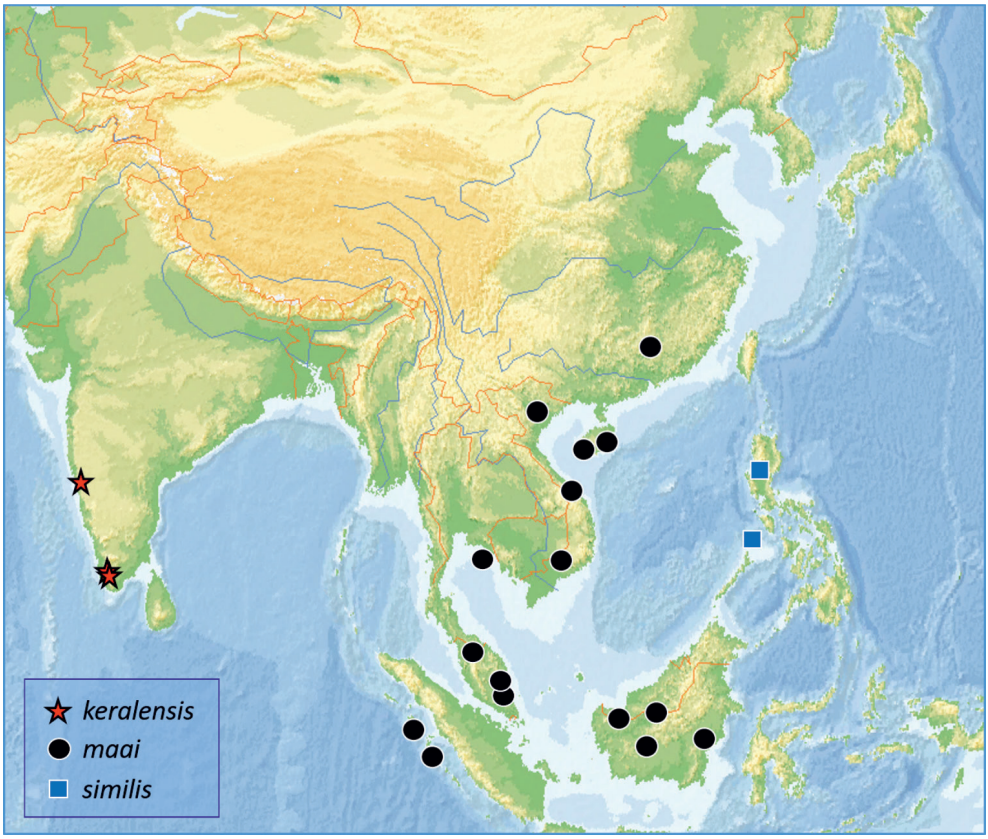

Fig. 8: Geographical distribution of *Hydrovatus keralensis*, *H. maai* and *H. similis*.

DISTRIBUTION (Fig. 8): China (first record): Guangdong and Hainan provinces; Indonesia: Nias, Mentawai Islands (Siberut), East Kalimantan (first record), West Kalimantan (first record); Malaysia: Pahang State (first record), Sarawak State; Thailand (first record): Trat and Yala provinces; Vietnam (first record): Dongnai, Hà Nội, and Thua Thien Hué provinces.

Acknowledgements

We thank Dr. Manfred A. Jäch, (NMW), Rudolf Schuh (NMW) and Andre Skale (Gera, Germany) for providing study material. Prof. Dr. David Boukal (České Budějovice, Czechia) is acknowledged for information on the habitat of the new species. Sincere thanks are due to Pekka Malinen (Helsinki, Finland), Dr. Manfred A. Jäch (NMW), and Andre Skale (Gera, Germany) for providing the photographs.

The work of the third author was supported by the Ministry of Culture of the Czech Republic (DKRVO 2024-2028/5.I.b, National Museum, 00023272).

Figs. 9–10: Habitats of *H. maai*: 9) Ko Kut (Trat, Thailand), 10) Danxia Shan National Park (Guangdong, China). Photographs by A. Skale (9) and J. Hájek (10).

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Prof. Dr. Günther WEWALKA
Starkfriedgasse 16, A – 1190 Wien, Austria (g.wewalka@gmx.at);
Naturhistorisches Museum Wien, Burgring 7, A – 1010 Wien, Austria

Prof. Dr. Olof BISTRÖM
Finnish Museum of Natural History, Zoology Unit, PB 17, FI – 00014 University of Helsinki, Finland
(olof.bistrom@helsinki.fi)

Dr. Jiří HÁJEK
Department of Entomology, National Museum, Cirkusová 1740, CZ – 193 00 Praha 9 – Horní Počernice, Czechia
(jiri.hajek@nm.cz)