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Revision of the Asian and Australian/Pacific species of the *Hydaticus* (*Prodaticus*) *vittatus* and *H.* (*P.*) *daemeli* species groups (Coleoptera: Dytiscidae)

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Abstract

The Asian and Australian/Pacific species of the *Hydaticus* (*Prodaticus*) *vittatus* species group are reviewed here, together with the two species of the newly established *H.* (*P.*) *daemeli* species group from Australia.

Lectotypes are designated for *Hydaticus bipunctatus* WEHNCKE, 1876, *H. bowringii* CLARK, 1864, *H. daemeli* WEHNCKE, 1876 and *H. rectangulus* SHARP, 1882.

Hydaticus bipunctatus ssp. *conjungens* RÉGIMBART, 1899 and *H. satoi* ssp. *dhofarensis* PEDERZANI, 2003 are elevated to species rank.

The following new synonymies are proposed: *Hydaticus satoi* WEWALKA, 1975 (= *H. bipunctatus*); *H. interruptus* RÉGIMBART, 1899, *H. leechi* SATÔ, 1961 and *H. leechi celebesanus* SATÔ, 1961 (= *H. conjungens*); *H. arabicus* GUIGNOT, 1951 (= *H. histrio* CLARK, 1864); *H. propinquus* GUIGNOT, 1951 (= *H. philippensis* WEHNCKE, 1876); *H. vittatus* var. *angustulus* RÉGIMBART, 1899 (= *H. vittatus* (FABRICIUS, 1775)).

Figures of elytral colour patterns and the male genitalia are provided as well as faunistic records, a key to the species, and distribution maps.

Key words: Coleoptera, Dytiscidae, Dytiscinae, *Hydaticus*, taxonomy, lectotype designations, new synonymies, new distribution records.

Introduction

The *Hydaticus vittatus* species group (sensu GUIGNOT 1961) is widely distributed on all Old World continents, except Europe. It is characterised by dark elytra with one or two yellow, well delimited longitudinal stripes without irrorations. Five species of this group from the Palearctic, Oriental, Australian and Pacific regions have been revised by WEWALKA (1975b): *H. bipunctatus* WEHNCKE, 1876, *H. major* RÉGIMBART, 1899, *H. quadrivittatus* BLANCHARD, 1843, *H. satoi* WEWALKA, 1975, and *H. vittatus* (FABRICIUS, 1775).

The recent discovery of a syntype of *H. bipunctatus* requires some taxonomic/nomenclatural changes and an update of the Asian and Australian/Pacific species of this group.

Based on a phylogenetic analysis, which included one African species (*H. bivittatus* LAPORTE, 1835) and six Asian and Australian/Pacific species (*H. bowringii* CLARK, 1864, *H. major*, *H. philippensis* WEHNCKE, 1876, *H. quadrivittatus*, *H. satoi*, *H. vittatus*), this group is obviously monophyletic (MILLER et al. 2009) but includes also *H. dineutoides* SHARP, 1882, which is not treated here because of its totally black elytra. On the other hand, the two species of the newly established *H. daemeli* species group (*H. daemeli* WEHNCKE, 1876 and *H. microdaemeli* WATTS, 1978) are included here because of their similar colour patterns.

Material and methods

The study material of about 3,600 specimens is deposited in the following institutions and private collections:

ANIC	Australian National Insect Collection, Canberra, Australia
BMNH	Natural History Museum, London, UK
CAL	Coll. Andreas Link, Ansfelden, Austria
CAS	Coll. Andre Skale, Gera, Germany
CGW	Coll. Günther Wewalka, Vienna, Austria
CHF	Coll. Hans Fery, Berlin, Germany (property of NMW)
CHZ	Coll. Herbert Zettel, Vienna, Austria
CJS	Coll. Jaroslav Šťastný, Liberec, Czechia
CLH	Coll. Lars Hendrich, Munich, Germany (property of NMW)
CPM	Coll. Paulo Mazzoldi, Irma, Italy
CPR	Coll. Fernando Pederzani, Ravenna, Italy
HMUG	Hunterian Museum, University of Glasgow, UK
HNHM	Hungarian Natural History Museum, Budapest, Hungary
ISNB	Institut royal des Sciences naturelles de Belgique, Brussels, Belgium
MNB	Museum für Naturkunde, Berlin, Germany
MNE	Museum für Naturkunde, Erfurt, Germany
MNHN	Muséum national d'Histoire naturelle, general collection, Paris, France
MNHN-CO	Muséum national d'Histoire naturelle, Coll. Oberthür, Paris, France
MNHN-CR	Muséum national d'Histoire naturelle, Coll. Régimbart, Paris, France
MSNP	Museo di Storia Naturale e del Territorio, Università di Pisa, Calci, Italy
MZB	Museum Zoologicum Bogoriense, Cibinong, Indonesia
NHMB	Naturhistorisches Museum Basel, Switzerland
NHRS	Swedish Museum of Natural History, Stockholm, Sweden
NKML	Naturkundemuseum Leipzig, Germany
NMP	National Museum, Museum of Natural History, Prague, Czechia
NMW	Naturhistorisches Museum Wien, Vienna, Austria
NZSI	National Zoological Survey of India, Kolkata, India
OLM	Oberösterreichisches Landesmuseum, Linz, Austria
SDEI	Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany
SIW	Smithsonian Institution, Washington D.C., USA
ZMUC	Zoological Museum, University of Copenhagen, Denmark
ZSM	Zoologische Staatssammlung München, Germany

Specimens of the National Zoological Survey of India (NZSI) have not been studied personally; the data were provided by Sujit K. Ghosh (Kolkata, India).

Specimens collected in the Indian union territory of Puducherry ("Karikal", "Pondicherry") are listed under Tamil Nadu.

Detailed locality data (incl. habitat photographs) for specimens collected in the course of the China Water Beetle Survey (CWBS) were published by JÄCH & JI (1995, 1998, 2003).

Abbreviations: TL (total length of beetle), TL-h (total length without head), and MW (maximum width of beetle). Label data of type specimens and some historical specimens are cited between quotation marks and comments are given between square brackets.

The beetles were studied with a Wild M3 binocular at 6.4–80 ×. Male genitalia were studied in dry condition and median lobes of aedeagi were drawn with the help of a drawing tube, Wild # 308700. The terminology to denote the orientation of the genitalia follows MILLER & NILSSON (2003). Parameres and epipenites were not figured because they were not found to be useful for exact determination.

Characteristics of the *Hydaticus vittatus* and *H. daemeli* species groups (African species not considered)

All species mentioned in this revision are similar in colouration: head predominantly black with anterior part yellowish (only in *H. microdaemeli* the head is predominantly reddish brown); pronotum predominantly dark brown to black with more or less broad yellow lateral sides, only in *H. bowringii* the yellowish colouration prevails; elytron black with variable yellow marks but at least one well delimited, longitudinal lateral stripe; in the *H. daemeli* group the yellow lateral stripe contains some irrorations. In the species of the *H. sexguttatus*, *H. pacificus* and *H. bihamatus* groups the yellow lateral bands are not well delimited and contain irrorations (see WEWALKA 2015, 2016).

All species except *H. microdaemeli* have a fringe of setae along the basal margin of the male protarsomere I. Male protarsomere I with a row of few accessory spinous setae, protarsomere II with a field of short dense fine setae being part of a dorsal stridulation device. Male protarsomeres I–III dilated, with ventral suckers: nine on protarsomere I, seven on protarsomere II, six on protarsomere III; mesotarsomere I with seven, and mesotarsomeres II–III with four ventral suckers each. Male mesotarsomeres I–III slightly dilated in the species of the *H. vittatus* group (Fig. 25), but distinctly expanded in the *H. daemeli* group (Fig. 26). Dorsal notch of metatarsomere I deep in the species of the *H. vittatus* group (Fig. 23), but shallow in the *H. daemeli* group (Fig. 24).

In the species of the *Hydaticus vittatus* group and in *H. microdaemeli* the elytral sculpture includes three rows of strong punctures, the medial one is quite regular and dense, the second one quite irregular, consisting of groups of punctures in the anterior half, and the lateral one is only indicated by few groups of strong punctures; in *H. daemeli* all three rows of punctures consist of groups of punctures; all species have an additional row of strong punctures along the lateral margin.

DISTRIBUTION: Two species of the *H. vittatus* group, *H. vittatus* and *H. bipunctatus*, have wide distribution areas in Asia. *Hydaticus conjungens* is widely distributed in Southeast Asia, and *H. quadrivittatus* is restricted to the tropical and subtropical parts of the Australian/Pacific Region and the Moluccas. The distribution areas of three species are quite restricted: *H. dhofarensis* in southern Oman, *H. major* in China (Yunnan) and north-eastern Myanmar, and *H. philippensis* in the Philippines, northern Borneo and North Sulawesi. *Hydaticus histrio* is a predominantly Palearctic species occurring in arid zones from eastern Turkey to Yemen and Nepal. *Hydaticus bowringii* is restricted to East Asia. The two species of the *H. daemeli* species group (*H. daemeli* and *H. microdaemeli*) are restricted to Australia.

Checklist of the Asian and Australian/Pacific species of the *H. vittatus* group

Numbers in square brackets refer to the arrangement of the species in the systematic account below.

Hydaticus bipunctatus WEHNCKE, 1876 [3]	Sri Lanka, India, Nepal, Bhutan, Myanmar, Thailand, Laos, China, South Korea (?), Japan, Taiwan, Vietnam, Philippines
Hydaticus bowringii CLARK, 1864 [7]	China, Taiwan, North Korea, South Korea, Japan
Hydaticus conjungens RÉGIMBART, 1899 **stat.n.** [2]	India, Bangladesh (?), Cambodia, Myanmar, Malaysia, Singapore, Indonesia, Philippines (?)
Hydaticus dhofarensis PEDERZANI, 2003 **stat.n.** [4]	Oman
Hydaticus histrio CLARK, 1864 [8]	Yemen, Oman, United Arab Emirates, Saudi Arabia (?), Turkey, Iraq, Iran, Afghanistan, Pakistan, India, Nepal

Hydaticus major RÉGIMBART, 1899 [6]	Myanmar, China
Hydaticus philippensis WEHNCKE, 1876 [9]	Malaysia, Indonesia, Philippines
Hydaticus quadrivittatus BLANCHARD, 1843 [5]	Indonesia, Papua New Guinea, Australia, New Caledonia
Hydaticus vittatus (FABRICIUS, 1775) [1]	Sri Lanka, Pakistan (?), India, Nepal, Bhutan, Myanmar, Bangladesh (?), China, South Korea (?), Japan, Taiwan, Thailand, Cambodia, Laos, Vietnam, Malaysia, Indonesia

Checklist of the species of the *H. daemeli* group

Hydaticus daemeli WEHNCKE, 1876 [10]	Australia
Hydaticus microdaemeli WATTS, 1978 [11]	Australia

Key to the males of the Asian and Australian/Pacific species of the *H. vittatus* and *H. daemeli* groups

Numbers in square brackets refer to the arrangement of the species in the systematic account below.

1 Dorsal notch of metatarsomere I deep (Fig. 23), first three male mesotarsomeres slightly expanded (Fig. 25); Southwest Asia to Australian/Pacific Region 2

– Dorsal notch of metatarsomere I shallow (Fig. 24), first three male mesotarsomeres distinctly expanded (Fig. 26); strictly Australian species 10

2 Yellow stripes at lateral sides of pronotum narrow (Figs. 1–2) 3

– Yellow stripes at lateral sides of pronotum broader (Figs. 3–9) 4

3 Aedeagus in lateral view without longitudinal ridge near ventral margin in apical third (Fig. 12) ..... [1] *vittatus*

– Aedeagus in lateral view with longitudinal ridge near ventral margin in apical third (Fig. 13) ..... [2] *conjungens*

4 Elytron without subbasal transverse yellow stripe, sometimes with a yellow spot near scutellum (Figs. 3–7) 5

– Elytron with subbasal transverse yellow stripe, which is sometimes fragmented or reduced (Figs. 8–9) 9

5 Pronotum predominantly dark brown to black; yellow marks on pronotum delimited to lateral sides (Figs. 3–6) 6

– Pronotum predominantly yellow; dark brown mark delimited to medial part of posterior margin (Fig. 7a–c), sometimes reaching the anterior margin medially (Fig. 7d) ..... [7] *bowringii*

6 Body length: 11.2–15.2 mm 7

– Body length: 15.7–17.2 mm ..... [6] *major*

7 Aedeagus in lateral view without longitudinal ridge near ventral margin in apical third (Figs. 14–15) 8

– Aedeagus in lateral view with longitudinal ridge near ventral margin in apical third (Fig. 16) ..... [5] *quadrivittatus*

8 Distributed from India and Sri Lanka to Japan, Taiwan and the Philippines ..... [3] *bipunctatus*

– Distribution restricted to southern Oman ..... [4] *dhofarensis*

9 Body length: 12.1–13.6 mm ..... [8] *histrio*

– Body length: 13.6–15.7 mm ..... [9] *philippensis*

10 Body length: 13.5–14.9 mm ..... [10] *daemeli*

– Body length: 10.3–11.0 mm ..... [11] *microdaemeli*

Systematic account

The species are arranged according to similarity.

1. *Hydaticus vittatus* (FABRICIUS, 1775)

Dytiscus vittatus FABRICIUS 1775: 825; 1781: 293; 1787: 190; OLIVIER 1795: 20; FABRICIUS 1797: 24; 1801: 262; SCHÖNHERR 1808: 16; MACLEAY 1825: 32 (partim); PERTY 1831: 11.

Graphoderus vittatus: MOTSCHULSKY 1856: 67.

Hydaticus vittatus: AUBÉ 1838: 208 (partim); WHITE 1847: 14 (partim); MOTSCHULSKY 1861: 109 (partim); REDTENBACHER 1867: 23 (partim); GEMMINGER & HAROLD 1868: 467 (partim); SHARP 1873: 48 (partim); 1882: 670 (partim); 1884: 463 (partim); 1890: 347; SEVERIN 1890: 193; RÉGIMBART 1891: 545 (partim); ATKINSON: 1891: 145 (partim); HEYDEN 1898: 15 (partim); RÉGIMBART 1899: 328 (partim); 1903: 334 (partim); JACOBSON 1908: 433 (partim); ZAITZEV 1915: 277; ZIMMERMANN 1919: 228 (partim); 1920: 228 (partim); WINKLER 1924: 234; ZIMMERMANN 1927b: 6 (partim); MIWA 1931: 18 (partim); BALL 1932: 19 (partim); FENG 1932: 33 (partim); 1933: 124 (partim); FALKENSTRÖM 1936: 237; GSCHWENDTNER 1937: 74 (partim); WU 1937: 220 (partim); KAMIYA 1938: 51 (partim); GUIGNOT 1950: 272 (partim); ZAITZEV 1953: 311 (partim); VAZIRANI 1953: 426 (partim); 1968: 109 (partim); 1969a: 260 (partim); 1969b: 403 (partim); CHAUDHRY et al. 1970: 7; VAZIRANI 1972: 121; 1973a: 299 (partim); 1973b: 121 (partim); 1974a: 43; 1974b: 20 (partim); WEWALKA 1975b: 87; ROCCHI 1976: 179 (partim); VAZIRANI 1977a: 81 (partim); 1977b: 60; 1977c: 129 (partim); 1980: 30; ROCCHI 1982: 59; YANO et al. 1983: 17; MUKHERJEE & SENGUPTA 1986: 278; YOON & AHN 1988: 257 (partim); ZENG 1989: 5; NAKANE 1990: 26; SATÔ et al. 1994: 291; NILSSON 1995: 73; NILSSON et al. 1995: 368; SATÔ 1996: 5; JÄCH & EASTON 1998: 44; GHOSH et al. 2000: 44; MUKHOPADHYAY et al. 2000: 88; HUA 2002: 37 (partim); MORI & KITAYAMA 2002: 144; NILSSON 2003: 8; PEDERZANI 2003: 20; MUKHOPADHYAY & GHOSH 2003a: 31; 2003b: 16; 2004: 367 (partim); MUKHOPADHYAY & GHOSH 2007: 453; 2010: 279 (partim); SHARMA & BAMO 2012: 500; MUKHOPADHYAY & GHOSH 2015: 471; NILSSON & HÁJEK 2020a: 24; 2020b: 98; NAKAJIMA et al. 2020: 93.

Hydaticus vittatus vittatus: ROCCHI 1986: 33; 2003: 71; GHOSH & NILSSON 2012: 27 (partim); JAISWAL et al. 2014: 94; LEE & AHN 2018: 77.

Prodaticus vittatus: MILLER et al. 2009: 597 ff.

Hydaticus vittatus var. *angustulus* RÉGIMBART 1899: 329; ZIMMERMANN 1920: 228.

Hydaticus vittatus angustulus: SATÔ 1961a: 57 (partim); WEWALKA 1975b: 90; GHOSH & NILSSON 2012: 28; NILSSON & HÁJEK 2020b: 98.

Hydaticus vittatus ab. *conjungens*: GUIGNOT 1954a: 223.

Graphoderes vittatus lenzi SCHÖNFELDT 1890: 170.

Hydaticus vittatus ab. *Lenzi*: ZIMMERMANN 1920: 228; WINKLER 1924: 234.

Hydaticus lenzi: SATÔ 1961a: 59; 1961b: 10; NAKANE 1964: 10.

Hydaticus lenzi conjungens: SATÔ 1961a: 59 (partim); 1972: 152 (partim); WEWALKA 1972: 117; VAZIRANI 1977a: 78 (partim).

Hydaticus lenzi nepalensis SATÔ 1961a: 60.

Hydaticus lenzi nepalensis f. *swani* SATÔ 1961a: 60.

Hydaticus sesquivittatus FAIRMAIRE 1880: 164; JACOBSON 1908: 433; ZIMMERMANN 1920: 225; WINKLER 1924: 234; FENG 1932: 33; 1933: 124; WU 1937: 220.

Hydaticus leechi: MUKHOPADHYAY & GHOSH 2003a: 31.

TYPE LOCALITY: Not exactly known. “Habitat in Indiae aquis” (FABRICIUS 1775).

TYPE MATERIAL: **Lectotype** ♀ (HMUG), designated by WEWALKA (1975b): “Dyt. Vittatus Fabr. pag 293 N°10” [handwritten white label with black frame], “Co-type” [circular printed white label], “139884” [printed white label], “Dytiscus vittatus Fab. Hydaticus vittatus Fab. TYPE” [handwritten white label with red frame], “LECTOTYPUS Dytiscus vittatus Fabricius Wewalka 1975” [printed red label].

ADDITIONAL MATERIAL EXAMINED:

NEPAL: Seti Zone: 1 ♂: Seti Distr., Khaptad NP, path to Tribeni, 3000 m, 3.VII.2009, leg. A. Weigl (CHF); Gandaki Zone: 1 ♂, 2 ♀♀: Lumle, 20 km NW Pokhara, 1600 m, 2.V.1984, leg. G. Wewalka (CGW); 1 ♂: Birethanti, 30 km NW Pokhara, 1100 m, 4.V.1984, leg. G. Wewalka (CGW); 2 ♂♂, 2 ♀♀: Annapurna Region, Birethanti, 28°19'04"N 83°34'65"E, 1100 m, 20.IV.2000, leg. A. Skale (CAS); 2 exs.: Modi Khola, Pothana, 1900 m, 5.–7.V.1984, leg. C.J. Rai (NHMB); 2 exs.: Modi Khola, Landrung – Gandrung, 1600–2000 m, 8.V.1984, leg. C.J. Rai (NHMB); 8 exs.: Pokhara – Suikhet, 900–1000 m, 4.V.1984, leg. B. Bhakta (CGW, NHMB); 3 exs.: Kashi, Gandaki, Chandrakot – Hille, 1000–1600 m, 9.VI.1986, leg. C. Holzschuh (CGW, NHMB); Dhawalagiri Zone: 7 exs.: Kali Gandaki Khola, Tatopani, 1100–1400 m, 14.–17.VI.1986, leg.

C. Holzschuh (CGW, NHMB); 7 exs.: Kali Gandaki Khola, Kalopani, 2400 m, 17.–19.V.1984, leg. C.J. Rai (NHMB); 1 ♂, 1 ♀: Tatopani, 14.–17.VI.1986, leg. J. Probst (NMW); 1 ♀: W Beni, Darbang, 1150 m, 1.XII.2000, leg. G. Riepl (NMW); Bagmati Zone: 1 ex.: Bagmati, Nuwakot, Manegero – Gol Bhanjyang, 2300–2500 m, 14.VI.1989, leg. M. Brancucci (NHMB); 1 ex.: Bagmati, 1350 m, 16.V.1983, leg. C.J. Rai (NHMB); 10 exs.: Godawari, 15 km S Kathmandu, 1500 m, 29.IV.1984, leg. G. Wewalka (CGW); 11 exs.: Godawari, 1500 m, 17.V.1983, leg. M. Brancucci (NHMB); 3 ♂♂: Godawari, 16.–17.V.1992, leg. I. Jeniş (NMW); 4 ♂♂, 4 ♀♀: Kathmandu Valley, II.1981, leg. M.A. Jäch (CGW, NMW); 3 exs.: Phul Choki, 2000 m, 29.IX.1983, leg. J. Plante (NHMB); 1 ♀: Narayani Distr., Chitwan, 2 km W Sauraha, 27°34'48"N 84°28'10"E, 180 m, 5.VII.2017, leg. A. Weigel (CAS); 1 ♂: Hetauda, 19.II.1981, leg. M.A. Jäch (NMW); 1 ♂: Lamosangu, 5.II.1980, leg. M.A. Jäch (NMW); 1 ♀: Dolalghat, 900 m, 7.VII.1983, leg. M.G. Allen (BMNH); Janakpur Zone: 1 ♂: Kabhre, N Dhulikhel, Laukeni Khola, 27°40'14"N 85°36'14"E, 1000 m, 16.III.2000, leg. C. Hörl (NMW); 1 ♂: Kabhre, Dhulikhel, small stream near Kathmandu University, 21.I.2000, leg. H. Nesemann (NMW); 1 ♀: Kabhre, Gosaithan Khola NW Bakhundol, 15.XI.2000, leg. H. Nesemann (NMW); 1 ♂: Dolakha, Chayarsa, 2000 m, leg. W. Schawaller (CHF); 9 exs.: Dolakha, Tama Koshi, 850–1100 m, 24.–29.IV.1989, leg. M. Brancucci (NHMB); 1 ♂, 1 ♀: 60 km S Everest near Jiri, 2900 m, IX.1999, leg. V. Gurko (OLM); Koshi Zone: 1 ex.: Koshi, Phulvari, Waku, 1200–1600 m, 9.V.1985, leg. M. Brancucci (NHMB); 1 ex.: Koshi, Gorza – Dophan, 700–2100 m, 6.VI.1985, leg. M. Brancucci (NHMB); 3 exs.: Arun Valley, Mure, 2000 m, 2.–8.VI.1983, leg. M. Brancucci (NHMB); 1 ex.: Arun Valley, Tumlingtar, 430 m, 12.VI.1983, leg. M. Brancucci (NHMB); 14 exs.: Arun Valley, Chichilia, 1950 m, 31.V.1983, leg. M. Brancucci (NHMB); 4 ♂♂, 4 ♀♀: Arun Valley, Dhankuta, Chichila – Pangma, 1900–1200 m, 18.VI.1980, leg. C. Holzschuh (CGW); 1 ex.: Tamor Valley, Dhankuta, 1150 m, 23.V.1983, leg. M. Brancucci (NHMB); Mechi Zone: 1 ex.: Taplejung Distr., Elluwa Khola, Hunga – Worebung, 1650–1950 m, 30.VIII.1983, leg. J. Martens & B. Daams (NHMB); 2 exs.: Kangshenjunga Himal Mts., Yaden vill., 27°32'N 87°48'E, 1600 m, leg. J. Farkač (NHMB); 2 exs.: Kangshenjunga Himal Mts., Chiruwa vill., 27°29'N 87°45'E, 1260 m, 12.–13.VII.2000, leg. D. Král (NHMB).

BHUTAN: 2 exs.: Sargham, 1000 m, VIII.1982, leg. C.J. Rai (NHMB); 2 exs.: Phuntsholing, 400 m, 21.III.–15.IV.1983, leg. C.J. Rai (NHMB).

INDIA: Uttarakhand: 2 ♀♀: Kumaon, W Almora, IV.1917, leg. H.G. Cameron (BMNH); 1 ex.: Kumaon Hills, Ranikhet, 21.–22.V.1930, leg. H.S. Pruthi (NZSI) (recorded by VAZIRANI 1969, correctly identified); 1 ♀: Ranikhet, leg. H.G. Cameron (BMNH); 13 exs.: Bhimtal, 1500 m, 1974–1981, leg. F. Smetaček (CGW, NHMB); 7 exs.: Bhimtal, 1300–1500 m, 20.V.1981, leg. M. Brancucci (NHMB); 1 ex.: Rishikesh, 450 m, VIII.1988, leg. K. Werner (NHMB).

Sikkim: 11 exs.: Rishi Khola, 700 m, 3.XII.1981, leg. B. Bhakta (NHMB); 1 ex.: N Sikkim, Salpe, 2100 m, 22.–27.X.1984, leg. C.J. Rai (NHMB).

Assam: 1 ♂, 2 ♀♀: 6 miles N Tinsukia, 9.IV.1944, leg. D.E. Hardy (CGW).

Arunachal Pradesh: 3 exs.: 8 km S Jamiri, Sessa, 27°7–9'N 92°34'E, 350 m, 26.V.–4.VI.2005, leg. P. Pacholátko (NHMB); 1 ♀: Along, 30.V.2006, leg. G. de Rougemont (NMW).

Rajasthan: 1 ex.: Balarampur, 16.III.1948, leg. K.S. Pradhan (NZSI) (recorded by VAZIRANI 1969a, correctly identified).

Madhya Pradesh: 2 exs.: Panna NP, VIII.1988, leg. K. Werner (CPM, NHMB); 1 ♀: "India or. Pachmeria" [Panchmarhi] (CGW); 13 exs.: Panchmarhi, Satpura Hills, leg. F.H. Gravely (NZSI) (recorded by VAZIRANI 1969a, correctly identified but erroneously listed under Maharashtra).

Jharkhand: 1 ex.: Santhal Parganas, 24.II.1938, leg. H.A. Hafiz (NZSI) (recorded by VAZIRANI 1969a, correctly identified); 1 ex.: Singhbhum Distr., Tholkabad, 27.II.1954, leg. A.P. Kapur (NZSI) (recorded by VAZIRANI 1969a, correctly identified).

West Bengal: 68 exs.: Darjeeling Distr., Pudung, 900 m, 12.V.1983, leg. B. Bhakta (NHMB); 10 exs.: Darjeeling Distr., Pedong, 27.–30.IV.1987, leg. B. Bhakta (NHMB); 2 ♀♀: Pedong, leg. A. Desgodins (SDEI); 70 exs.: Darjeeling Distr., Rally [Ralle], Khou, 600–800 m, 1981–1990, leg. B. Bhakta (NHMB); 24 exs.: Darjeeling Distr., Khani Khola, 600 m, 1.IV.1983, leg. B. Bhakta (NHMB); 11 exs.: Darjeeling Distr., Bong Busty, 11.IV.1985, leg. B. Bhakta (NHMB); 18 exs.: Darjeeling Distr., Chivo Busty, 21.IV.1985, leg. B. Narayan (NHMB); 2 exs.: Darjeeling Distr., Durpin, 1200 m, 17.IV.1984 and 26.III.1986, leg. B. Bhakta (NHMB); 75 exs.: Darjeeling Distr., Rang, 580 m, 23.–24.III.1983, leg. B. Bhakta (NHMB); 10 exs.: Darjeeling Distr., Tista, Kalimpong, 250 m, 18.IV.1987 and 15.III.1990, leg. B. Bhakta (NHMB); 23 exs.: Darjeeling Distr., Anbegh Kaman, 1–4.IV.1987, leg. B. Bhakta (NHMB); 1 ex.: Darjeeling Distr., Makal Dara, 31.V.1987, leg. B. Bhakta (NHMB); 8 exs.: Darjeeling Distr., Kalimpong, II.–IV.1983, leg. C.J. Rai (NHMB); 12 exs.: Darjeeling Distr., Algarah, 2720 m, 5.IV.1984, leg. C.J. Rai (NHMB); 2 exs.: Darjeeling Distr., Shitong, Namthing, 1450 m, 22.VII.1984, leg. C.J. Rai (NHMB); 1 ex.: Darjeeling Distr., Pokthang, 1700 m, 17.V.1986, leg. C.J. Rai (NHMB); 2 exs.: Darjeeling Distr., Renok, 7.–11.IV.1989, leg. B. Bhakta (NHMB); 28 exs.: Darjeeling Distr., Zumbok, 950 m, 29.III.1986, leg. B. Bhakta (NHMB); 1 ex.: Darjeeling Distr., Sharkim, 850 m, 19.IV.1985, leg. B. Bhakta (NHMB); 2 ♂♂: Darjeeling, Kurseong, Sixing Forest, 1100 m, 4.–13.V.1987, leg. N. Dangal (CGW);

4 exs.: Darjeeling Distr., Kagay, 850 m, 21.–24.IV.1983, leg. B. Bhakta (NHMB); 14 exs.: "W Dinajpur [now part of North Dinajpur], Sonapur", 100 m, 12.XII.1981, leg. B. Bhakta (NHMB); 2 exs.: Gaya Ganga, 600 m, 10.XII.1983, leg. B. Bhakta (NHMB); 2 exs.: Jalpaiguri Distr., Bagrakote, 200–300 m, 16.–22.XII.1985, leg. B. Bhakta (NHMB); 2 exs.: New Jalpaiguri, 175 m, VI.1982, leg. C.J. Rai (NHMB).

Odisha: 2 exs.: Similipal NP, Lulung, 21°56'N 86°32'E, 25.V.–13.VI.1998, leg. K. & S. Majer (NHMB); 2 exs.: Nilagiri Forest, Tangana Nalla, 12.XII.1955, leg. T.G. Vazirani (NZSI) (recorded by VAZIRANI 1969a, correctly identified).

Maharashtra: 1 ♂: 40 km W Pune, Mulshi, 7.–11.X.2005, leg. J. Bezděk (NMP).

Goa: 7 exs.: Molem, 120–240 m, 3.–4.III.1984, leg. W. Wittmer (NHMB); 1 ♀: Marmagao, 5.VII.1926, leg. T. Schmitt (SDEI).

Karnataka: 1 ♂, 1 ♀: W Ghats Mts., Kollur, 30 km ESE Bhatkal, 26.–28.V.2006, leg. O. Šafránek (CJS); 3 ♂♂, 3 ♀♀: Coorg, Madikeri, Talakaveri, 12°23'N 75°30'E, 1300 m, 19.XII.1998, leg. D. Boukal (CGW, NMW); 1 ♀: Coorg, Mt. Tadiyendamol, 12°14'N 75°36'E, 1200–1400 m, 22.XII.1998, leg. D. Boukal (NMW).

Andhra Pradesh: 18 exs.: Eastern Ghats Survey, 12.–26.VII.1929 (NZSI) (recorded by VAZIRANI 1969a, correctly identified).

Kerala: 4 exs.: Thekkady, Periyar Lake, 9°34'N 77°10'E, 900–1000 m, 19.–27.IV.1997, L. Dembický & P. Pacholátko (NHMB); 8 exs.: 15 km SW Munnar, Kallar Valley, ca. 10°2'N 76°58'E, 1250 m, 1.–9.V.1997, leg. L. Dembický & P. Pacholátko (NHMB); 3 ♀♀: 15 km SW Munnar, Kallar Valley, ca. 10°2'N 76°58'E, 1000 m, 6.–18.XII.1993, leg. D. Boukal & Z. Kejval (NMW); 1 ♀: 10 km W Munnar, Peechadu – Mangulam road, 10°4'N 76°58'E, 1100 m, 6.I.1999, leg. D. Boukal (NMW); 1 ♀: Malampuzha, Palakkad, 10°50.1'N 76°39.1'E, 100 m, 28.IV.2005, leg. M. Halada (OLM); 1 ♂, 3 ♀♀: Kallar, 30 km NE of Trivandrum, 8°45'N 77°05'E, ca. 300–500 m, 7.–13.V.1999, leg. Z. Kejval & M. Trýzna (CAS); 1 ♂, 1 ♀: 35 km NNE Trivandrum, 8°46'N 77°7'E, 600 m, 2.I.1999, leg. D. Boukal (NMW); 1 ex.: Malabar Distr., Perrugodi, 21.X.1919, leg. R.B. Swell (recorded by VAZIRANI 1969a, correctly identified).

Tamil Nadu: 1 ex.: Palni Hills, Sowrikadu, 1000 m, VI.1978, leg. T.R.S. Nathan (NHMB); 1 ex.: road Palni (today Palani) – Kodaikanal, ca. 30 km from Palani, 1200 m, 31.I.1995, leg. P. Mazzoldi (CPM); 1 ♂: Palni Hills, Kodaikanal – Batlagundu road, Poolathur Junction, 10°14'N 77°39'E, 900 m, 15.I.1999, leg. D. Boukal (NMW); 40 exs.: 6 km S Kotagiri, 11°25'N 76°52'E, Elk Falls, 1650 m, 12.–16.V.1997, leg. L. Dembický & P. Pacholátko (NHMB); 1 ♀: Nilgiri Hills, 15 km SE Kotagiri, Kunjapanai, 11°22'N 76°56'E, ca. 900 m, 22.–30.V.1999, leg. Z. Kejval & M. Trýzna (CAS); 10 exs.: Nilgiri Hills, 11 km SE Kotagiri, Kunjapanai, 11°24'N 76°56'E, 1100 m, 3.–15.V.2002, leg. P. Pacholátko (NHMB); 6 ♂♂, 4 ♀♀: Nilgiri Hills, Kunjapanai, leg. D. Boukal (CJS); 11 exs.: Nilgiri Hills, 15 km SE Kotagiri, Kunjapanai, 11°22'N 76°56'E, 900 m, 17.–28.XI.1993, leg. Z. Kejval & D. Boukal (CGW, NMW); 1 ♀: Nilgiri Hills, 5 km E Kundah, 11°18'N 78°40'E, 23.I.1999, leg. D. Boukal (NMW); 3 exs.: Nilgiri Hills, Coonoor, 24.XII.1927, leg. I.M. Puri (NZSI) (recorded by VAZIRANI 1969a, correctly identified); 1 ex.: road Coimbatore – Attappadi near Pudur, small stream, 29.XII.1994, leg. P. Mazzoldi (CPM); 1 ex.: road Salem – Yercaud, 8–9 km from Yercaud, 1000 m, 4.I.1995, leg. P. Mazzoldi (CPM); 1 ♀: "Indes Orientales M[ts] Kodaicanal [Kodaikanal] J. Castets 1886" (MNHN-CO); 1 ♂: Tiruvannamalai, Mt. Arunachala, 12°14'28"N 79°3'26"E, 760 m, 8.–10.XII.2017, local collector (CAS); 1 ♂, 1 ♀: Cinchona, Anamalai Hills, ca. 1050 m, 5.V.1965, leg. P.S. Nathan (ZSM); 6 ♂♂, 5 ♀♀: Coimbatore, ca. 430 m, X.1965, leg. P.S. Nathan (CGW, ZSM); 1 ♂: 5 km E Nagercoil, 8°12'N 77°28'E, 16.I.1994, leg. D. Boukal & Z. Kejval (NMW); 8 ♂♂, 4 ♀♀: Shevaroy Hills, Yercaud, Kiliyur Falls env., 11°47'N 78°12'E, 1400 m, 25.I.1999, leg. D. Boukal (CGW, NMW); 5 ♂♂, 3 ♀♀: Shevaroy Hills, 5 km SE Cauvery Peak, 11°48'N 78°16'E, 1200 m, 26.I.1999, leg. D. Boukal (CGW, NMW); 2 exs.: "Pondicherry" [Puducherry], X.1980, leg. T.R.S. Nathan (NHMB).

Lakshadweep: 1 ♂: Kavaratti Isl., 10°33'59.6"N 72°38'28.3"E, at light, leg. S.K. Ghosh (NZSI).

Nicobar Islands: Great Nicobar Isl.: 1 ♂: "INDIA, NICOBAR, GNBR, GOVIND NAGAR 8.IV.2012 (E.E. Jahamalar) 7°00.314'N 93°53.300'E" (NZSI); 1 ♀: "INDIA, NICOBAR, GNBR, LAXMINAGAR 26.III.2012 (E.E. Jahamalar) 06°53.375'N 93°53.178'E" (NZSI).

SRI LANKA: North Central Prov.: 4 exs.: Anuradhapura, 3.XI.1982, leg. G. Duranton (NHMB); 1 ♂, 1 ♀: Polonnaruwa, 28.XI.1980, leg. M.A. Jäch (CGW, NMW); Western Prov.: 6 ♂♂, 2 ♀♀: Colombo env., 17.XI.1980, leg. M.A. Jäch (CGW); 1 ♂, 1 ♀: Kelani Valley near Colombo, leg. W. Braine (BMNH); Central Prov.: 1 ex.: Habarana, 10.XI.1982, leg. G. Duranton (NHMB); 4 ♂♂, 1 ♀: Haputale, Beragala, 8.–9.XII.1980, leg. M.A. Jäch (CGW, NMW); 2 ♂♂: Koslanda, Diyaluma Falls, 6°44'9.6"N 81°1'58.1"E, 760 m, 26.II.2012, leg. J. Šťastný (CJS); 2 ♀♀: Sri Pade, Dalhousie, 6°49'27"N 80°31'44"E, 1230 m, 23.II.2012, leg. J. Šťastný (CJS); 3 ♂♂, 10 ♀♀: Nuwara Eliya, XII.1980, leg. M.A. Jäch (CGW, NMW); 1 ♀: Nuwara Eliya Distr., near Adam's Peak, Fishing Hut, 18.XI.1995, leg. M. Shaffer (BMNH); 1 ♂: Kandy, 12.XI.1966, leg. H. Clarke (CGW); 1 ♀: Kandy, IX.–XII.1997, leg. E.E. Green (BMNH); 1 ♀: Kandy, 18.III.1973, leg. G. Zimmermann (CHF); 1 ♀: Horton Plains, pool, 23.I.1981, leg. M.A. Jäch (NMW); 1 ♀: "Ceylon Peradeniya 30.IV.[19]04 Dr. Uzel" (NMW); 1 ♀: "Ceylon Kandy 1.IV.[19]02 Dr. Uzel" (NMW); 1 ♀: "Maskeliya, leg. de Mowhay" (BMNH);

1 ♀: “Peradeniya” (BMNH); Sabaragamuwa: 1 ♀: Kitulgala, XII.1980, leg. M.A. Jäch (NMW); Southern Prov.: Weligama, 15.XII.1980, leg. M.A. Jäch (NMW); 2 ♂♂: Hikkhaduwa, IV.1984, leg. A. Puchner (NMW).

CHINA: ? Shanxi: 5 ♂♂, 3 ♀♀: “Kelan Pt. 92.–87.” (BMNH).

Chongqing: 1 ♂, 1 ♀: “Chungking” [Chongqing], Suifu, 300–600 m, IX.–X.1930, leg. D.C. Graham (CGW); 2 ♀♀: “Chungking” [Chongqing], 200–450 m, IX.1930, leg. D.C. Graham (CGW); 2 ♂♂: “Chungking” [Chongqing], IX.1912, leg. W.R. Bron (BMNH).

Chongqing or Sichuan: 6 ♂♂, 1 ♀: “Su-Tchuen Chasseurs Indigenènes 1903” (MNHN-CO).

Hubei: 1 ex.: “China: Ichan [Yichang]. C.T. Bowring. B.M. 1922-212” (BMNH); 2 ♂♂, 4 ♀♀: “Mt. Wu Shan” (CGW, SDEI).

Jiangsu: 1 ♀: “Prov. Kiangsu [Jiangsu] China Kolthoff” (ZSM).

Yunnan: 2 ♂♂, 2 ♀♀: Xishuangbanna, ca. 50 km SSE Menglun, Mengyuan, 700 m, 8.XI.1999, leg. M.A. Jäch et al. (CWBS 362) (NMW); 4 ♂♂, 3 ♀♀: Xishuangbanna, near Mengla, 700 m, 9.XI.1999, leg. M.A. Jäch et al. (CWBS 366) (CGW, NMW); 2 ♀♀: Xishuangbanna, ca. 12 km NW Menghai, ca. 1000 m, 11.XI.1999, leg. M.A. Jäch et al. (CWBS 376) (NMW).

Guizhou: 1 ♀: “Kouy-Tchéou [Guizhou] Abbé Largeteau” (MNHN-CO).

Guangxi: 7 exs.: 20 km N Lingchuan, 500 m, 21.–24.VI.1995, leg. BOLM (NHMB); 8 exs.: Miaoershan, S slope, 1300–2000 m, 25.–26.VI.1997, leg. BOLM (NHMB); 1 ♂: Liuwan Mts. SW of Yulin, 350–400 m, 16.XI.1993, leg. H. Schillhammer (CWBS 42) (NMW).

Hunan: 8 ♂♂, 7 ♀♀: Guangping, SW Huitong, 350 m, 4.XI.1993, leg. H. Schillhammer (CWBS 30) (NMW).

Jiangxi: 2 ♂♂: “Kiangsi [Jiangxi] China Samml. [collection] A. Zimmermann” (ZSM); 1 ♂, 2 ♀♀: “Kiukiang” [Jiujiang], VI.1887, leg. A.E. Pratt (MNB, ZSM); 7 ♂♂, 4 ♀♀: “Pinshiang” [Pinxiang] (SDEI, ZSM); 1 ♀: Jinggang Shan Mts., Baiyinhu vill., 26°36.8'N 114°11.1'E, 800 m, 23.–29.IV.2011, leg. M. Fikáček & J. Hájek (NMP).

Zhejiang: 1 ex.: Lishui City Reg., 26 km NW Longquan, 500 m, 9.IV.2001, leg. M. Wang (CWBS 425) (NMW); 13 ♂♂, 8 ♀♀: “Chusan Is. [Zhoushan], China. J.J. Walker” (BMNH).

Fujian: 1 ♀: Chong’an, Wuyi Shan, 3 km W Da’an, 500 m, 19.I.1997, leg. L. Ji & M. Wang (CWBS 250); 4 ♂♂, 4 ♀♀: “Foochow” [Fuzhou], 1.VI.1946, leg. Tschung Sen (NHMB); 6 ♂♂, 5 ♀♀: Foochow [Fuzhou], V.–VI.1935, leg. M.S. Yang (BMNH); 2 ♀♀: “Amoy” [Xiamen], 1922, leg. S.F. Light (BMNH).

Guangdong: 2 ♂♂, 2 ♀♀: Chengjia – Ruyuan road, ca. 40 km E Chengjia, 5.XI.2001, leg. M.A. Jäch & A. Komarek (CWBS 471) (CGW, NMW); 1 ♀: Dinghu Nat. Res., ca. 20–40 m, 29.X.2001, leg. M.A. Jäch & A. Komarek (CWBS 452) (NMW); 1 ♀: 35 km NE Huaiji, 24°0'25"N 112°26'9"E, ca. 130 m, 3.XI.2001, leg. M.A. Jäch & A. Komarek (CWBS 463) (NMW); 1 ♀: ca. 60 km E Fengkai, 23°26'36"N 111°58'10"E, ca. 230 m, 1.XI.2001, leg. M.A. Jäch & A. Komarek (CWBS 458) (NMW); 1 ♀: Chebaling – Siqian road, 24°41'11"N 114°07'17"E, ca. 270 m, 7.XI.2001, leg. M.A. Jäch & A. Komarek (CWBS 479) (NMW); 1 ex.: “Danes Isl[d]. [Changzhou Island] China” (BMNH).

Macao: 1 ♂: Gate of Understanding monument, 29.V.1994, leg. E. Easton (NMW).

Hong Kong: 1 ♂, 1 ♀: Hong Kong, leg. F. Jagor (MNB); 2 ♀♀: Hong Kong, leg. J.J. Walker (BMNH); 3 ♂♂: Hong Kong, University Campus, at light, 1996, leg. G. de Rougemont (CGW, NMW); 1 ♂: Lantau Isl., pools between Mui Wo and Ngau Kwu Long, 26.VI.1992, leg. M.A. Jäch (CWBS 7) (NMW).

Hainan: 2 exs.: 4 km W Qiongzhong, 150 m, 16.I.1996, leg. L. Ji & M. Wang (CWBS 190) (NMW); 3 ♀♀: 5 km E Tian Chi, Jianfeng Mts., 800 m, 23.I.1996, leg. M.A. Jäch resp. L. Ji & M. Wang (CWBS 209) (NMW); 1 ♀: Wuzhi Shan vill. – Wuzhi Shan Resort, fish pond, 600 m, 18.I.1996, leg. M.A. Jäch (CWBS 196) (NMW).

TAIWAN: 1 ♂: “Formosa Sauter Lambeh” [Lambai or Liuqiu Island] (NMW); 5 ♂♂, 6 ♀♀: “Kosempo [southern Taiwan, exact location somewhat unclear, see ESAKI (1941)] Formosa H. Sauter 1909” (SDEI); 1 ♂, 4 ♀♀: “Formosa Western Coll. B.M. 1924-176” (BMNH); 2 ♂♂: Taitung County, Chinhun, 150 m, leg. G. Csorba & L. Németh (CHF); 1 ♂, 1 ♀: Taitung County, Lanyu Isl., 4 km SE of Yeh-Ying vill., 22°1'40.2"N 121°34'39.7"E, ca. 30 m, at light, 22.V.2007, leg. G. Martin & D.L.J. Quicke (BMNH); 1 ♂: Taitung County, Lanyu Isl., Yung Hin Farm, 22°1'42.2"N 121°34'38.5"E, at light, 29.–30.VII.2008, leg. H. Mendel & M.V.L. Barclay (BMNH).

JAPAN: Okinawa Pref.: 3 exs.: Iriomote Isl., Ōhara, 19.III.1985, leg. K. Nemoto (CGW, NHMB); 2 exs.: Ishigaki-jima Isl., 15.–20.XII.1987, leg. Y. & T. Abe (CHF, NHRS).

MYANMAR: 1 ex.: Sagaing Division, Alaungdaw Kathapa NP, 22°19'6.8"N 94°28'34.8"E, 350 m, 8.VI.2004, leg. H. Schillhammer et al. (NMW); Shan State East: 2 ♀♀: Shan Highland, Khok, II.–IX.2006 (CAS).

THAILAND: Chiang Mai Prov.: 1 ♂: 25 km N Chang Dao, 19°40'N 98°50'E, 28.–30.VI.2002, leg. R. & H. Fouquè (CJS); 1 ex.: Doi Phahompok, Ganga River, 1600 m, 21.VII.2001, leg. P. Henschel & G. Petrányi (CHF); Phitsanulok Prov.: 1 ex.: Phu Hin Rongkla NP, Huai Khamunoi Waterfall, stream bed, 1250 m, leg. P. Mazzoldi (CPM); Sakon Nakhon Prov.: 1 ♂: Khok Phu – Ban Sang Kho, Phu Phan Mt., ca. 500 m, 9.II.1954, leg. R.E. Elbe (CGW); Khon Kaen Prov.: 1 ♂: Phu Phan Kham NP, 21.I.1995, leg. H. Zettel (NMW); Kanchanaburi Prov.: 5 exs.: near Sangkhla Buri, pond, 26.XII.1996, leg. P. Mazzoldi (CPM); 2 exs.: Sangkhla Buri, road to

Karen, Ban Sane Pang vill., pond, 26.XII.1996, leg. P. Mazzoldi (CPM); Nakhon Nayok Prov.: 1 ex.: Khao Yai NP, 16.XI.1988, leg. M.A. Jäch (NMW); Trat Prov.: 1 ♀: Ko Chang, Klong Prac, 11.XII.1990, leg. M.A. Jäch (NMW); Chumphon Prov.: 1 ex.: Pha To, 9°48'N 98°47'E, 27.III.–14.IV.1996, leg. K. Majer (NHMB); Surat Thani Prov.: 1 ♀: Koh Samui, I.1988, leg. M. Madl (NMW); Krabi Prov.: 1 ♀: Noppharat Thara, 28.III.1993, leg. M. Madl (NMW); Trang Prov.: 6 ♂♂, 2 ♀♀: Kachong, 20 km E Trang, 15.XI.1996, leg. J. Rejsek (CJS).

CAMBODIA: Siem Reap Prov.: 1 ♂: Angkor Tom, ca. 20 m, pool, 29.I.2012, leg. G. Wewalka (CGW); Mondul Kiri Prov.: 1 ♂: Senmonorom, 12°30'N 107°12'E, 600 m, 22.–26.I.2006, leg. S. Bečvár & R. Fouquè (CJS); Koh Kong Prov.: 1 ex.: 20 km SE Koh Kong, Tatai River, 11°34'N 103°07'E, 50–300 m, 3.–19.V.2005, leg. E. Jendek & O. Šauša (NHMB).

LAOS: Phongsaly Prov.: 1 ex.: Ban Sano Mai, ca. 1150 m, 21°21'N 102°3'E, 19.–26.V.2004, leg. M. Brancucci & V. Kubáň (NHMB); 1 ex.: 4 km E Boun Neua, ca. 1000 m, 21°38'N 101°57'E, 20.VI.2003, leg. P. Pacholátko (NHMB); 1 ex.: Ban Nam Li, ca. 900 m, 21°15'N 102°14'E, 4.V.2004, leg. M. Brancucci (NHMB); Luang Namtha Prov.: 2 exs.: Namtha – Muang Sing, 900–1200 m, 21°9'N 101°19'E, 5.–31.V.1997, leg. V. Kubáň (CGW, NHMB); 1 ♀: NW of Muang Sing, 20.–22.XI.2011, leg. J. Šťastný (CJS); 1 ♀: Muang Sing, 600 m, at light, 9.–13.VI.1996, leg. H. Schillhammer (NMW); 2 ♂♂: Tong Om vill., light trap, 1.V.2005, leg. N. Jönsson et al. (NHRS); Luang Prabang Prov.: 1 ex.: 5 km W Ban Song Cha, 1200 m, 20°33–34'N 102°14'E, 1.–9.V.1999, leg. V. Kubáň (NHMB); Houaphan Prov.: 12 exs.: Phou Phan Mt., 1350–1500 m, ca. 20°13'N 104°00'E, 1.V.–16.VI.2009, leg. M. Brancucci et al. (CGW, CHF, NHMB); 23 exs.: Phou Phan Mt., 1500–1900 m, ca. 20°12'N 104°1'E, 17.V.–3.VI.2007, leg. M. Brancucci et al. (CGW, NHMB); Xieng Khouang Prov.: 8 exs.: 30 km NE Phongsavan, Ban Na Lam – Phou Sane Mts., 1300–1500 m, 19°37–8'N 103°20'E, 10.–30.V.2009, leg. M. Brancucci et al. (CGW, NHMB); 3 exs.: 30 km NE Phongsavan, Phou Sane Mts., 1420 m, 19°38.2'N 103°20.2'E, 10.–30.V.2009, leg. D. Hauck et al. (CGW, NHMB); Bolikhamsai Prov.: 3 exs.: 8 km NE Ban Nape, ca. 600 m, 18°21'N 105°8'E, 1.–18.V.2001, leg. V. Kubáň (CGW, NHMB); 1 ♀: Pak Kading, 18°19'44"N 103°59'55"E, 20.–24.VIII.2000, leg. E. Jendek & P. Pacholátko (NMW); Vientiane Prov.: 16 exs.: Vang-Vieng, 300 m, 18°55'23"N 102°26'55"E, V.–VI.2001, leg. J. Kolibáč (CGW, NHMB); 2 ♂♂, 4 ♀♀: Vientiane env., III.–VI.1963 (ZSM); 1 ♂: Vientiane env., III.–IV.1964 (CGW); 1 ex.: 70 km ENE Vientiane, 150 m, 18°16'N 103°11'E, 2.–3.VI.1997, leg. V. Kubáň (CGW, NHMB); 1 ♂: Phou Khao Kouay, 11.IV.1998, O. Merkl & G. Csorba (CHF); Khammuan Prov.: 1 ♂, 1 ♀: Ban Khoun Ngeun, 18°7'N 104°29'E, ca. 200 m, 24.IV.–31.V.2001, leg. P. Pacholátko & V. Kubáň (CGW, NHMB); 2 ♂♂: Nakai-Nam Theun NP, Ban Nahao, 17°59'N 105°10'E, 550 m, 18.V.2012, leg. M. Brancucci & M. Geiser (NHMB); Champasak Prov.: 1 ex.: Ban Nong Panouan, 770–800 m, 15°02'N 106°31–34'E, 10.–17.VI.2010, leg. M. Geiser & D. Hauk (NHMB); Sekong Prov.: 1 ♂: ca. 12 km S Sekong, Tad Faek Waterfalls, 15°14.7'N 106°45.1'E, ca. 120 m, at light, V.2010, leg. J. Hájek (NMP); Attapeu Prov.: 1 ♂, 1 ♀: Ban Wang Tat Noi, 15°3–4'N 107°24'E, 900 m, 10.–25.VI.2011, leg. M. Brancucci et al. (NHMB).

VIETNAM: Lai Chau Prov.: 1 ex.: Hoang Lien Son Distr. Sa Pa, 11.–15.V.1990, leg. P. Pacholátko (NHMB); 1 ex.: Hoang Lien Son Distr. Yen Bai, 10.V.1990, leg. V. Kubán (NHMB); Cao Bang Prov.: 1 ♂, 3 ♀♀: Nguyen Binh Distr., Thanh Cong, 22°33.756'N 105°51.757'E, ca. 1020 m, 19.–21.IX.2017, leg. N.H. Binh (MNE); 4 ♂♂, 6 ♀♀: Vin Den, Nui Pia Oac Nat. Res., 22°33'53"N 105°52'53"E, 900–1300 m, 6.–10.V.2013, leg. A. Skale (Balke 6045) (CAS, ZSM); Bac Kan Prov.: 1 ♂, 1 ♀: Ba Be NP, Nam Man, ca. 190 m, 17.IV.2010, leg. L. Papp et al. (CHF); Vinh Phuc Prov.: 3 exs.: Tam Dao, 17.–21.V.1990, leg. V. Kubán (NHMB); 1 ♀: Vinh Yen, 21°26'N 105°38'E, 900 m, 13.X.1986, leg. T. Mészáros et al. (HNHM); 1 ♂, 1 ♀: Tam Dao, 22.V.1990, leg. M. Dudycha (CJS); 1 ♀: Tam Dao, 6.–25.V.1990, leg. O. Šauša (NMW); Hanoi Prov.: 1 ♀: Hanoi, 21.V.–11.VI.1986, leg. J. Horák (NMW); Hòa Bình Prov.: 4 ♂♂, 3 ♀♀: "Tonkin: Hoabinh [Hòa Bình]. Aug. 1918. R.V. de Salvaza" (BMNH); Nghê An Prov.: 3 ♂♂, 1 ♀: "Annam Phuc-Son Nov.Dez. [November December] H.Fruhstorfer" (CGW, NMW); Quang Bình Prov.: 2 ♀♀: "Annam: Dong Hoi. January 1927. Delacour and Lowe Expt." (BMNH); Quang Tri Prov.: 1 ♂, 1 ♀: "Annam Quang-Tri 1906" (CGW); Ninh Thuan Prov.: 4 ♂♂, 4 ♀♀: "Süd-Annam Pha-Rang März H.Fruhstorfer" (CGW, NMW, ZSM); Lam Dong Prov.: 1 ♂, 3 ♀♀: 16 km N Dalat – Ankroet, 12°5'N 108°24'E, 1400 m, 15.IV.1995, leg. P. Pacholátko & L. Dembický (NMW); 2 ♂♂, 1 ♀: 12 km N Dalat, 12°3'N 108°27'E, 1580–1750 m, 17.–21.IV.1995, leg. P. Pacholátko & L. Dembický (NMW); Dong Nai Prov.: 1 ex.: Cat Tien vill., 120 km NNE Ho Chi Minh City, 3.–15.VII.1995, leg. A. Napolov (NHMB); 1 ♀: Nam Cat Tien NP, 1.–15.V.1994, leg. P. Pacholátko & L. Dembický (NMW).

MALAYSIA: 1 ♂: "Malaya; G.H. Lowe. B.M. 1948-344" (BMNH); Kedah: 1 ♂: Langkawi Isl., Pantai Kok, 30.I.1992, leg. M.A. Jäch (NMW).

INDONESIA: Sumatra: 1 ♂: "Sumatra coll. Martin" (ZSM); North Sumatra: 3 ♂♂: "Medan Sumatra coll. Hayek" (CGW, ZSM); 1 ♂: Dolok Merangir, 27.IX.–1.X.1969, leg. E.W. Diehl (CGW); West Sumatra: 1 ♂: "156 km südöstl. [SE] Padang 1000 m. Sumatra Hayek" (ZSM); South Sumatra: 1 ♂: Palembang, leg. M. Knappert (NMW).

Java: 3 ♂♂, 1 ♀: "Java", 1891, leg. H. Breitenstein (CGW, NMW).

Kalimantan: 1 ♂: "Pontianak Bruegel 3.1907" (ZSM).

Sulawesi: North Sulawesi: 6 ♂♂, 2 ♀♀: Dumoga-Bone [Bogani Nani Wartabone] NP, base camp area, pools, ca. 190 m, 8.II.1985, R. Ent. Soc. Lond. Project Wallace B.M. 1985-10 (BMNH); 2 ♀♀: Dumoga-Bone [Bogani Nani Wartabone] NP, 'Hog's Back' camp, lowland forest, ca. 490 m, XI.1985, R. Ent. Soc. Lond. Project Wallace B.M. 1985-10 (BMNH); 2 ♀♀: Dumoga-Bone [Bogani Nani Wartabone] NP, ca. 1000 m, X.1985, R. Ent. Soc. Lond. Project Wallace B.M. 1985-10 (BMNH); 1 ♂, 2 ♀♀: 1 km W Toraut, Dumoga-Bone [Bogani Nani Wartabone] NP, 0°34'17"N 123°54'19"E, 200–300 m, 1.–2.II.2008, leg. A. Skale (CAS); 1 ♂: Dumoga-Bone [Bogani Nani Wartabone] NP, Motoyangan, 22.IV.1992, leg. S. Schödl (NMW); Central Sulawesi: 1 ♂: ca. 20 km NE Palu, ca. 3 km W Tawaeli, 0°43'56"S 119°55'30"E, 170 m, 3.III.2009, leg. A. Skale (CAS); 1 ♂: 28 km SE Palu, 1°7'S 119°59'E, 850 m, 19.XII.1994, leg. J. Haft (NMW); 1 ♂, 1 ♀: Banggai Arch., Potil-kecil, 1°29'10"S 123°33'24"E, 12.–19.II.1980, leg. M.J.D. Brendell (BMNH); South Sulawesi: 1 ex.: Malino, pond, 15.I.2007, leg. P. Mazzoldi (CPM); 1 ♂: "S. Celebes. Bantimurung. G. Ribbe, 1882" (CGW); 1 ♂: "Macassar [Makassar] [leg.] Wallace" (BMNH); 16 ♂♂, 7 ♀♀: N of Morowali, Ranu River Area, at light, 27.I.–20.IV.1980, leg. M.J.D. Brendell (BMNH, CGW).

Halmahera: 1 ♂: Kao Distr., near Kampung Tolabit, 8.III.1981, leg. A.C. Messer & P.M. Taylor (SIW).

Timor: 1 ♂: Baun, 10°17'16.8"S 123°44'36.0"E, 1.–2.I.2014, leg. J. Horák (NMP); 1 ♂: Soe Region, Kolon vill., IV.2014, local collector (NMP); 1 ♂: Soe Region, Mutis Mts., Mt. Mollo, 500 m, 10.–20.I.2016, local collector (CGW).

AFFINITIES: *Hydaticus vittatus* resembles *H. conjungens* in having narrow yellow lateral pronotal stripes, in similar size (TL: 11.3–14.6 mm; TL-h: 10.6–13.6 mm; MW: 6.3–8.3 mm) and in variable but very similar elytral marks (Fig. 1a–e). In distribution areas, where both species occur (e.g. Myanmar, Malaysia, Java, Sumatra, Sulawesi), the two species can be distinguished only by the male genitalia (Figs. 12–13). Female specimens cannot be determined with certainty.

From other species with similar elytral colour patterns (*H. bipunctatus*, *H. quadrivittatus*, *H. dhofarensis* and *H. histrio*) it can be distinguished by the narrower yellow lateral pronotal stripes and by the shape of the median lobe.

VARIABILITY: In most specimens the sublateral and the medial longitudinal stripes merge anterior of the elytral middle (Fig. 1b), and the sublateral stripe is often reduced and not merging with the medial stripe (Fig. 1c). Specimens with reduced elytral marks (Fig. 1d–e) occur usually in Nepal and China (Chongqing). Specimens with extended elytral marks (Fig. 1a) occur mainly in Sri Lanka and have been described as var. *angustulus* by RÉGIMBART (1899). SATÔ (1961a) and WEWALKA (1975b) treated the latter as a subspecies. However, the different varieties are not distributed equally, they show no clear distribution pattern, and therefore they do not seem to deserve subspecific status.

HABITAT: This species occurs in a wide range of habitats, e.g. rain water pools, muddy buffalo wallows with grassy margins, fish ponds, and small streams (JÄCH & JI 1995, 1998, 2003), in puddles on roads, ditches in forests and in larger water bodies like artificial pools and paddy fields. Sometimes it is found in great numbers together with *H. bipunctatus*. It was also collected at light.

DISTRIBUTION (Fig. 27): Sri Lanka; Pakistan (?); Nepal; Bhutan; India: Andhra Pradesh, Arunachal Pradesh, Assam, Goa, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Lakshadweep, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Nicobar Islands, Odisha, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttarakhand, West Bengal; Bangladesh (?); Myanmar; China: Chongqing, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hong Kong, Hubei, Hunan, Jiangsu, Jiangxi, Macao, Shandong, Shanghai, Shanxi (?), Sichuan (?), Yunnan, Zhejiang; Taiwan; South Korea (?); Japan; Thailand; Cambodia; Laos; Vietnam; Malaysia: West Malaysia; Indonesia: Halmahera, Java, Kalimantan, Sulawesi, Sumatra, Timor.

VAZIRANI (1977a) recorded *H. vittatus* from Pakistan and Bangladesh, but these records seem to be unconfirmed. The occurrence in South Korea is also unconfirmed (LEE & AHN 2018).

2. *Hydaticus conjungens* RÉGIMBART, 1899 stat.n.

Hydaticus vittatus var. *conjungens* RÉGIMBART 1899: 329 (partim); 1900: 148; CSIKI 1938: 129.
Hydaticus vittatus ab. *conjungens*: ZIMMERMANN 1919: 228 (partim); 1920: 228 (partim); 1927b: 6 (partim).
Hydaticus vittatus: RÉGIMBART 1888: 618 (partim); 1899: 328 (partim); ZIMMERMANN 1919: 228 (partim); ZAITZEV 1953: 311 (partim); GHOSH 2012: 141 (partim).
Hydaticus vittatus var. *bipunctatus*: RÉGIMBART 1899: 329 (partim); ZIMMERMANN 1919: 228 (partim).
Hydaticus bipunctatus: WEWALKA 1975b: 92; VAZIRANI 1977a: 75; WEWALKA 1982: 123; BALKE et al. 1998: 325.
Hydaticus bipunctatus conjungens: WEWALKA 1975b: 94; HENDRICH & BALKE 1995: 46; HENDRICH et al. 2004: 119; NILSSON 2001: 101; SUPRAYITNO et al. 2017: 18ff.; NILSSON & HÁJEK 2020b: 93.
Hydaticus bipunctatus bipunctatus: NILSSON 2001: 100; GHOSH & NILSSON 2012: 24 (partim); DEB 2017: 394 (partim).
Hydaticus vittatus var. *interruptus* RÉGIMBART 1899: 329 (**syn.n.**).
Hydaticus vittatus ab. *interruptus*: ZIMMERMANN 1919: 228; 1920: 228.
Hydaticus vittatus var. *basinotatus* RÉGIMBART 1899: 328.
Hydaticus vittatus ab. *basinotatus*: ZIMMERMANN 1919: 228 (partim).
Hydaticus vittatus var. *quadrivittatus*: RÉGIMBART 1899: 329 (partim); CSIKI 1938: 129.
Hydaticus vittatus ab. *quadrivittatus*: ZIMMERMANN 1919: 228; 1920: 228.
Hydaticus leechi SATÔ 1961a: 61 (**syn.n.**); VAZIRANI 1973a: 82; 1977a: 78; MUKHERJEE & SENGUPTA 1986: 279; MUKHOPADHYAY & GHOSH 2003a: 31 (partim); 2004: 367 (partim).
Hydaticus leechi f. *subrutilus* SATÔ 1961a: 61.
Hydaticus leechi f. *interruptus*: SATÔ 1961a: 62.
Hydaticus leechi celebesanus SATÔ 1961a: 61 (**syn.n.**).
Hydaticus leechi celebesanus f. *insularis* SATÔ 1961a: 61.
Hydaticus leechi celebesanus f. *brackeli* SATÔ 1961a: 61.

TYPE LOCALITY: Indonesia, Java.

TYPE MATERIAL: **Lectotype** ♂ (MNHN), designated by WEWALKA (1975b): "Java Dessa Tjikidang J.B. Ledru" [printed white label with black frame], "LECTO-TYPUS Hydaticus vittatus var. conjungens" [handwritten red label], Hydaticus bipunctatus When. ssp. conjungens Rég. det. G. Wewalka 75" [handwritten white label], "MUSÉUM PARIS 1908 coll. M. A. RÉGIMBART" [printed white label], "MNHN EC7889" [printed white label].

ADDITIONAL MATERIAL EXAMINED:

INDIA: Andaman Islands: 29 exs.: "Andamans (Rœpstorff)" (BMNH, CGW); 1 ♂: South Andaman, Port Blair, 2.I.1979, leg. G. Osella (CGW); 1 ♂, 4 ♀♀: South Andaman, 1.IV.1969, leg. T.D. Soota (NZSI).
Nicobar Islands: 1 ♀: "Nicobar" (MNHN-CO); 4 ♂♂, 2 ♀♀: "Nicobars (Rœpstorff)" (BMNH, CGW).
INDIA or BANGLADESH: 1 ♂: "Bengal. Var. interruptus Regim" (CGW).
MYANMAR: Mon State: 1 ♂: "Maulmain [Mawlamyine] Ex. Musaeo Thorey" (MNHN-CO); Tanintharyi-Division: 4 ♂♂, 1 ♀: "Tenasserim coll. Helfer" (CGW).
CAMBODIA: 1 ♂: "Cambodia (2047)" (BMNH).
PHILIPPINES: 1 ♂: "Philippines Ch. Semper" (MNHN-CO).
MALAYSIA: Penang: 4 ♂♂, 1 ♀: "Malay Pen.[insula]" (BMNH); 1 ♂, 1 ♀: "Penang S.S. Flower. 99-248", "Bot. Gdns [Gardens]: Mch. [March] [18]98" (BMNH).
Perak: 1 ex.: Pangkor Isl., Teluk Nipah, 25.I.1992, leg. M.A. Jäch (NMW).
Pahang: 2 ♂♂, 1 ♀: Rompin, 7.V.1993, leg. I. Jeniş (NMW); 1 ♂: Tioman Isl., Kampung Tekek, 15.–26.VII.1992, leg. R. Schuh (NMW).
Johor: 25 exs.: Endau-Rompin NP, 50–400 m, III.1998, leg. L. Dembický & P. Pacholátko (NHMB); 1 ♀: Endau-Rompin NP, Salendang, 100 m, 28.II.–12.III.1995, leg. M. Štrba & R. Hergovits (NMW); 5 ♂♂: 30 km N Kota Tinggi, Kangkar Dohol, 35 m, 7.–11.IV.2007, leg. P. Čechovský (CGW, NMW); 1 ♂, 1 ♀: Mawai, 5.III.1960, leg. C.H. Fernando (BMNH).
Sabah: 2 ♀♀: "Kinabalu, Borneo, 1500 m H. Rolle, Berlin" (CGW); 3 ♂♂, 3 ♀♀: "Kina Balu 1889 Samml. A. Zimmermann" (ZSM); 1 ♂, 2 ♀♀: 5 km S Mt. Trus Madi, ca. 550 m, 18.–28.VIII.1977, clear pool, leg. M.E. Bacchus (BMNH).
Sarawak: 1 ♀: Bako NP, 27.–28.V.2003, leg. J. Šťastný (CJS): 1 ♀: Kuching Distr., Mt. Penrissen, 1000 m, 24.–26.III.1994, leg. J. Horák (NMW); 2 ♂♂, 1 ♀: Bau, leg. J.M. Bryant (BMNH); 1 ♂: Semonggok Forest Res., at light, 30.X.1967, leg. G.H.L. Rothschild (BMNH).
SINGAPORE: 3 ♂♂, 1 ♀: "Novara 1857.-59. Reise", "P [Singapore]" (NMW): 1 ♂: "Singapore. Dr. M. Cameron. B.M. 1936-555" (BMNH).
INDONESIA: North Kalimantan: 10 exs.: "Long Navang Borneo Mjöberg" (NHRS).
West Kalimantan: 1 ♂, 1 ♀: "Bornéo Occ. Pontianak 1898" (CGW).

East Kalimantan: 1 ♂: ca. 55 km W Balikpapan, 1°18.3'S 116°21.0'E, 100 m, 24.–29.XI.2011, leg. J. Hájek et al. (NMP).

South Kalimantan: 6 exs.: Meratus Mts., Loksado, pools on road, 250 m, 27.XII.2000, leg. P. Mazzoldi (CGW, CPM); 19 ♂♂, 12 ♀♀: Kandangan Distr., 17 km NE Loksado vill., 900 m, 8.XI.1997–15.I.1998, leg. S. Jákl (CGW, CLH); 8 ♂♂, 8 ♀♀: Kandangan Distr., 1 km NE Loksado vill., 900 m, 8.–15.XI.1997, leg. S. Jákl (CGW, CLH).

Sulawesi: 17 exs.: Dumoga-Bone [Bogani Nani Wartabone] NP, [different sites], 190–1000 m, I.–XII.1985, R. Ent. Soc. Lond. Project Wallace B.M. 1985-10 (BMNH); 1 ♂: Dumoga-Bone [Bogani Nani Wartabone] NP, Site 1, 200 m, new base camp site, 27.–28.I.1985, R. Ent. Soc. Lond. Project Wallace B.M. 1985-10 (BMNH); 1 ♂: "Menado [Manado] coll. Brujn 1877" (MNHN-CO); 1 ♂: "Menado" [Manado] (BMNH); 2 ♂♂: Gunung Ambang, 20.IV.1992, leg. M.A. Jäch (NMW); 1 ♂, 3 ♀♀: Modoinding, NE of Kotamobagu, 19.IV.1992, leg. M.A. Jäch & S. Schödl (NMW); 1 ♀: 7 km E Poliwali, 3°25'9.8"S 119°24'21.7"E, leg. P. Schüle & N. Rusdi (Balke 5823) (ZSM); 2 ♂♂, 2 ♀♀: NE Palu, W Tawaeli, 0°43'33.6"S 119°55'18.0"E, 170 m, 3.III.2009, leg. A. Skale (1 ♀, Balke 3706) (ZSM); 2 ♂♂, 3 ♀♀: 45 km SE Palu, 1°11'S 120°8'E, 1994, leg. J. Haft (CGW, NMW); 2 ♀♀: Malili, Karebbe at Larona River, 14.X.2005, leg. W. Mey (NHMB); 4 ♂♂, 8 ♀♀: Malino, E of Ujung Pandang [Makassar], 29.IV.1992, leg. M.A. Jäch & S. Schödl (CGW, NMW); 1 ♀: Ujung Pandang [Makassar], 5°3'S 119°32'E, 10 m, 17.XII.1994, leg. J. Haft (NMW); 2 ♂♂, 1 ♀: Kanre Apia W of Malino, 1400 m, 30.IV.1992, leg. M.A. Jäch (NMW); 1 ♀: "Macassar [Makassar], VI.[18]96. [leg.] Doherty" (MNHN-CO); 1 ♂: "Sabuan" [Sabiano] (BMNH).

Sumatra: Aceh: 2 ♂♂, 3 ♀♀: Ketambe, 7.–17.X.1991, leg. W. Barries (NMW); 2 exs.: Pematangsiantar, 20.–21.V.1991, leg. J. Moravec (NHMB); North Sumatra: 4 exs.: Prapat, 1400 m, 25.V.1981, leg. E. Diehl (NHMB); 2 ♀♀: 20 km E Prapat, 10.–26.II.1996, leg. M. & E. Arenberger (NMW); 1 ♂, 1 ♀: 15 km SW Sindar Raya, 3°6'0"N 98°33'36"E, 500 m, 31.VIII.1991, leg. J.A. Graul & A. Schintlmeister (NKML); 1 ex.: Tebing Tinggi, 1.–25.X.1961 (NHMB); 1 ♂, 2 ♀♀: Tebing Tinggi, 24.VII.1884, leg. B. Schultheiss (SDEI); 10 exs.: Dolok Merangir, III.–IV.1981, leg. E. Diehl (NHMB); 1 ♂: Dolok Merangir, 170 m, 2.I.1981, leg. M. Sommerer (ZSM); 13 exs.: Dolok Merangir, 21.II and 4.III.1991, leg. H. Malicky (CGW, NMW); 1 ♂, 2 ♀♀: Medan, 20 m, 29.IX.1921, leg. J.B. Corporal (MNHN-CO); 1 ♀: "Medan Sumatra, F. Schneider" (ZSM); 20 exs.: "Medan Sumatra coll. Hayek" (ZSM); 1 ♀: Medan, 31.X.1991, leg. W. Barries (NMW); 3 ♂♂, 3 ♀♀: "Medan Mjöb[erg]" (NHRS); 1 ♂, 3 ♀♀: Semangat Gunung, 1500 m, at light, 15.III.1992, leg. B. Gustafsson et al. (CGW, NHRS); 4 ♂♂, 2 ♀♀: Harau Valley, II.1991, leg. S. Jákl (CJS); 3 ♀♀: Sipirok, 20.II.1996, leg. M. Lödl (NMW); 2 ♀♀: 4 km W Sipirok, 1100 m, 3.V.1998, leg. P.C. Cate & J. Nagy (NMW); 30 exs.: 8 km W Sidikalang, 1250 m, 18.IV.1998, leg. P.C. Cate & J. Nagy (NMW); 1 ♂: Samosir Isl., Toba Lake, ca. 900 m, 3.II.1990, leg. S. Schödl (NMW); 1 ♀: Tigabinanga, W Kabanjahe, 21.II.1990, leg. S. Schödl (NMW); 3 ♂♂, 2 ♀♀: Mt. Sibayan, 1700 m, 7.XII.2000, leg. U. Buchsbaum (BMNH); 1 ex.: Berastagi, Tanah Karo, at light, 1490 m, leg. H. Urban et al. (NHMB); 5 ♂♂, 5 ♀♀: Air Panas near Berastagi, 3°13.2'N 98°30.4'E, 1380 m, 2.III.2002, leg. T. Kothe (ZSM); 1 ♂, 1 ♀: Balighe, X.[18]90–III.[18]91, leg. E. Modigliani (SDEI); West Sumatra: 6 exs.: Talu, Simpang Empat, light trap, VII.1992, leg. W. Ullrich (NHMB); 1 ♂: Camp Malibou Anai, Lembah Anai, 400 m, at light, 5.III.1993, leg. H. Deumer & M. Schaarschmidt (NKML); 5 ♂♂, 6 ♀♀: "Fort de Kock" [Bukittinggi], XII.1921, leg. E. Jacobson (BMNH, CGW, NHRS, SDEI, ZSM); 1 ♀: Bukittinggi, 900–1000 m, 18.–23.X.1980, leg. A. Harman (BMNH); 1 ♂: Bukittinggi, Sianok Canyon, 10.II.1991, leg. S. Schödl (NMW); 2 ♂♂, 1 ♀: "Sumatra Montes Battak ex. coll. Fruhstorfer" (NMW, ZSM); 1 ♂: "Sumatra coll. Hayek Padang" (ZSM); 1 ♂, 1 ♀: Danau Diatas, 1°4'36.0"S 100°46'9.5"E, 1500 m, 18.XII.2007 (1 ♂, Balke 2824, 1 ♀, Balke 2825) (ZSM); 1 ♂, 1 ♀: W Danau Diatas, 70 km SE Padang, 24.II.1991, leg. S. Schödl (NMW); 1 ♂: Panti, 300–450 m, 6.II.1991, leg. S. Schödl (NMW); 4 ♂♂, 3 ♀♀: Annai, Mt. Singgalang, Lapai Valley, 500 m, II.2004, leg. S. Jákl (CLH); 4 ♂♂, 2 ♀♀: Badang – Solok, Lubuk Kilangan, 0°57'18.7"S 100°36'35.3"E, 960 m, 9.IX.2011 (MZB); 1 ♂: Sawahlunto, Talawi Hilir, 0°35'40.4"S 100°43'54.5"E, 220 m, rice field, VIII.2017 (MZB); 6 ♂♂, 5 ♀♀: mountain behind Andalas Univ. near Padang, 0°54'35"S 100°28'36"E, 400 m, artificial ponds, leg. E.F.A. Toussaint (ZSM); 1 ♂, 2 ♀♀: Palembang, leg. M. Knappert (NMW); 1 ♂: Bukit Barisan Selatan NP, 5 km SW Liwa, 5°4'S 104°4'E, 600 m, 7.–17.II.2000, leg. J. Bezděk (NMP).

Riau: 3 ♀♀: "Tjinta Radja [Cinta Raja] Sumatra: Mjöberg" (NHRS).

Nias: 1 ♂: "Nias Coll. Plason" (NMW); 4 ♂♂, 2 ♀♀: "German Mission Sumatra Nias Frey Coll. 1905-100" (BMNH); 1 ♂, 1 ♀: northern Nias, at light, 2.III.1995, leg. U. Buchsbaum (CAS); 1 ♂, 2 ♀♀: Oyo River, 70 km N Telukdalam, 13.II.1990, leg. S. Schödl (NMW); 1 ♂: 40 km N Telukdalam, 13.II.1990, leg. S. Schödl (NMW); 1 ♂: Lagundri, rice field, 7.V.2004, leg. D. Trávníček (CJS).

Siberut: 1 ♂, 2 ♀♀: Kulu Kubuk, 5 km SW Madobak, 50 m, at light, 22.II.1995, leg. H. Deumer & M. Schaarschmidt (NKML); 1 ♂: Madobak, W Muarasiberut, 19.II.1991, leg. S. Schödl (NMW); 4 ♂♂, 6 ♀♀: Mt. Malancan, 100–300 m, 18.–21.I.2005, leg. S. Jákl (CGW, CLH); 1 ♂: S Siberut, III.–IV.2005, 50–100 m, leg. S. Jákl (CLH); 1 ♂, 1 ♀: Salappa vill., 50 m, II.2006, leg. S. Jákl (CLH).

Java: 2 ♂♂: "Batavia [Jakarta] Rolle 1916" (CGW); 6 ♂♂, 1 ♀: Jakarta, 1967, leg. Blabensteiner (NMW); 1 ♂: "Java merid. Palabuan [Pelabuhan Ratu] 1892 H. Fruhstorfer" (CJS); 2 ♂♂, 2 ♀♀: "Java occident. Sukabumi 2000' 1893 H. Fruhstorfer" (NMW, SDEI); 2 ♂♂: "Soekaboemi [Sukabumi] X.1919" (SDEI); 5 ♀♀: "Tjibodas [Cibodas] 1500 m VII.[19]21" (SDEI); 1 ♂: "Java occident. Pengalengan 4000' 1893 H. Fruhstorfer" (CGW); 1 ♂, 3 ♀♀: "Java occident. Mons Tjikorai [Mount Cikuray, SW of Garut] 4000' 1892 H. Fruhstorfer" (NMP, SDEI); 1 ♀: N of Pangandaran, 23.I.1987, leg. M.A. Jäch (NMW); 4 ♂♂, 4 ♀♀: Bogor, Megamendung, 5.III.1961, leg. F.H. Hamann (OLM); 3 ♂♂: near Bogor, rice fields, 6.V.1961, leg. P. Manis (OLM); 2 ♂♂, 2 ♀♀: "Buitenzorg [Bogor] Giava [Java] X. [18]74 D. Ferrari" (BMNH); 1 ♂: Cibodas, Mt. Gede, 20.IV.1909, leg. O. Bryant & W. Palmer (CGW); 1 ♂: Depok, 18.IV.1909, leg. O. Bryant (BMNH); 1 ex.: Pagilaran Estate, 1200 m, XI.1940, leg. K. Landbeog (NHMS); 2 ♂♂, 2 ♀♀: Dieng Plateau, Telaga Warna, 7°13'3.1"S 109°55'26.5"E, 1990 m, 9.X.2011 (MZB); 3 ♂♂: Banyumas, Karanggandul, 1922, leg. K. Benner (SDEI); 4 ♂♂, 1 ♀: Lasem, Gunung Celering, 24.I.1998, leg. R. Červenka (CHF); 1 ♂: Cepu, 50 m, 8.IX.1995, leg. S. Jákl (CLH); 4 ♂♂, 3 ♀♀: 50 km S Surabaya, Tretes, Kekek Bodo Waterfall, 800 m, 20.IX.1995, leg. H. Schillhammer & P. Koubek (NMW); 1 ♂: Telaga Pasir, 7.I.1954, leg. A.H.G. Alston (BMNH); 4 ♂♂, 1 ♀: near Malang, edge of 2nd lake, Ranupani, 8°0'45.1"S 112°57'9.1"E, ca. 2100 m, 16.VII.2012, leg. E.F.A. Toussaint (ZSM); 6 ♂♂, 5 ♀♀: Malang env., Seloreo, stream, 7°56'25.2"S 112°31'45.4"E, ca. 1010 m, 7.VII.2012, leg. E.F.A. Toussaint (ZSM); 5 ♀♀: Meru Betiri NP, Sukamade, 400 m, 15.XI.–15.XII.1997, leg. S. Jákl (CLH).

Bawean: 1 ♂: "[leg.] Delsman Bawean [Isl.] VI.1920" (SDEI).

Bali: 8 exs.: Danau Buyan, 1250 m, 11.VII.1991, leg. M. Balke & L. Hendrich (NMW); 4 exs.: Singaraja, 26.I.1988, leg. M.A. Jäch (NMW); 2 ♂♂: Tabanan Reg., 10 km S Bedugul, Apuan, ca. 700 m, rice field, 23.X.2013, leg. G. Wewalka (CGW); 1 ♀: ca. 10 km E Amlapura, Tukad Buah, ca. 70 m, rock pool, 19.X.2013, leg. G. Wewalka (CGW); 4 ♂♂, 7 ♀♀: Timblingan Lake, 1200 m, 2.–28.II.2004, leg. S. Jákl (CGW, CLH).

Lombok: 2 ♂♂, 2 ♀♀: "Sembalum" [Sembalun], 12.IV.1927, leg. B. Rensch (CGW); 2 ♂♂, 1 ♀: "Sembaloen" [Sembalun], 1180 m, 2.V.1909, leg. J. Elbert (CGW, ZSM); 2 ♂♂, 3 ♀♀: Sembalun, 8°22'52.0"S 116°32'06.1"E, 1200 m, 24.IV.2011 (MZB, ZSM); 1 ♂, 1 ♀: Segara Anak, V.–VI.1927, leg. B. Rensch (CGW); 1 ♂, 3 ♀♀: Segara Anak, 1925 m, 12.V.1909, leg. J. Elbert (SDEI, ZSM); 1 ♂: Tetebatu, 20.VII.2006, leg. V. Lemberk (CJS); 3 ♂♂, 6 ♀♀: Sadjang, 800 m, 29.IV.1909, leg. J. Elbert (CGW, NMW, SDEI); 2 ♂♂: "Sapit 2000 f IV.1896, Fruhstorfer" (NMP, SDEI); 1 ♂, 3 ♀♀: N Suranadi, 3.–6.II.1988, leg. M.A. Jäch (NMW); 2 ♀♀: Tetebatu, 7.II.1988, leg. M.A. Jäch (NMW); 3 ♂♂, 3 ♀♀: Sanaru, 8°19'19.6"S 116°24'59.3"E, 830 m, 23.IV.2011 (ZSM).

Sumbawa: 2 ♀♀: Tambora, 600 m, 9.XI.1941, leg. R. Blomberg (NHRS); 1 ♂, 3 ♀♀: Dompu – Empang, 8°35'33.8"S 118°17'27.2"E, 90 m, pools, 15.IX.2011 (ZSM).

Sumba: 4 ♂♂, 1 ♀: East Sumba, 10°2'49.8"S 120°18'51.6"E, 950 m, pools in stream with red clay, 28.IX.2011 (MZB, ZSM); 1 ♀: Road Waingapu – Kanangar, 760 m, pools around stream, 28.IX.2011 (MZB); 2 ♂♂, 4 ♀♀: Central Sumba, 9°38'36.9"S 119°40'55.5"E, 470 m, forest stream, 27.IX.2011 (MZB, ZSM).

Flores: 1 ♂: Kanava, 15.VII.2006, leg. V. Lemberk (CJS).

Timor: 3 ♀♀: Buraen, 60 km SE Kupang, 350 m, 10.–21.II.2006, leg. S. Jákl (CLH); 1 ♂: Naikliu area, 9°58'25.5"S 123°41'26.3"E, 130 m, pools in dry forest, 3.X.2011 (ZSM).

Bacan: 1 ♀: 5 km SE Makian, SE slopes of Mt. Sibela, 500–750 m, 2.–12.V.2008, leg. S. Jákl (NMP).

Ambon: 1 ♂: "Staud Amboine [Ambon]" (NMW).

AFFINITIES: *Hydaticus conjungens* resembles *H. vittatus* in the narrow yellow lateral stripes of the pronotum, in similar size (TL: 11.8–14.0 mm; TL-h: 11.1–13.1 mm; MW: 6.7–7.9 mm) and in the elytral marks (Fig. 2a–f). The two species can be distinguished only by the male genitalia (Figs. 12–13). Females cannot be determined with certainty.

From other species in which specimens with similar elytral colour patterns occur (*H. bipunctatus*, *H. quadrivittatus*, *H. dhofarensis* and *H. histrio*) it can be distinguished by narrower yellow stripes at the lateral sides of the pronotum and by the median lobe.

VARIABILITY: The elytral marks of *H. conjungens* are very variable. The different varieties show no clear distribution pattern, and therefore they are not regarded as subspecies. Specimens with two yellow longitudinal stripes on each elytron merging before the middle of the elytral length (Fig. 2c) are common in the entire distribution area, while specimens with an additional basal spot near the scutellum (Fig. 2a), described as var. *basinotatus* by RÉGIMBART (1899), have been recorded only from Sumatra, Java and Lombok. Specimens with strongly reduced elytral marks (Fig. 2f) are found mainly in Borneo. Intermediate forms described as var. *interruptus* by RÉGIMBART (1899) (Fig. 2e) are rare but widely distributed.

HABITAT: The species occurs in a wide range of habitats, e.g. puddles, muddy pools with grass margins, residual pools of streams, pools near streams, slowly running streams, spring-fed pools, artificial pools, man-made lakes and paddy fields. It was also collected at light.

DISTRIBUTION (Fig. 27): India: Kerala (?), Andaman & Nicobar Isls.; Bangladesh (?); Myanmar; Cambodia; Philippines (?); Malaysia: West Malaysia, Sabah, Sarawak; Singapore; Indonesia: Ambon, Bacan, Bali, Bawean, Flores, Java, Kalimantan, Lombok, Nias, Riau, Siberut, Sumatra, Sumba, Sumbawa, Sulawesi, Timor.

Hydaticus conjungens has been recorded as *H. leechi* from the Indian states of Sikkim and Manipur (MUKHOPADHYAY & GHOSH 2003a, MUKHOPADHYAY & GHOSH 2004), but these specimens turned out to be either *H. vittatus* or *H. bipunctatus* (S.K. Ghosh, pers. comm.). MUKHERJEE & SENGUPTA (1986) recorded *H. conjungens* under the name *H. leechi* and DEB (2017) under the name *H. bipunctatus bipunctatus* from Kerala. It was not possible to confirm these records.

I have seen one historical specimen of *H. conjungens* labelled "Philippines". Although there has been extensive field work in the Philippines recently I did not see any other specimens from the Philippines. Therefore, the occurrence of this species in the Philippines is highly questionable.

3. *Hydaticus bipunctatus* WEHNCKE, 1876

Hydaticus bipunctatus WEHNCKE 1876: 196; SATÔ 1961a: 63 (partim); FREITAG et al. 2016: 184.

Hydaticus vittatus: SHARP 1882: 670 (partim); RÉGIMBART 1899: 328; ZIMMERMANN 1920: 228 (partim); GSCHWENDTNER 1937: 74 (partim); ZAITZEV 1953: 311 (partim); SATÔ 1961a: 55; NAKANE 1964: 10; VAZIRANI 1969a: 260 (partim); 1969b: 402 (partim); 1973b: 299; WEWALKA 1972: 116; 1975a: 164; DASH & ROY 2017: 88.

Hydaticus vittatus var. *bipunctatus*: BAER 1886: 105; RÉGIMBART 1899: 329 (partim); ZIMMERMANN 1920: 228 (partim).

Hydaticus satoi WEWALKA 1975b: 91 (**syn.n.**); BRANCUCCI 1981a: 184; ROCCHI 1982: 59: 1986: 33; NAKANE 1990: 26; LI 1992: 36; SATÔ et al. 1994: 291; NILSSON 1995: 73; NILSSON et al. 1995: 369; SATÔ 1996: 5; ROCCHI 2003: 71; NILSSON 2001: 105; BALKE et al. 2002: 967; HUA 2002: 37; MORI & KITAYAMA 2002: 143; BRANCUCCI & WEWALKA 2007: 84; JÄCH et al. 2012: 67; FREITAG et al. 2016: 184; GHOSH et al. 2018: 440; WATANABE & KATO 2017: 36 ff.; GHOSH et al. 2018: 440; NILSSON & HÁJEK 2020b: 97; NAKAJIMA et al. 2020: 93.

Hydaticus satoi satoi: PEDERZANI 2003: 18; GHOSH & NILSSON 2012: 27 (partim); GHOSH & MANDAL 2013: 94; GHOSH & HEGDE 2015: 73; GHOSH 2015: 82; GHOSH & SWAPAN 2016: 434; GHOSH 2018: 158; LEE & AHN 2018: 76; NILSSON & HÁJEK 2020a: 24.

Prodaticus satoi: MILLER et al. 2009: 597 ff.

Hydaticus leechi: MUKHOPADHYAY & GHOSH 2004: 367 (partim).

TYPE LOCALITY: Philippines.

TYPE MATERIAL: **Lectotype** ♂ (MNHN-CO), by present designation: "Philippinas" [handwritten white label with black frame], "Semper [Karl Gottfried or Carl Semper (1832–1893) was a German naturalist and a nephew of the famous architect Gottfried Semper, who built, together with Karl Hasenauer, the NMW]" [handwritten white label with black frame], "D^{r} Régimbt vidit 1898" [printed white label], "LECTOTYPUS Hydaticus bipunctatus Wehncke Wewalka 2019" [printed red label].

RÉGIMBART (1899) stated for "Var. *bipunctatus* Wehncke": "Philippines, un seul exemplaire, type de Wehncke (coll. R. Oberthür); …" and labelled the specimen "D^{r} Régimbt vidit 1898". Obviously he was convinced that this is a type specimen. Therefore I decided to designate this specimen as lectotype.

Holotype ♂ of *H. satoi* (NMP): "Unzen Shimabara Japan Reitter" [printed white label with black frame], "HOLOTYPUS Hydaticus satoi n.sp. det. Wewalka 75" [partly handwritten red label].

ADDITIONAL MATERIAL EXAMINED:

NEPAL: Dhaulagiri Zone: 1 ♂: Tatopani, 55 km NW Pokhara, 1200 m, 5.V.1984, leg. G. Wewalka (CGW); 2 ♂♂, 1 ♀: Dhaulagiri, Kali Gandaki, Tatopani, 1100–1400 m, 14.–17.VI.1986, leg. C. Holzschuh (CGW); 4 ♀♀: S Dhaulagiri, W Beni, Darbang, 1150 m, 1.XII.2000, leg. G. Riepl (NMW); Gandaki Zone: 1 ex.: Birethanti,

30 km NW Pokhara, 1100 m, 4.V.1984, leg. G. Wewalka (CGW); 1 ♂, 1 ♀: Birethanti, 28°19'4"N 83°34'65"E, 1100 m, 20.IV.2000, leg. A. Skale (CAS); 1 ♀: Phewa Lake, 15 km NW Pokhara, 800 m, 14.V.1984, leg. G. Wewalka (CGW); 4 exs.: Kali Gandaki Khola, Kalopani, 2400 m, 17.–19.V.1984, leg. C.J. Rai (NHMB); 3 exs.: Pokhara – Suikhet, 900–1000 m, 4.V.1984, leg. B. Bhakta (NHMB); Bagmati Zone: 1 ♂: Kathmandu Valley, Godawari, Gaurikund River, leg. B. Pradhan (NMW); 1 ♂, 2 ♀♀: Godawari, 1500 m, 29.IV.1984, leg. G. Wewalka (CGW); 4 exs.: Godawari, 1500–1700 m, 11.VI.1992, leg. J. Moravec (NHMB); 1 ex.: Ganesh Himal, Paidobesi, 3 km N Betrawati, 700 m, 11.–12.IX.1993, leg. P. Gyulai & A. Garai (CPM); 5 exs.: Lamosangu, N Kathmandu, 5.II.1980, leg. M.A. Jäch (CGW, NMW); Janakpur Zone: 5 exs.: Dolakha, Tama Koshi, 850–1100 m, 24.–29.IV.1989, leg. M. Brancucci (NHMB); 1 ♂: Kabhre, Dhulikhel, Dhobi Khola near Kathmandu University, 4.–5.IX.1999, leg. H. Nesemann (NMW); 2 ♂♂: Kabhre, Gosaithan Khola, NW Bakhundol, 15.XI.2000, leg. H. Nesemann (NMW); 2 ♂♂, 3 ♀♀: 60 km S Everest near Jiri, 2900 m, IX.1999, leg. V. Gurko (OLM); Koshi Zone: 1 ex.: Arun Valley, Tumlingtar, 430 m, 12.VI.1983, leg. M. Brancucci (NHMB); 1 ♂: Dharan, 12.II.1981, leg. M.A. Jäch (NMW).

BHUTAN: 8 exs.: "Bhutan D. Broeder" (NHMB); 2 exs.: Phuntsholing, 400 m, 21.III.–15.IV.1983, leg. C.J. Rai (NHMB); 10 exs.: Paro, 2300 m, 28.IV.1972, NHMB Bhutan Expedition (CGW, NHMB); 4 exs.: Paro, Tak Sarg, 2700 m, 2.V.1972, NHMB Bhutan Expedition (CGW, NHMB); 1 ♀: Lhaku, ca. 6 km NNW Punakha, 27°37'31"N 89°49'31"E, 1300 m, 24.XI.2005, leg. M.A. Jäch (loc. 18) (NMW); 2 ♀♀: Jigme Dorji NP, at suspension bridge to Chhephu, ca. 16 km NW Punakha, 27°41'54"N 89°46'01"E, ca. 1450 m, 28.XI.2005, leg. M.A. Jäch (loc. 32) (NMW); 4 ♂♂, 3 ♀♀: Mo Chhu Valley, ca. 2 km NW Punakha, 27°35'46"N 89°51'17"E, ca. 1230 m, 28.XI.2005, leg. M.A. Jäch (loc. 34) (NMW).

INDIA: Himachal Pradesh: 1 ex.: Kangra Valley, Nagrata, 12.VI.1926, leg. S.L. Hora (NZSI).

Uttarakhand: 21 exs.: Bhimtal, 1500 m, 22.IX.1977–13.IV.1981, leg. F. Smetaček (CGW, NHMB); 2 ♂♂, 4 ♀♀: Kumaon, W Almora, leg. H.G. Cameron (BMNH); 1 ♀: Ranikhet, leg. H.G. Cameron (BMNH); 2 exs.: Rishikesh, 450 m, VIII.1988, leg. K. Werner (NHMB).

Uttar Pradesh: 1 ♂: Varanasi, Ganges River, at light, 13.X.2001, leg. L. Nadai (CHF).

Delhi: 9 exs.: New Delhi, light trap, 5.X.1967, leg. K.E. Gibson (SIW); 1 ♀: New Delhi, 30.VIII.1980, leg. J. Seifert (NMP).

Sikkim: 2 ♂♂: "Himalaya Sikkim" (SDEI).

Meghalaya: 1 ♂, 3 ♀♀: West Garo Hills, Nokrek NP, 25°29.6'N 90°29.6'E, ca. 1100 m, 9.–17.V.1996, leg. E. Jendek & O. Šauša (NMW); 1 ♂, 1 ♀: 1 km E Tura, 25°30'N 90°14'E, 2.–5.V.2002, leg. Z. Kejval & M. Trýzna (CAS); 2 ♀♀: Jaintia Hills, Jowai, 25°27'N 92°12'E, 1350 m, 6.–8.VI.1996, leg. E. Jendek & O. Šauša (NMW); 1 ex.: Shillong, 15.XI.1926, leg. R.B. Swell (NZSI) (recorded by VAZIRANI 1969a as *H. vittatus*).

Assam: 1 ex.: Bhalukpong, 150 m, 26.V.–3.VI.2006, leg. P. Pacholátko (NHMB); 1 ex.: 20 km N Guwahati, 5.VII.1995, leg. K. Werner (CPM).

Manipur: 1 ex.: Kangpokpi, 28.I.1953 (NZSI).

Jharkhand: 20 exs.: Ranchi Distr., 26.I.1954, leg. A.P. Kapur (NZSI) (recorded by VAZIRANI 1969a as *H. vittatus*).

West Bengal: 58 exs.: Darjeeling Distr., Sonapur, Mahahandra River, 9.–15.IX.1984, leg. B. Bhakta (NHMB); 5 exs.: Darjeeling Distr, Bokthang, 1700 m, 7.V.1986, leg. C.J. Rai (NHMB); 20 exs.: Darjeeling Distr., Gaya Ganga, 600 m, 10.XII.1983, leg. B. Bhakta (NHMB); 2 exs.: Darjeeling Distr., Rang, 580 m, 23.–24.III.1983, leg. B. Bhakta (NHMB); 6 exs.: Darjeeling Distr., Zumbok, 950 m, 29.III.1986, leg. B. Bhakta (NHMB); 14 exs.: Darjeeling Distr., Algarah, IV.1982, leg. C.J. Rai (NHMB); 6 exs.: Darjeeling Distr., Mirik, 2730 m, 9.IV.1983, leg. C.J. Rai (NHMB); 5 exs.: Darjeeling Distr., Rally [Ralle], 600–800 m, 1985–1990, leg. B. Bhakta (NHMB); 2 exs.: Darjeeling Distr., Anbegh Kaman, 1.–4.IV.1987, leg. B. Bhakta (NHMB); 2 ♂♂: Darjeeling, Kurseong, Sixing Forest, 1100 m, 4.–13.V.1987, leg. N. Dangal (CGW); 1 ex.: Kalimpong Distr., Pedong, leg. M. Moingeon (NHMB); 2 exs.: Jalpaiguri Distr., Bagrakote, 200–300 m, 16.–22.XII.1985, leg. B. Bhakta (NHMB); 12 exs.: "W Dinajpur [now part of North Dinajpur], Sonapur", 130 m, 15.XII.1981, leg. B. Bhakta (NHMB).

Rajasthan: 1 ex.: Pipli, 2.III.1948, leg. K.S. Pradhan (NZSI).

Madhya Pradesh: 17 exs.: Panna NP, VII.1988, leg. K. Werner (CPM, NHMB); 2 ♂♂: Hoshangabad Distr., River Denwa, ca. 8 km SSE Matkuli, Satpura Range, 22°34'29"N 78°29'43"E, ca. 400 m, 28.II.2008, leg. M.A. Jäch et al. (NMW); 1 ♂: Hoshangabad Distr., Dhobighat Nala [stream], ca. 2 km SE Panchmarhi, Satpura Range, 22°27'31"N 78°26'41"E, ca. 900 m, 27.II.2008, leg. M.A. Jäch et al. (NMW); 2 ♂♂: Hoshangabad Distr., Panar Pani, stream, ca. 30 km S Piparia, ca. 5 km NNE Panchmarhi, Matkuli – Panchmarhi, 22°30'25"N 78°26'43"E, ca. 850 m, 26.–27.II.2008, leg. M.A. Jäch et al. (NMW); 3 exs.: Rewa Distr., Nerbudda, ca. 1000 m, II.1927, leg. H.S. Pruthi (NZSI) (recorded by VAZIRANI 1969a as *H. vittatus*).

Odisha: 2 exs.: Nilagiri Forest, Tangana Nalla, 12.XII.1955, leg. T.G. Vazirani (NZSI) (recorded by VAZIRANI 1969a as *H. vittatus*).

Maharashtra: 3 ♂♂: Mahabaleshwar W of Ghato, ca. 1700 m, 1926, leg. J.D. Sherman Jr. (CGW); 1 ex.: Mahabaleshwar, 13.IV.1952, leg. E.G. Silas (NZSI); 1 ♂: Poona [Pune], at light, leg. P.V. Joshi (BMNH).

Goa: 11 exs.: Molem, 120–240 m, 3.–4.III.1984, leg. W. Wittmer (NHMB).

Karnataka: 3 ♂♂: Sulya, Medikeri, 21°32'N 75°29'E, 150 m, 24.IV.2005, leg. M. Halada (OLM); 1 ♂, 1 ♀: "Belgaum [Belagavi]" (BMNH).

Andhra Pradesh: 2 exs.: Eastern Ghats Survey, Palkonda Hills, 3.–5.VIII.1929, leg. H.S. Pruthi (NZSI) (recorded by VAZIRANI 1969a as *H. vittatus*).

Kerala: 4 exs.: Thekkady, Periyar Lake, 9°34'N 77°10'E, 900–1000 m, 19.–27.IV.1997, L. Dembický & P. Pacholátko (NHMB); 1 ♂: Malampuzha, Palakkad, 10°50.1'N 76°39.1'E, 100 m, 28.IV.2005, leg. M. Halada (OLM); 1 ♂: Kallar, 30 km NE of Trivandrum, ca. 8°45'N 77°5'E, ca. 300–500 m, 7.–13.V.1999, leg. Z. Kejval & M. Trýzna (CAS).

Tamil Nadu: 13 exs.: 6 km S Kotagiri, 11°25'N 76°52'E, Elk Falls, 1650 m, 12.–16.V.1997, leg. L. Dembický & P. Pacholátko (NHMB); 37 exs.: Nilgiri Hills, 11 km SE Kotagiri, Kunjapanai, 11°24'N 76°56'E, 1100 m, 3.–15., V.2002, leg. P. Pacholátko (NHMB); 2 ♂♂, 2 ♀♀: Nilgiri Hills, 15 km SE Kotagiri, Kunjapanai, 11°22'N 76°56'E, ca. 900 m, 22.–30.V.1999, leg. Z. Kejval & M. Trýzna (CAS); 11 exs.: Nilgiri Hills, 15 km SE Kotagiri, Kunjapanai, 11°22'N 76°56'E, 900 m, 17.–28.XI.1993, leg. Z. Kejval & D. Boukal (NHMB); 3 exs.: Coimbatore – Attappadi near Pudur, small stream, 29.XII.1994, leg. P. Mazzoldi (CPM); 1 ex.: Coimbatore, ca. 430 m, X.1977, leg. T.R.S. Nathan (NHMB); 10 exs.: Coimbatore, 430 m, X.1964–X.1965, leg. P.S. Nathan (ZSM); 1 ♂, 1 ♀: "Ind. or., Madura [Madurai]" (CGW, SDEI); 1 ♂, 3 ♀♀: "Shembaganur [Kodaikanal], Madura [Madurai], Sd. Ind. H. Rolle, Berlin" (CGW); 2 ♀♀: Palni Hills, Kodaikanal – Batlagundu road, Poolathur Junction, 10°14'N 77°39'E, 900 m, 15.I.1999, leg. D. Boukal (NMW); 1 ♀: Tanjore [Thanjavur] Distr., Bhatravati (CJS); 1 ♂: "Tranqueba [Tharangambadi] Samml. A. Zimmermann" (ZSM); 3 ♂♂, 1 ♀: Dindigul (SDEI); 1 ♂: "Trichinopoli [Tiruchirappalli] Ind. or." (SDEI); 15 exs.: Mettur Dam, Cavery River, 25.II.1952 (NZSI) (recorded by VAZIRANI 1969a as *H. vittatus*); 1 ♂, 1 ♀: "Karikal" [Karaikal], IX.–XI.1964, leg. P.S. Nathan (ZSM); 4 exs.: "Pondicherry" [Puducherry], X.1980, leg. T.R.S. Nathan (NHMB).

SRI LANKA: North Western Prov.: 1 ♂: Maragahawela, 7.XI.1980, leg. P. Tonkli (CGW); 1 ♀: Marawila, 50 km N Colombo, 1969, leg. P. Kandulawa (CGW); Central Prov.: 1 ♂: Koslanda, Diyaluma Falls, 6°44'9.6"N 81°1'58.1"E, 760 m, 26.II.2012, leg. J. Šťastný (CJS); 4 ♂♂, 5 ♀♀: "Ceylon Kandy, 1.–8.V.[19]02 Dr. Uzel" (NMW); 1 ♂: Kandy, 18.III.1973, leg. G. Zimmermann (CHF); 9 exs.: Nuwara Eliya, 5.XII.1980, leg. M.A. Jäch (CGW, NMW); 7 exs.: various pools in Horton Plains and near Pattipola, 15.–23.I.1981, leg. M.A. Jäch (CGW, NMW); 2 ♂♂: Hakgala, 15.II.1974, leg. B. Gustafsson (NHRS); Uva Prov.: 10 exs.: Haputale, Beragala, 8.XII.1980, leg. M.A. Jäch (CGW, NMW).

MYANMAR: Shan State: 4 exs.: NE Mintaingpin Forest Camp above pool, 22.VI.2004, leg. H. Shaverdo (NMW); 1 ex.: W Heho, near Ingaung stream source, puddle, 20°41.448'N 96°45.653'E, 1175 m, 8.VI.2004, leg. H. Shaverdo & H. Schillhammer (NMW); 2 ♂♂: Shan Highland, Mong Kok, IX.2006 (CAS); 1 ♂: SW Shan State, Taunggyi, 1.–18.VI.1997, leg. J. Rejsek (CJS); 2 ♂♂, 2 ♀♀: "Carin Asciuii Chebá [Kayah-Karen Mts.] 1200–1300 m. L. Fea. I.[18]88" (SDEI); Tanintharyi Division: 69 exs.: "Tenasserim coll. Helfer" (CGW, NMP).

CHINA: Tibet: 1 ex.: Zayü County, Xiachayu, 28°29'44"N 97°1'26"E, 1500 m, bank of Ganri Karpo-chu River, at light, 5.–11.XI.2011, leg. L. Yun (NMW).

Chongqing: 1 ♂: "Szechuen, Tseo Jia Geo, S of Suifu, 30.–31.VIII.1929, 2000 ft, leg. D.C. Graham" (CGW).

Yunnan: 10 exs.: "Yun-nan-Sen [Yunnan]" (ISNB); 5 exs.: "Hang-Kia-Pin", 1400 m (ISNB); 1 ex.: Jinsha River, ca. 26°24'N 101°28'E, 1400 m, 21.V.1993, leg. V. Kubáň (NHMB); 2 exs.: Baoshan, Gaoligongshan Nat. Res., pass between Tengchong and Baoshan, ca. 50 km SE Tengchong, 24°49–50'N 98°46'E, 2000–2250 m, 20.–23.IV.2011, leg. M. Geiser (NHMB); 1 ♀: Gaoligongshan, ca. 30 km E Tengchong, helocrene in meadow, muddy pools, 2800 m, 24.X.1999, leg. J. Šťastný (CJS); 4 ♂♂, 9 ♀♀: 10 km NE Tengchong, Behai, Zing Hai Lake, small pools with dense vegetation, 27.X.1999, leg. J. Šťastný (CJS); 3 ♀♀: Xishuangbanna, ca. 50 km SSE Mengla, Mengyuan, 700 m, 8.XI.1999, leg. M.A. Jäch et al. (CWBS 362) (NMW); 1 ♀: Chuxiong Pref., 30 km N Lufang, Wu Tai Shan Forest Park, ca. 2100 m, 26.XI.1999, leg. H. Schönmann & M. Wang (CWBS 406) (NMW); 1 ♂: Chuxiong Pref., 25 km N Yipinglang, Gao Feng, ca. 2100 m, 27.XI.1999, leg. H. Schönmann & M. Wang (CWBS 410) (NMW).

Guangxi: 1 ♂: "Süd-China [South China] Yinfa [Yingfa]" (CGW); 1 ♂: 10 km NE Liuzhou, 150–200 m, 11.XI.1993, leg. H. Schönmann (CWBS 40) (NMW).

Hunan: 1 ♂: Guangping, SW Huitong, rain water pools, 350 m, 4.XI.1993, leg. H. Schillhammer (CWBS 31) (NMW).

Fujian: 1 ex.: "Kuatun" [Guadun], 1.VI.1946, leg. Tschung-Sen (NHMB); 1 ♂: "Amoy" [Xiamen], 1922, leg. S.F. Light (BMNH); 11 ♂♂, 7 ♀♀: "Foochow" [Fuzhou], V.–VI.1935, leg. M.S. Yang (BMNH).

Hong Kong: 7 ♂♂, 8 ♀♀: "Hong Kong J.J. Walker" (BMNH); 2 ♂♂: Hong Kong, leg. F. Jagor (MNB).

TAIWAN: 1 ♂, 4 ♀♀: "Formosa Western Coll. B.M. 1924-176" (BMNH); 1 ♂: "Yentempo [Yancheng] Formosa Sauter" (CGW); 1 ♀: "Takao [Kaohsiung] Formosa Sauter" (NMW); 1 ♂, 2 ♀♀: "Kosempo [southern Taiwan, exact location somewhat unclear, see ESAKI (1941)] Formosa H. Sauter 1909" (SDEI); 1 ♀: "Anping Formosa H. Sauter" (SDEI).

JAPAN: Nagasaki Pref.: 1 ♀: "Nagasaki Japan. G. Lewis. 1910-320" (BMNH); Kumamoto Pref.: 1 ♀: "Japon Prov. Satsuma Mukoda, 1895" (MNHN-CO); Kagoshima Pref.: 1 ♂: "Tanegashima 1.IV.[19]12" (BMNH); 1 ♂: "Yakushima 12.IV.[19]12" (BMNH).

THAILAND: Mae Hong Son Prov.: 1 ex.: Ban Si Lang, 1000 m, 1.–7.V.1992, leg. S. Bílý (NHMB); 1 ♀: 5 km NW Pai, Muang Pai Resort, 19°23'N 98°24'E, 800 m, 10.–27.IV.2000, leg. H. Malicky (CGW); 1 ♂: Mae Hong Son, 28.IV.–3V.1992, leg. P. Pacholátko (NMW); 2 ♀♀: Ban Si Lang, 1200 m, 23.–31.V.1992, leg. J. Horák (NMW); Chiang Mai Prov.: 1 ex.: Thanon Thong Choi, Muan Kong vill., 19°24'N 98°45'E, 600 m, 20.V.1991, leg. D. Král (NHMB); 1 ex.: Thanon Thong Choi, Chiang Dao, 19°24'N 98°55'E, 600 m, 10.–16.V.1991, leg. D. Král (NHMB); 1 ex.: Thanon Thong Choi, Umphang River, 19°07'N 99°00'E, 1000 m, 28.IV.–6.V.1991, leg. D. Král (NHMB); 1 ♀: Doi Inthanon, 16.–23.V.19989, leg. H. Malicky (NMW); 1 ♂, 4 ♀♀: Soppong – Pai, 1800 m, 1.–8.V.1992, leg. L. Dembický & P. Pacholátko (NMW); 1 ♂: Doi Phahompok, Ganga River, 1600 m, 21.VII.2001, leg. P. Henschel & G. Petrányi (CHF); Nan Prov.: 2 ♀♀: Pha Khab vill., 19°4'19.8"N 101°9'27.6"E, 560 m, 2.–16.V.1993, leg. P. Pacholátko (NMP); Loei Prov.: 1 ♂: Thai Nan Distr., Ban Pha Khao, 15.–20.V.1992, leg. P. Pacholátko (NMW).

LAOS: Phongsaly Prov.: 1 ex.: Ban Hatsa, ca. 550 m, 21°44'N 102°12'E, V.2004, leg. M. Brancucci (NHMB); 6 exs.: Ban Sano Mai, ca. 1150 m, 21°21'N 102°03'E, 19.–26.V.2004, leg. M. Brancucci & V. Kubáň (CGW, NHMB); Luang Namtha Prov.: 12 exs.: Namtha – Muang Sing, 900–1200 m, 21°9'N 101°19'E, 5.–31.V.1997, leg. V. Kubáň (CGW, NHMB); 1 ♂, 1 ♀: Muang Sing, 600 m, at light, 9.–13.VI.1996, leg. H. Schillhammer (NMW); Udomxai Prov.: 2 exs.: Pak Beng, 450 m, 19°53'37"N 101°7'51"E, 18.–27.V.2001, leg. J. Kolibáč (NHMB); Luang Prabang Prov.: 8 exs.: 5 km W Ban Song Cha, ca. 1200 m, 20°33–4'N 102°14'E, 24.IV.–16.V.1999, leg. V. Kubáň (CGW, NHMB); Houaphan Prov.: 7 exs.: Phou Phan Mt., 1480–1550 m, 20°13'9–19"N 103°59'54"–104°0'3"E, 1.V.–16.VI.2009, leg. Z. Kraus et al. (CGW, NHMB); 21 exs.: Phou Phan Mt., 1350–1500 m, ca. 20°13'N 104°00'E, 1.V.–16.VI.2009, leg. M. Brancucci et al. (CGW, NHMB); 3 exs.: Ban Saluei – Phou Phan Mt., 1300–1900 m, 20°11–13'N 103°59'–104°1'E, 9.–17.V.2009, leg. M. Geiser et al. (NHMB); 6 exs.: Ban Saluei – Phou Phan Mt., 1340–1870 m, 20°12–13.5'N 103°59.5'–104°1'E, 15.IV.–15.V.2008, local collector (NHMB); 70 exs.: Phou Phan Mt., 1500–1900 m, ca. 20°12'N 104°01'E, 17.V.–3.VI.2007, leg. M. Brancucci et al. (CGW, NHMB); 25 exs.: Ban Saluei, Phou Phan Mt., 1300–2000 m, 20°13'N 103°59'E, 6.–18.V.2004, leg. F. & L. Kantner (CGW, NHMB); 2 ♂♂, 7 ♀♀: Phou Phan Mt., 20°12'N 103°59'E, 1200–1600 m, 18.V.–11.VI.2011, leg. S. Jákl & local collectors (CLH); Xieng Khouang Prov.: 1 ex.: Phongsavan, 1150 m, 19°27'N 103°13'E, 5.–6.VI.2007, leg. V. Kubáň et al. (NHMB); 1 ex.: Phongsavan, Saylomyen Golf Course, small pool, 7.VIII.2006, leg. M. Geiser (NHMB); 1 ex.: Phongsavan, Ban Phu Nok Kok, secondary forest, ca. 1250 m, 8.VIII.2006, leg. M. Geiser (NHMB); 64 exs.: 30 km NE Phongsavan, Ban Na Lam – Phou Sane Mts., 1300–1500 m, 19°37–8'N 103°20'E, 10.–30.V.2009, leg. M. Brancucci et al. (CGW, NHMB); 14 exs.: 30 km NE Phongsavan, Phou Sane Mts., 1420 m, 19°38.2'N 103°20.2'E, 10.–30.V.2009, leg. D. Hauck et al. (CGW, NHMB); 9 exs.: 30 km NE Phongsavan, Phou Sane Mts., 1400–1700 m, 19°37–8'N 103°20–1'E, 10.–30.V.2009, leg. D. Hauck et al. (CGW, NHMB); 1 ♀: Samsun, ca. 35 km E Phongsavan, 1400 m, 20.–30.V.2011, local collector (CLH); Xayaboury Prov.: 1 ex.: Xayaboury, 300 m, 19°13'N 101°42'E, 27–30.VII.2010, leg. D. Hauk (NHMB); 3 exs.: Thong Khan, ca. 750 m, 19°35'N 101°58'E, 11.–21.V.2002, leg. V. Kubáň. (NHMB); Vientiane Prov.: 22 exs.: Vang Vieng, 18°55'23"N 102°26'55"E, 300 m, 10.–15.V. and 1.–6.VI.2001, leg. J. Kolibáč (CGW, NHMB); 5 exs.: Lao Pako, 55 km NE Vientiane, 1.–4.V.2004, leg. F. & L. Kantner (NHMB); 2 exs.: Phou Khao Khouay, 18°20'22.1"N 102°48'31.4"E, 700–800 m, at light, 25.–30.V.2008, leg. A. Solodovnikov & J. Pedersen (ZMUC); Salavan Prov.: 1 ♀: Xe Xap NP, ca. 15 km NE of Ta-oy, Ban Doub, 16°8'N 106°42–42'E, 600–900 m, 26.–30.V.2012, leg. M. Brancucci et al. (NHMB); Attapeu Prov.: 12 exs.: Ban Wang Tat Noi, 15°03–04'N 107°24'E, 900 m, 10.–25.VI.2011, leg. M. Brancucci et al. (NHMB).

VIETNAM: Lao Cai Prov.: 1 ♀: Sapa, Ta Phin, 22°23'22.2"N 103°49'6.6"E, 1460 m, 6.–8.V.2016, leg. N.H. Binh (CAS); 3 ♂♂, 2 ♀♀: Hoang Lien Son NP, Tram Ton, 22°21'11.2"N 103°46'30.8"E, 1800–2050 m, 13.–16.V.2016, leg. A. Skale (CAS, MNE); 1 ex.: Hoang Lien Son NP, 10.V.1990, leg. J. Picka (NHMB); Cao Bang Prov.: 8 exs.: Nua Pia Oac Nat. Res., 22°36'N 105°53'E, light trap, 4.–6.VII.2010, leg. J. Constant & P. Limbourg (CGW, ISNB); 2 ♂♂, 1 ♀: Vin Den, Nua Pai Oac Nat. Res., 22°33'53"N 105°52'53"E, 900–1300 m, 6.–10.V.2013, leg. A. Skale (CAS); 2 ♀♀: Nguyen Binh Distr., Thanh Cong, 22°33'45.4"N 105°51'45.4"E, 1020 m, 19.–21.IX.2017, leg. N.H. Binh (MNE); Lam Dong Prov.: 1 ex.: Da Lat, 14.X.1988, leg. S. Mahunka & T. Vásárhelyi (HNHM); 2 ♂♂: Da Lat City, 21.–27.IV.1994, leg. P. Pacholátko & L. Dembický (NMW).

PHILIPPINES: Luzon: Cagayan Prov.: 2 ♀♀: Gonzaga, Pateng, 11.IV.2005, leg. C. Pangantihon (CGW, CHZ); Zambales Prov.: 3 ♂♂, 2 ♀♀: "Philippinen Luzon Zambales G. Boettcher 12.1917" (CGW, MNB); Manila Prov.: 1 ♀: "Luzon Manila 1.1913 G. Boettcher" (NHMB); La Union Prov.: 1 ♂: San Fernando, sea level, IV.–VIII.1945, leg. A.B. Gurney (SIW); Panay: Antique Prov.: 24 exs.: 8 km E Bontol, 200 m, 10.–11.XII.1990, leg. BOLM (CGW, NHMB, NMP); 1 ♂, 3 ♀♀: San Remigio, 50 km NE San Jose, 20.III.1994, leg. S. Schödl & H. Zettel (NMW); Iloilo Prov.: 5 ♂♂, 11 ♀♀: 10 km N Igbaras, Nadsadan Falls, ca. 400 m, 22.–23.III.1994, leg. S.

Schödl & H. Zettel (CGW, NMW); Negros: Occidental Prov.: 1 ♂, 3 ♀♀: Caliban River, SE Murcia, ca. 250 m, 18.III.1994, leg. S. Schödl (NMW); 1 ♂, 1 ♀: Mambucal, Seven Falls, ca. 900 m, 16.III.1994, leg. S. Schödl (NMW).

MALAYSIA, BRUNEI or INDONESIA: 1 ♂: "Borneo, Dr. Stolz BH collectio Paganetti" (CGW) [provenance questionable].

AFFINITIES: *Hydaticus bipunctatus* has in common with *H. quadrivittatus*, *H. dhofarensis*, *H. histrio*, *H. philippensis* and *H. major* the broadly yellow lateral sides of the pronotum. Differences to *H. dhofarensis* are noted below, under the latter species. In size (TL: 11.2–14.2 mm; TL-h: 10.2–13.2 mm; MW: 6.8–8.1 mm) and shape *H. bipunctatus* is similar to *H. quadrivittatus*; some specimens have very similar elytral marks (Fig. 3a), but the two species can be distinguished by the male genitalia (Figs. 14, 16). In addition, the distribution areas are different.

Hydaticus bipunctatus can be distinguished from *H. histrio* by the elytral marks and the male genitalia. *Hydaticus major* has similar pronotal and elytral marks but differs in the significantly larger size and the male genitalia. *Hydaticus bowringii* can be separated by the predominantly yellow pronotum.

From the other species in which specimens with similar elytral colour patterns occur (*H. vittatus*, *H. conjungens*) it can be distinguished by the broader yellow stripes of the pronotum and by the shape of the median lobe.

VARIABILITY: Specimens of *H. bipunctatus* with only one short lateral elytral stripe (Fig. 3d–e) are known only from the Philippines. All examined specimens from Panay and Negros have this elytral pattern, but on Luzon also specimens with two elytral stripes (as depicted in Fig. 3b) occur. Few specimens from outside the Philippines also show reduced elytral marks (Fig. 3c), and rarely the elytral marks are extended (Fig. 3a).

COMMENTS: This species had hitherto been misinterpreted. In the absence of any type material, WEWALKA (1975b) used the name *H. bipunctatus* for the species predominantly occurring in Indonesia (= *H. conjungens*). The recent discovery of an obvious syntype revealed that the true *H. bipunctatus* is in fact identical with *H. satoi*.

HABITAT: This species occurs in a wide range of habitats, e.g. rain water pools, muddy buffalo wallows with grassy margins, spring-fed pools and man-made lakes (JÄCH & JI 1995, 2003) as well as small streams, residual pools and paddy fields, sometimes together with *H. vittatus*. It was also collected at light.

DISTRIBUTION (Fig. 28): Sri Lanka; Nepal; Bhutan; India: Andhra Pradesh, Assam, Arunachal Pradesh, Dadra & Nagar Haveli, Delhi, Goa, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Manipur, Maharashtra, Meghalaya, Odisha, Rajasthan, Sikkim, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal; Myanmar; Thailand; Laos; Vietnam; China: Chongqing, Fujian, Guangxi, Hebei, Hong Kong, Hunan, Liaoning, Sichuan (?), Tibet, Yunnan; South Korea (?); Japan; Taiwan; Philippines; Borneo (?).

The occurrence of this species in Sichuan could not be confirmed in this study. LEE & AHN (2018) could not confirm the previous records from South Korea.

4. *Hydaticus dhofarensis* PEDERZANI, 2003 stat.n.

Hydaticus satoi dhofarensis PEDERZANI 2003: 18; HÁJEK & REITER 2014: 86; NILSSON & HÁJEK 2020a: 24; 2020b: 97.

Hydaticus satoi: BRANCUCCI 1980: 109; 1985: 242.

TYPE LOCALITY: Oman, Dhofar Governorate.

TYPE MATERIAL: **Holotype** ♂ (MSNP): "OMAN Dhofar Region Leg. DELLACASA M.", "Ain Sahanawt 17°08'64N 54°10'85E-130m [17°08.64'N 54°10.85'E] 05.09.2002" [printed white labels], "Museo di Storia Naturale e del Territorio, Università di Pisa, Calci (Pisa) - Italia" [printed green label], "*Hydaticus satoi* ssp. *dhofarensis* Pederzani, 2003 HOLOTYPUS" [printed red label]. **Paratypes**: 22 exs. (see PEDERZANI 2003).

ADDITIONAL MATERIAL EXAMINED:

OMAN (Dhofar Governorate): 1 ♀: 30 km E Salalah, 6 km E Taqah, Wadi Darbat, pools near sea, 17.III.1998, leg. G. Wewalka (CGW); 1 ♀: N of Salalah, 17°5'23"N 54°4'4"E, 110 m, 18.–24.X.2006, leg. M. Ströhle (CGW); 1 ♀: Wadi Darbat, N Taqah, 17°5'N 54°26'E, 160 m, 9.X.2013, leg. J. Halada (CAL); 3 ♂♂, 1 ♀: Jabal al Qamar, Ajdarawt, Ras Sajir, 30 m, wadi, 22.VIII.2012, leg. P. Kučera (CJS, NMP); 1 ♀: W of Salalah, Jabal al Qamar, E Sarfayt, at light, 16°41'33.3"N 53°9'45.4"E, 10.III.2013, leg. P. Schnitter (CAS); 1 ♀: Jabal al Qamar, Sarfayt, 16°41'23"N 53°8'2"E, 580 m, 4.X.2013, leg. P. Kučera (CJS); 1 ♂, 1 ♀: 12 km NE Sarfayt, 16°44'13.2"N 53°13'30.0"E, 5.X.2013, leg. J. Halada (CAL); 1 ♂: Taqah – Nashib road, 150–500 m, 26.–28.IX.2003, leg. R. Červenka (CJS); 1 ♀: Taqah, 270–350 m, 18.–21.IX.2003, leg. R. Červenka (CJS); 1 ♀: Jabal Samhán, 15 km W Jufa, Laga Shalia, 17°11'10.1"N 54°56'34.3"E, 380 m, 24.VIII.2012, leg. P. Kučera (CJS); 2 ♂♂, 2 ♀♀: Jabal Samhán, 17°5'N 56°0'E, 7.X.2013, leg. J. Halada (CAL, CGW); 1 ♂, 1 ♀: Jabal Samhán, Aqarhanawt, 17°6'7"N 54°41'50"E, 1000–1200 m, 7.X.2013, leg. P. Kučera (CJS, NMP); 3 ♀♀: Dalkut, 17.VIII.2018, leg. S. Prepsl (CGW); 3 ♂♂, 1 ♀: 10 km W Dalkut, 3.X.2013, leg. J. Halada (CAL); 4 ♀♀: Fayraq, 22.VIII.2018, leg. S. Prepsl (CGW).

AFFINITIES: *Hydaticus dhofarensis* has in common with *H. bipunctatus* the broad yellow lateral pronotal stripes and the shape of the median lobe (Fig. 15). The elytral marks of most specimens of *H. dhofarensis* (Fig. 4b) are very similar to specimens of *H. bipunctatus* from the Philippines (Panay and Negros) (Fig. 3d–e), but also specimens with two complete elytral stripes merging distinctly posterior of the elytral middle (Fig. 4a) occur. On average, *H. dhofarensis* is larger and more broadly oval (TL: 13.1–15.2 mm; TL-h: 12.1–13.1 mm; MW: 7.3–8.5 mm) compared to *H. bipunctatus* (TL: 11.2–14.2 mm; TL-h: 10.2–13.2 mm; MW: 6.8–8.1 mm). From other species in which specimens with similar elytral colour patterns occur (*H. vittatus* and *H. conjungens*) it can be distinguished by the broader yellow pronotal stripes and by the shape of the median lobe.

COMMENTS: The differences listed above and the geographical isolation prompt me to treat *H. dhofarensis* as a distinct species.

HABITAT: The species was collected from side pools of streams and springs, and at light (PEDERZANI 2003) as well as from wadis and residual pools of intermittent streams.

DISTRIBUTION (Fig. 30): Obviously endemic to southern Oman (Dhofar Governorate).

5. *Hydaticus quadrivittatus* BLANCHARD, 1843

Hydaticus quadrivittatus BLANCHARD 1843: 48; CLARK 1864: 212; WHITE 1847: 14; SATÔ 1961a: 58; WEWALKA 1975b: 96; GUÉORGUIEV & ROCCHI 1993: 162; WATTS 2002: 43; HENDRICH 2003: 51; HENDRICH et al. 2010: 186; MILLER & BERGSTEN 2016: 119; NILSSON & HÁJEK 2020b: 97.

Hydaticus vittatus var. *quadrivittatus*: RÉGIMBART 1892: 994; 1899: 329 (partim); GUIGNOT 1956: 55 (partim).

Hydaticus vittatus ab. *quadrivittatus*: ZIMMERMANN 1919: 228 (partim); 1920: 228 (partim).

Hydaticus vittatus quadrivittatus, ZIMMERMANN 1927a: 38 (partim).

Hydaticus quadrivittatus australianus SATÔ 1961a: 58; 1966: 2.

Hydaticus vittatus: GEMMINGER & HAROLD 1868: 467; MASTERS 1886: 597; WATTS 1978: 140; 1985: 26; LAWRENCE et al. 1987: 356; LARSON 1993: 55; 1997: 272.

Prodaticus quadrivittatus: MILLER et al. 2009: 596 ff.

TYPE LOCALITY: Australia, Northern Territory, Raffles Bay.

TYPE MATERIAL: **Holotype** ♀ (MNHN): "Museum Paris Australia Sep. Raffles Bay Jacquinot 1841" [printed lilac label], "225. 41" [circular white label], "Hydaticus 4vittatus Raffles Bay" [handwritten white label], "TYPE", "HOLOTYPE" [printed red labels], "Holotype Hydaticus quadrivittatus Blanchard, 1843", "MNHN EC8022" [printed white labels].

ADDITIONAL MATERIAL EXAMINED:

INDONESIA: Moluccas: 1 ♀: "Kisser Ins. [Kisar Island] V.1901" (CGW); Papua: 2 exs.: Merauke, Wasur, pools, 7°40'25.4"S 140°27'15.8"E, 20 m, 15.–16.X.2011, UNCEN (Cenderawasih University, Jayapura, Papua) (Balke 5002, 5003) (MZB, ZSM).

PAPUA NEW GUINEA: Central Prov.: 2 ♂♂, 2 ♀♀: "N.GUINEA MER. RIGO [District] Luglio [July] 1889 L.LORIA" (MNHN-CO, NMW).

AUSTRALIA: Western Australia: 2 ♀♀: Gibb River Road, Silent Grove, Bell Gorge, 17°00'36.3"S 125°13'25.3"E, 19.VII.1998, leg. W. Ullrich (NMW); 2 ♂♂, 3 ♀♀: East Kimberley, East Gibb River Road, Galvans Gorge, 420 m, 21.VI.1999, leg. L. Hendrich (CLH); 2 ♂♂, 1 ♀: East Kimberley, Gibb River Road, Russ Creek Crossing, 380 m, 14.VI.1999, leg. L. Hendrich (CLH); 1 ♀: East Kimberley, Gibb River Road, Bell Gorge, Bell Creek, 340 m, 22.VI.1999, leg. L. Hendrich (CLH); 1 ♂: East Kimberley, Kalumburu Road, Meelarie Creek, 5 km N Drysdale Crossing, 350 m, 19.VI.1999, leg. L. Hendrich (CLH); 1 ♂: East Kimberley, Mitchell Plateau, Surveyors Pool, 150 m, 17.VI.1999, leg. L. Hendrich (CLH); 1 ♀: De Grey River, River crossing Hwy. No. 1, ca. 70 km E Port Hedland, 20°10'S 119°11'E, 20 m, 24.VIII.2002, leg. L. Hendrich (CLH).

Northern Territory: 9 ♂♂, 16 ♀♀: Litchfield NP, Tabletop Swamp, 13°10'39.0"S 130°44'49.2"E, 210 m, 21.VII.2006, leg. L. Hendrich, 13.–31.X.2007, leg. M. Baehr (1 ♂, Balke 1681) (CLH, BMNH, ZSM); 1 ♂, 2 ♀♀: Litchfield NP, creek near Wanggi Falls, 13°11'13.3"S 130°43'19.6"E, ca. 190 m, 20.VIII.2006, leg. L. & E. Hendrich (ZSM); 3 ♂♂, 3 ♀♀: Mary River NP, Mary River, 12°53'29.4"S 131°38'19.8"E, 1.–2.XI.2007, leg. M. Baehr (ZSM); 1 ♀: Coonjimba Billabong, 1.5 km NW Jabiru East, 12°39'40.7"S 132°54'17.0"E, ca. 30 m, 30.VIII.2006, leg. L. & E. Hendrich (CLH); 1 ♂, 4 ♀♀: 3 km E Elsey Creek, Roper Bar Road, 15°0'13.8"S 133°16'43.2"E, 150 m, 5.–6.XI.2007, leg. M. Baehr (ZSM); 1 ♂, 2 ♀♀: Kakadu Hwy., Harriet Creek at Hwy. Crossing, 13°44'30.7"S 131°54'0.7"E, 150 m, 24.VIII.2006, leg. L. & E. Hendrich (Balke 2800) (ZSM); 2 ♀♀: Kakadu NP, small creek on road to Gunlom, 13°30'25.3"S 132°26'11.5"E, 100 m, 25.VIII.2006, leg. L. & E. Hendrich (CLH); 1 ♀: Kakadu NP, Gunlom Waterfall Area, 13°26'1.6"S 132°25'8.5"E, 70 m, 25.VIII.2006, leg. L. & E. Hendrich (CLH); 2 ♂♂, 4 ♀♀: Gulungun Creek at Hwy. Crossing, Jabiru – Jabiru East, 12°39'19.6"S 132°52'43.0"E, 30 m, 30.VIII.2006, leg. L. & E. Hendrich (CLH); 1 ♀: Groote Eylandt, 28.III.1925, leg. G.H. Wilkins (BMNH); 1 ♂: Old Stuard Hwy. Scenic Drive, Anniversary Creek near Adelaide River, 50 m, 8.VII.1999, leg. L. Hendrich (CLH); 2 ♀♀: Anniversary Creek, ca. 12 km S Adelaide River Scenic Route, 13°19'15.1"S 131°8'16.3"E, 40 m, 22.VII.2006, leg. L. & E. Hendrich (CLH); 1 ♂: creek on track to Umbrawarra Gorge, 13°51'31.7"S 131°49'13.0"E, 60 m, 23.VIII.2006, leg. L. & E. Hendrich (CLH); 1 ♀: Elliot, 250 km N Tennant Creek, 7.XII.1982, leg. A. Walford-Huggins (CLH); 1 ♂: Limmen NP, Maria Lagoon, 20.XI.1981, leg. A. Walford-Huggins (CLH).

Queensland: 2 exs.: Rollingstone, 40 km NW Townsville, 20 m, 17.I.1993, leg. G. Wewalka (CGW); 1 ex.: Mareeba, 700 m, 22.I.1993, leg. G. Wewalka (CGW); 1 ex.: Greenvale, 150 km NW Charters Towers, 600 m, 19.I.1993, leg. G. Wewalka (CGW); 1 ex.: 10 km S Tully, S Innisfail, 30 m, 25.I.1993, leg. G. Wewalka (CGW); 10 exs.: Normanton, 20 m, 25.III.1982, leg. J. Sedlacek (CGW, NHMB); 1 ♀: Townsville, I.1945, leg. B. Malkin (CGW); 2 exs.: Bloomfield River (CGW); 1 ♀: "Dawson distr. (Barnard coll.)" (MNHN-CO); 1 ♂: Cape York, leg. E. Dämel (MNHN-CO); 1 ♂, 1 ♀: Cape York, leg. G. Thorey (NHRS); 1 ♂: 30 km NW Mareeba, Lake Mitchell at Developmental Road, 16°47'29.9"S 145°21'26.6"E, 380 m, 12.IX.2006, leg. L. & E. Hendrich (Balke 1779) (ZSM); 1 ♂: Millstream Falls NP, at light, 17°39'S 145°27'E, 8.–15.XI.1998, leg. T. Weir (Balke 2574) (ZSM); 1 ♀: "Mackay Collect. Plason" (NMW); 2 ♂♂: Cairns, 14.II.1909, leg. G.E. Bryant (BMNH); 1 ♂: Bundaberg, 2 km W Woodgate, 25°7'19.5"S 152°30'16.2"E, swamp, ca. 30 m, 27.IX.2006, leg. L. & E. Hendrich (CLH); 1 ♂: N Stradbroke Isl., 1 km SE Brown Lake, creek at Trans-Island Road, 27°30'8.4"S 153°26'10.8"E, 18.X.2014, leg. L. Hendrich (CLH); 1 ♂: 65 km SW Mt. Garnet, 15.III.1982, leg. A. Walford-Huggins (CLH); 1 ♂: Coen, Peach River, 1.XII.1983, leg. A. Walford-Huggins (CLH); 1 ♂: Bowen, leg. A. Simson (SDEI).

Victoria: 1 ♀: "Melb. [Melbourne] Coll. Plason" [provenance questionable] (NMW).

NEW CALEDONIA: See HENDRICH et al. (2010: 186).

AFFINITIES: *Hydaticus quadrivittatus* has in common with *H. bipunctatus*, *H. dhofarensis*, *H. histrio*, *H. philippensis* and *H. major* the broadly yellow lateral sides of the pronotum. *Hydaticus quadrivittatus* is similar in size (TL: 12.0–14.0 mm; TL-h: 11.3–12.6 mm; MW: 6.7–7.6 mm) to *H. bipunctatus*, and some specimens have very similar elytral marks (Fig. 5a), but the two species are not sympatric, and they can be distinguished by the male genitalia (Figs. 14, 16).

Hydaticus quadrivittatus can be distinguished from *H. histrio* by the elytral marks and the male genitalia. *Hydaticus major* has similar pronotal and elytral marks but differs in its significantly larger size and the male genitalia. *Hydaticus bowringii* can be separated by the predominantly yellow pronotum.

From specimens of *H. conjungens*, which often have similar elytral marks, *H. quadrivittatus* can be separated by the broader yellow lateral pronotal stripes and by the aedeagus.

VARIABILITY: The variability of the elytral marks is limited. In most specimens the submarginal longitudinal stripe is short, not reaching the middle of the elytral length, and the medial longitudinal stripe is complete. The two stripes are not merging (Fig. 5b). In few of the examined specimens the two longitudinal stripes merge anterior of the middle of the elytra (Fig. 5a).

HABITAT: This species has been collected in pools of streams and swamps, and LARSON (1993) stated that it was found in dense emergent or flooded vegetation and among leaves in isolated pools along small stream drainages.

DISTRIBUTION (Fig. 31): Indonesia: Moluccas, Papua; Papua New Guinea; Australia: New South Wales, Northern Territory, Queensland, Victoria (?), Western Australia; New Caledonia.

6. *Hydaticus major* RÉGIMBART, 1899

Hydaticus vittatus var. *major* RÉGIMBART 1899: 328; ZIMMERMANN 1920: 228; GUIGNOT 1954b: 567.
Hydaticus major: WEWALKA 1975b: 92; NILSSON 1995: 73; HUA 2002: 37; GHOSH & NILSSON 2012: 26; NILSSON & HÁJEK 2020a: 23; 2020b: 96.
Prodaticus major: MILLER et al. 2009: 596 ff.

TYPE LOCALITY: Myanmar, Kachin State.

TYPE MATERIAL: **Lectotype** ♂ (MNHN-CR), designated by WEWALKA (1975): "Catcin Cauri [Kachin State] Birmania [Myanmar] [leg.] Fea, Ag. Nov.1886", "Museum Paris coll Maurice Regimbart 1908" [printed white labels with black frame], "LECTOTYPUS Hydaticus vittatus F. var. major Rég." [handwritten red label], "Hydaticus major Rég. G. Wewalka 75" [partly handwritten white label], "MNHN EC7990" [printed white label].

ADDITIONAL MATERIAL EXAMINED:
MYANMAR: Kachin State: 1 ♀: Kambaiti, ca. 2100 m, 18.IV.1934, leg. R. Malaise (NHRS).
CHINA: Yunnan: 11 ♂♂, 6 ♀♀: "Yun-nan-Sen" [Yunnan] (ISNB); 23 ♂♂, 27 ♀♀: "Coll. I.R.Sc.N.B. R.P. Kouang Si Hien [Luxi County, formerly Guangxi County] Alt.2100m,Sud Est Yunnan Le Moult vendit" (CGW, ISNB); 2 ♂♂, 2 ♀♀: Baoshan Pref., 10 km NE Tengchong, Beihai, Xing Hai Lake, slowly flowing water, dense vegetation, 27.X.1999, leg. J. Šťastný (CJS); 1 ♀: Honghe Pref., 5 km W Gejiu, ca. 1900 m, 24.XI.1999, leg. H. Schönmann & M. Wang (CWBS 402) (NMW); 3 ♂♂, 1 ♀: Chuxiong Pref., 25 km N Yipinglang, Gao Feng, ca. 2100 m, 27.XI.1999, leg. H. Schönmann & M. Wang (CWBS 410) (NMW); 1 ♂: Qujing Pref., Shizong, 13.IX.2000, leg. J. Bergsten (NHRS).

AFFINITIES: *Hydaticus major* has in common with *H. bipunctatus*, *H. dhofarensis*, *H. histrio*, *H. philippensis* and *H. quadrivittatus* the broadly yellow lateral sides of the pronotum, but it can be distinguished by the significantly larger size (TL: 15.7–17.2 mm; TL-h: 14.8–16.2 mm; MW: 8.9–9.7 mm) and by the median lobe (Fig. 17).

VARIABILITY: Most specimens of *H. major* have two longitudinal elytral stripes merging almost in the middle of the elytral length (Fig. 6a), but few specimens show reduced elytral marks (Fig. 6b).

HABITAT: The species was found in a spring-fed, richly vegetated karst pool (JÄCH & JI 2003), and in slowly flowing water with dense vegetation.

DISTRIBUTION (Fig. 29): Myanmar: Kachin State; China: Yunnan.

7. *Hydaticus bowringii* CLARK, 1864

Hydaticus bowringii CLARK 1864: 214; MASTERS 1886: 597 (partim); 214; BALFOUR-BROWNE 1947: 452; NAKANE 1990: 26; NILSSON 1995: 74; NILSSON et al. 1995: 369; KHOLIN & NILSSON 2000: 95; NILSSON 2001: 101; MORI & KITAYAMA 2002: 142; LEE & AHN 2018: 77; NILSSON & HÁJEK 2020a: 23; 2020b: 93; NAKAJIMA et al. 2020: 92.

Hydaticus bowringi [incorrect subsequent spelling]: GEMMINGER & HAROLD 1868: 465; SHARP 1882: 670; 1884: 463; ATKINSON:1891: 145; RÉGIMBART 1899: 331; JACOBSON 1908: 434; ZIMMERMANN 1919: 227; 1920: 219; WINKLER 1924: 235; MIWA 1932: 145; FENG 1932: 31; FALKENSTRÖM 1936: 237; GSCHWENDTNER 1937: 73; KAMIYA 1938: 48; 1940: 127; BRINCK 1946: 150; ZAITZEV 1953: 310; NAKANE 1964: 9; VAZIRANI 1977a: 76; YOON & AHN 1988: 257; ZENG 1989: 4; LI 1992: 36; SATÔ et al. 1994: 291; SATÔ 1996: 5; KIREJTSHUK 2001: 226; HUA 2002: 36; NILSSON 2003: 8.

Hydaticus bowringi [incorrect subsequent spelling]: ab. *nonconjungens* ZIMMERMANN 1919: 227; 1920: 219; WINKLER 1924: 235.

Hydaticus bowringi [incorrect subsequent spelling]: ab. *transverseguttatus* ZIMMERMANN 1919: 227; 1920: 219; WINKLER 1924: 235.

Prodaticus bowringi [incorrect subsequent spelling]: MILLER et al. 2009: 596 ff.

TYPE LOCALITY: China.

TYPE MATERIAL: **Lectotype** ♂ (BMNH), by present designation: "China" [handwritten white label], "67·56" [printed white label], "LECTOTYPUS Hydaticus bowringii Wewalka 2019" [printed red label]. **Paralectotypes** (BMNH): 1 ♀: same label data; 1 ♀: "67·56" [printed white label], "Bowringii" [handwritten white label, probably by Clark]; 1 ♀: "Nov Spec. e coll Gory 2029 N. Holland (Moreton Bay)" [handwritten white label, probably by Clark], "67·56" [printed white label]. All specimens are provided with red "PARALECTOTYPUS" labels.

All four specimens belong to the collection of H. Clark, recognizable by the label "67·56" (M.V.L. Barclay, pers. comm.).

ADDITIONAL MATERIAL EXAMINED:

CHINA: Shaanxi: 1 ♂, 2 ♀♀: "Nordw. China Süd-Schensi" (CJS).

? Shanxi: 2 ♂♂, 2 ♀♀: "Kelan Pt. 92. –87." (BMNH).

Shandong: 1 ♂: "Tsingtau [Qingdau], Kiautschougebiet, leg. S.G. Hass" (MNB); 9 exs.: "Tsingtau [Qingdau] S. Glaue (MNB); 1 ♀: Tsingtau [Qingdau], VII.1903, leg. S.G. Kreyenberg (MNB); 1 ♀: "Tsingtau [Qingdau], A.P. Richter" (CGW); 8 exs.: "Tsingtau [Qingdau] Besenbruck" (ZSM); 1 ♂: "China (Chefou) [Yantai] Vescu" (BMNH).

Jiangsu: "Nanking [Nanjing] Dr. Jettmar" (NMW); 1 ♀: "Provinz Kiangsu [Jiangsu] China Kolthoff" (ZSM).

Zhejiang: 1 ♀: "nr Entrance Is. Chusan Arch. [Zhoushan Archipelago] Walker Coll.93-18." (BMNH); 7 ♂♂, 6 ♀♀: "Chusan Is. [Zhoushan], China. J.J. Walker" (BMNH).

Yunnan: 1 ♂: "S-China, Yunan" (MNB).

Guangxi: 8 exs.: Miaoershan, S slope, 1300–2000 m, 25.–26.VI.1997, leg. BOLM (CGW, NHMB); 9 exs.: 20 km N Lingchuan, 500 m, 21.–24.VI.1997, leg. BOLM (CGW, NHMB).

Jiangxi: 1 ♂, 2 ♀♀: "Kiukiang [Jiujiang] China" (ZSM); 16 ♂♂, 4 ♀♀: "Kiukiang [Jiujiang] June.1887, A.E. Pratt" (BMNH, MNB, SDEI, ZSM).

NORTH KOREA: 1 ♂: Wonsan, VI.1955, leg. W. Jamrógiewicz (NMP).

SOUTH KOREA: 1 ♂, 2 ♀♀: "Chemulpo [Incheon]" (MNB); 6 exs.: Seuol env., 1913 (CGW, NHMB); 1 ♂: "Seoul, Corea, Hon. Ella Scarlett, August 1900. 1902-24" (BMNH).

TAIWAN: 1 ♂, 1 ♀: "Formosa, 1904, leg. Haberer" (MNB).

JAPAN: Aomori Pref.: 1 ♂: Honshu, Idozawa, VII. [19]51, leg. K. Shimuyama (ISNB).

Chiba Pref.: 5 ♂♂, 1 ♀: Kimitsu County, Kazusaminato Town, 28.IX.1986, leg. T. Abe (CHF, MNB).

Tokio Pref.: 1 ♂, 1 ♀: "Tokio, v. Bodemeyer" (MNB, ZSM).

Kanagawa Pref.: 1 ♂, 1 ♀: "Shiroyama-chō, Tsukui-gun" [Sagamihara], 28.IV.1986, leg. K. Akiyama (CHF).

Nagano Pref.: 1 ♂: Mt. Ontoke [Ontake], 6.VIII.1953, leg. M. Satô (CJS).

Hyogo Pref.: 1 ♀: "Hiogo" (MNB): 1 ♂, 2 ♀♀: "Hiogo Japan Th. Lenz 1880" (ZSM); 2 ♀♀: "Kobe C. Gottsche" (MNB).

Tokushima Pref.: 1 ♂: Shikoku, Metsuragi-San, Meoto-Ike, 27.VII.[19]54, leg. M. Chujo (ISNB); 1 ♀: Shikoku, Katsuura, Yokose, 2.VIII.1949, leg. Y. Kohama (CJS).

Nagasaki Pref.: 16 exs.: "Unzen Shimabara Japan Reitter" (CJS, NMP); 1 ♀: "Nagasaki leg. Hilgendorf" (MNB); 2 ♂♂, 3 ♀♀: "Nagasaki, Petersen, 1886" (NMW).

Kagoshima Pref.: 1 ♀: "Satsuma, May 1886. Leech" (BMNH); 1 ♀: "Kagushima 7.IV.[19]12." (BMNH).

AFFINITIES: *Hydaticus bowringii* can be distinguished from all other species treated herein by the predominantly yellow pronotum. The elytral marks of *H. bowringii* are similar to those of *H. philippensis*, but the body is broader oval and on average smaller (TL: 12.1–14.8 mm; TL-h: 11.4–14.0 mm; MW: 7.0–10.2 mm). The median lobe of *H. bowringii* (Fig. 18) resembles that of *H. histrio*.

VARIABILITY: The elytral marks are relatively constant and in most specimens as in Fig. 7b. Specimens with the basal elytral spot merging with the median longitudinal stripe (Fig. 7a) have been described as *H. bowringi* ab. *transverseguttatus*, and specimens with elytral longitudinal lines not merging near apex (Fig. 7c) were described as *H. bowringi* ab. *nonconjungens*. Specimens with reduced longitudinal lines on the elytron (Fig. 7d) also occur.

HABITAT: In Japan, this species has been found in paddy fields and ponds (K. Watanabe, pers. comm.).

DISTRIBUTION (Fig. 29): China: Anhui, Beijing, Guangxi, Hebei, Hubei, Jiangsu, Jiangxi, Liaoning, Shaanxi, Shandong, Shanxi (?), Sichuan (?), Yunnan, Zhejiang; North Korea; South Korea; Taiwan; Japan.

One paralectotype is labelled "N. Holland. (Moreton Bay)", which obviously refers to Australia (southern Queensland). Although this specimen undoubtedly belongs to *H. bowringii*, this species does not seem to occur in Australia, which was already indicated by SHARP (1882) and RÉGIMBART (1899). The occurrence of this species in Sichuan could not be confirmed in this study.

8. *Hydaticus histrio* CLARK, 1864

Hydaticus histrio CLARK 1864: 221; GEMMINGER & HAROLD 1868: 465; SHARP 1882: 780; ATKINSON 1891: 145; GAHAN 1895: 286; RÉGIMBART 1899: 330; JACOBSON 1908: 433; ZIMMERMANN 1920: 221; WINKLER 1924: 235; GSCHWENDTNER 1937: 76; GUIGNOT 1951: 21; BALFOUR-BROWNE 1951: 192: ZAITZEV 1953: 311; GUIGNOT 1959: 11; DERWESH 1963: 25; GUÉORGUIEV 1965a: 110; 1965b: 117; 1967: 474; VAZIRANI 1969a: 258; LEGROS 1972: 577; VAZIRANI 1977a: 77; ANGELINI 1978: 388; HOSSEINIE 1978: 171; BRANCUCCI 1979: 207; VAZIRANI 1980: 30; BRANCUCCI 1985: 238; MUKHERJEE & SENGUPTA 1986: 279 (partim); ALI & ABDUL-KARIM 1989: 19; KIREJTSHUK 2001: 227; NILSSON 2003: 8; HÁJEK & FERY 2004: 34; HÁJEK 2006: 49; MUKHOPADHYAY & GHOSH 2010: 279; GHOSH 2012: 141; HÁJEK & BRANCUCCI 2011: 130; GHOSH & NILSSON 2012: 25; SHAVERDO et al. 2013: 20; MUKHOPADHYAY & GHOSH 2015: 471; ERMAN et al. 2018: 175; ÖZGEN et al. 2018: 285; RIBERA et al. 2019: 257; NILSSON & HÁJEK 2020a: 23; 2020b: 95.

Hydaticus histrio ab. *semiluteus* GUIGNOT 1951: 21.

Hydaticus rectangulus SHARP 1882: 669.

Hydaticus rectangularis [incorrect subsequent spelling]: ALI 1978: 12.

Hydaticus arabicus GUIGNOT 1951: 21 (**syn.n.**); BRANCUCCI 1981b: 229; 1985: 242; HÁJEK & REITER 2014: 84; NILSSON & HÁJEK 2020a: 23; 2020b: 95.

TYPE LOCALITY: North India.

TYPE MATERIAL: **Holotype** ♀ of *H. histrio* (BMNH), by monotypy: "Type" [printed circular white label with red border], "67.56" [printed white label], "sine nomine e coll. Gory N. India" [handwritten white label], "histrio" [handwritten white label], "HOLOTYPUS Hydaticus histrio Clark Wewalka 2019" [printed red label].

Lectotype ♀ of *H. rectangulus* (BMNH), by present designation: "Type H. T." [printed circular white label with red border], "Sharp Coll.1905-313" [printed white label], "Persia, Millingen, 1041 rectangulus" [handwritten white label], "LECTOTYPUS Hydaticus rectangulus Sharp Wewalka 2019" [printed red label].

Holotype ♂ of *H. arabicus* (MNHN-CR): "Hadramaut. Arabia 94-235" [white printed label with yellow line], "arabicus Rég. n. sp. (Brit. Mus.)" [handwritten white label], "MUSÉUM PARIS COLL MAURICE REGIMBART 1908" [white printed label], "TYPE" [printed red label], "Hydaticus arabicus Guign. Type" [handwritten white label], "HOLOTYPUS" [printed red label], "MNHN EC8100" [white printed label]. **Paratype** ♂: "Hadramaut Arabia 94-235 ♂, MUSÉUM PARIS COLL MAURICE REGIMBART 1908, Paratype, PARATYPE *Hydaticus arabicus* Guignot, 1951, MNHN EC81101" (MNHN).

ADDITIONAL MATERIAL EXAMINED:

UNITED ARAB EMIRATES: 3 ♂♂: Fujairah, Hajar Mts., Wadi Hayl, ca. 2 km SW Hayl vill., 25°4'58"N 56°13'58"E, ca. 240 m, small stream, 26.I.2010, leg. M.A. Jäch (NMW); 1 ♂, 4 ♀♀: Wadi Maidaq, 25°19'N 56°8'E, 410 m, 2.–30.III.2006, leg. A. van Harten (BMNH).

YEMEN: 1 ♀: "Type, Hadramaut Arabia 94-235, Hydaticus arabicus Reg. n. sp. typ." [this specimen is not mentioned in the original description of *H. arabicus*] (BMNH); 2 ♂♂: "Hadramaut Arabia 94-235" (BMNH).

OMAN: Dschanub al-Batina: 1 ♂, 5 ♀♀: 75 km W Muscat, 10 km W Halban, pool in wadi, 23.II.1998, leg. G. Wewalka (CGW); 1 ♂: Wadi Awt, 23°14'N 57°26'E, 630 m, 4.IV.2013, leg. J. Halada (CAL); Az-Zahirah: 1 ♀: N of Buraymi, Mahdah, 24°22'N 56°00'E, 13.X.2013, leg. J. Halada (CAL); Ad-Dachiliyya: 4 ♂♂: Al Jabal al Akhdar, Al Hamra, 23°05'N 57°19'E, 670 m, 5.IV.2013, leg. P. Kučera (CJS); 1 ♀: Al Jabal al Akhdar, E Al Hamra, Ghubrat, Ain Ghubrat, spring brook, 17.XI.2001, leg. H. Sattmann (NMW); 1 ♂: Al Jabal al Akhdar, N Wadi al Maawil, Afi-Al'Awabi, 250–500 m, 8.I.1992, leg. M. Hess & U. Heckes (CAS); 2 ♀♀: Al Jabal al Akhdar; Wadi Sahtan, 14.XI.1980, leg. D.L. Harrison (BMNH); 1 ♂: Al Jabal al Akhdar Mts., Batinah SE Rustaq, W Awabi, 23°20'0.1"N 57°29'23.5"E, at light, 29.XII.2009, leg. L. Lehmann et al. (CHF); 2 ♂♂: Al Hoota cave, pool in wadi, 21.–27.I.2001, leg. H. Sattmann et al. (NMW); 2 ♂♂, 1 ♀: Ain Ghubrat, Al Hoota cave, main lake, 6.VI.2005, leg. H. Sattmann (NMW); 2 ♀♀: Al Hamra, NW Niswa, X.2007, leg. H. Sattmann (CGW, NMW); 4 ♀♀: NE Nizwa, Wadi al Muadin, 22°57'89"N 57°39'98"E, 660 m, 1.–10.II.2006, leg. M. Ströhle (CSA); 2 ♂♂: N of Tanuf, spring pool, 30.I.2001, leg. H. Sattmann et al. (NMW); 1 ♂, 1 ♀: Tanuf, 520 m, 15.VII.2010, leg. S. Ilniczki (CHF); 2 exs.: Taf, cistern in wadi, 23°6.30'N 57°57.45'E, 30.I.2017, leg. H. Sattmann (WP 238) (NMW).

IRAQ: Ninewe Govern.: 1 ♂, 1 ♀: "Mesopotamia Mosul Coll. Hauser V.[19]09" (NMW); Al-Anbar Govern.: 2 ♂♂, 1 ♀: Ramadi, at hotel, 22.V.1963, leg. F. Kasy & A. Vartian (CGW, NMW); Saladin Govern.: 1 ♂: "Assur Mesopot Coll. Hauser" (NMW); Bagdad Govern.: 1 ♂, 1 ♀: "Bagdad Iraq Dr. Kálalová 1930" (CJS); 2 ♂♂, 2 ♀♀: "Baghdad, Summer 1923, R.W.G. Hingston" (BMNH); Diyala Govern.: 1 ♂: "Khalis" (BMNH).

IRAN: Fars: 1 ♂: Kushk-e Sar Tang, ca. 60 km WNW Jahrom, 14.V.2004, leg. A. Arefnia (CHF); Hormozgan: 1 ♀: 22 km N Bandar Abbas, at light, 26.IV.1974, leg. G. Pretzmann (NMW). 1 ♂: 60 km E Bandar Abbas, 27°22'N 56°46'E, 125 m, 25.V.2014, leg. J. Halada (CAL); Sistan and Baluchestan: 2 ♂♂, 2 ♀♀: Iranshar, 800 m, 11.–21.IV.1954, leg. W. Richter & F. Schäuffele (CGW).

AFGHANISTAN: Helmand Prov.: 7 exs.: Darweshan, 500 m, 21.V.1961, leg. G. Ebert (ZSM); Kabul Prov.: 19 exs.: Sarobi, 1100 m, 24.IV.–13.VIII.1961, leg. G. Ebert (ZSM).

PAKISTAN: Gilgit-Baltistan: 5 ♂♂, 1 ♀: Chilas – Dassu, 1000 m, 15.V.1998 & 21.VI.2000, leg. Z. Varga et al. (CHF); Khyber Pakhtunkhwa: 7 ♂♂, 1 ♀: Shogran, Khagan Valley, 28.–30.VII.1998. leg. J. Rejsek (CGW, CJS); 3 exs.: Swat Valley, Shangla Top, 2400 m, VI.1981, leg. T. Porion (CGW, NHMB); 3 ♂♂, 2 ♀♀: Swat Distr., Madyan, 1400 m, VII.1971, leg. C. Holzschuh (CGW); 1 ♀: Nathia Gali, Baragali Campus, 34°05'47"N 73°21'51"E, 2350 m, at light, 24.VII.1998, leg. G. Csorba & L. Ronkay (CHF); 1 ex.: Dunga Gali, 2100 m, 1.VII.1979, leg. W. Thomas (NHMB); 1 ♀: Mansehra, Kaghan Valley, Shogran, 2400 m, 11.VII.2001, leg. K. Staven (CAS); 23 exs.: "India N.W. frontier. E.Y. Watson. 98–142" (BMNH); 2 ♂♂, 1 ♀: "Parachinar, Kurram Vall. India F.W.C. H.G. Champion Coll. B.M. 1953–156" (BMNH); Azad Kashmir: 3 ♂♂, 2 ♀♀: 20 km S Muzarabad [Muzaffarabad], 34°12'N 73°30'E, 12.IX.1997 and 30.IV.1998, leg. G.M. Lázló & G. Ronkay (CHF); Punjab: 2 ♂♂, 2 ♀♀: Taxila, 30 km WNW Rawalpindi, 3.–9.VIII.1998, leg. J. Rejsek (CJS); 1 ex.: Rawalpindi, IV.1982, leg. T. Lander (NHMB); 1 ex.: Rawalpindi, 18.X.1971, leg. E. Heiss (CGW); 10 exs.: Rawalpindi env., Basal, Kalachita Range, 16.–18.I.1956, leg. C. Lindemann (ZSM); 1 ♂, 1 ♀: "Kulu Mangra, Punjab.1041 Sharp Coll. 1905-313" (BMNH); 2 ♂♂: Multan, 3.I.1963, leg. G. Popow (BMNH); Balochestan: 3 exs.: Bela, 21.–25.IV.1993, leg. S. Bečvár (CPM); 1 ♂, 2 ♀♀: 90 km SSE Quetta, Kundlani, 20.–23.II.1995, leg. D. Hauk & L. Čížek (CGW, NMW); Sindh: 1 ♂: Karachi, near airport, 23.II.–9.III.1961, leg. E. & A. Vartian (NMW).

NEPAL: 1 ♂: "Nepal" (BMNH); Gandaki Zone: 1 ♂: Pokhara – Suikhet, 900–1000 m, 4.V.1984, leg. B. Bhakta (CGW).

INDIA: Jammu and Kashmir: 1 ex.: Patnitop, Batote, 1600–2000 m, 6.–8.VIII.1980, leg. W. Heinz (NHMB); 7 exs.: Banihal Tunnel, 2200 m, 2.VII.1980, leg. C. Holzschuh (CGW); 1 ♂, 2 ♀♀: Banihal, ca. 33°18'0"N 75°10'48"E, 2.VII.1980, leg. H. Rausch (NMW).

Himachal Pradesh: 2 exs.: Kullu Valley, Naga [Naggar], 1750 m, 30.VIII.1994 (CPM); 2 ♀♀: Manali, road to Leh, 32°15'25.7"N 77°11'23.6"E, 2010 m, 10.VII.2004, leg. M. Uhler (CGW).

Uttarakhand: 4 exs.: Bhimtal, 1500 m, 22.IX.1977–30.VI.1981, leg. F. Smetaček (CGW, NHMB); 1 ex.: Tharali, 24.VII.1994, leg. M. Snížek (CPM).

Delhi: 1 ♀: New Delhi, light trap, 12.VIII.1967, leg. K.E. Gibson (SIW).

AFFINITIES: The pronotal marks of *H. histrio* with broad lateral yellow stripes resemble those of *H. bipunctatus*, *H. dhofarensis*, *H. quadrivittatus*, *H. philippensis* and *H. major*. Despite great variability of its yellow elytral marks (Fig. 8a–f) it always shows a complete sublateral longitudinal stripe and a subbasal transverse stripe, sometimes fragmented or reduced. In size (TL: 12.1–13.6 mm; TL-h: 11.8–12.6 mm; MW: 7.0–7.6 mm) this species is similar to *H. vittatus*, *H. conjungens*, *H. bipunctatus* and *H. quadrivittatus*.

The median lobe is very similar to that of *H. vittatus* from which *H. histrio* can normally be separated by the broader lateral yellow stripes of the pronotum, but specimens with reduced elytral marks can hardly be distinguished from *H. vittatus*.

Hydaticus histrio can be separated from *H. philippensis*, which also shows a subbasal transverse yellow stripe, by smaller size.

VARIABILITY: *Hydaticus histrio* was described by CLARK (1864) after a specimen from North India with extremely reduced yellow elytral marks (Fig. 8d). In the same paper he depicted a specimen from North India with the typical elytral marks (Fig. 8b) as "Hydaticus vittatus Fab., var.", which obviously belongs to *H. histrio*. The description of *H. rectangulus* by SHARP (1882) was based on a specimen with such typical elytral marks. Specimens with extended elytral marks also occur (Fig. 8a); such specimens were described by GUIGNOT (1951) as ab. *semiluteus*.

Specimens with extremely reduced yellow elytral marks (Fig. 8d–f) have been seen from Nepal, North India, Pakistan and Yemen. GUIGNOT (1951) described *H. arabicus* from Yemen (Hadramaut) after specimens with such extremely reduced yellow elytral marks (Fig. 8e). In the same location (Hadramaut) also a specimen with typical elytral marks was found (Fig. 8c). HÁJEK & REITER (2014) argued that in lateral view the apex of the median lobe is distinctly curved in *H. arabicus* compared to *H. histrio*. The male genitalia of *H. histrio* show some variability (Fig. 19), and the shape of the median lobe of specimens from Yemen lies within this range. Therefore, *H. arabicus* is here synonymized with *H. histrio*.

HABITAT: The species has been collected in small streams, residual pools of intermittent streams and wadis, spring pools, in a cave, and at light.

DISTRIBUTION (Fig. 30): Saudi Arabia (?); Yemen; Oman; United Arab Emirates; Turkey; Iraq; Iran; Afghanistan; Pakistan; Nepal; India: Delhi, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Kerala (?), Uttarakhand.

The occurrence of this species in Saudi Arabia (RIBERA et al. 2019, NILSSON & HÁJEK 2020a) is unconfirmed.

MUKHERJEE & SENGUPTA (1986) recorded *H. histrio* from South India (Kerala). It was not possible to confirm this record, which seems highly questionable.

9. *Hydaticus philippensis* WEHNCKE, 1876

Hydaticus philippensis WEHNCKE 1876: 197; RÉGIMBART 1878: 356; SHARP 1882: 782; BAER 1886: 104; ATKINSON 1891: 146; RÉGIMBART 1899: 330; ZIMMERMANN 1920: 223; VAZIRANI 1977a: 80; BALKE et al. 2002: 967; FREITAG et al. 2016: 184; NILSSON & HÁJEK 2020b: 97.
Hydaticus leveillei RÉGIMBART 1877a: 99; 1877b: 78.
Hydaticus duplex SHARP 1882: 669; BRANDEN 1885: 102 (synonymy).
Hydaticus propinquus GUIGNOT, 1951: 21 (**syn.n.**); FREITAG et al. 2016: 184.
Prodaticus philippensis: MILLER et al. 2009: 596.
Prodaticus phillipensis [incorrect subsequent spelling]: MILLER et al. 2009: 601 ff.

TYPE LOCALITY: "Philippinen [Philippines]" (WEHNCKE 1876).

TYPE MATERIAL: **Syntypes** of *H. philippensis* not located.

It was not possible to locate any type specimens of *H. philippensis*. No appropriate specimens have been found in the collections of the MNB, MNHN, SDEI and ZSM, where other type specimens of Dytiscidae described by Wehncke are deposited. However, the description of the typical elytral colour pattern by WEHNCKE (1876) leaves no doubt about the identity of this species.

Holotype ♂ of *H. duplex* (BMNH), by monotypy: "Type H.T." [printed circular white label with red border], "Sharp Coll.1905-313" [printed white label], "Borneo 1042 duplex" [handwritten white label].

Syntype ♂ of *H. leveillei* (MNHN): "Manille" [handwritten white label], "MUSÉUM PARIS COLL MAURICE REGIMBART 1908" [printed white label], "SYNTYPE" [printed red label], "SYNTYPE *Hydaticus leveillei* Régimbart, 1877" [printed white label], "MNHN EC8009" [printed white label].

Holotype ♂ of *H. propinquus* (MNHN): "Philipp" [handwritten white label], "propinquus Rég. n.sp." [handwritten white label], "Hydaticus propinquus Guign. Type" [handwritten white label], "MUSEUM PARIS 1960 Coll. F. GUIGNOT" [printed white label], "HOLOTYPE" [printed red label], "MNHN EC8012" [printed white label].

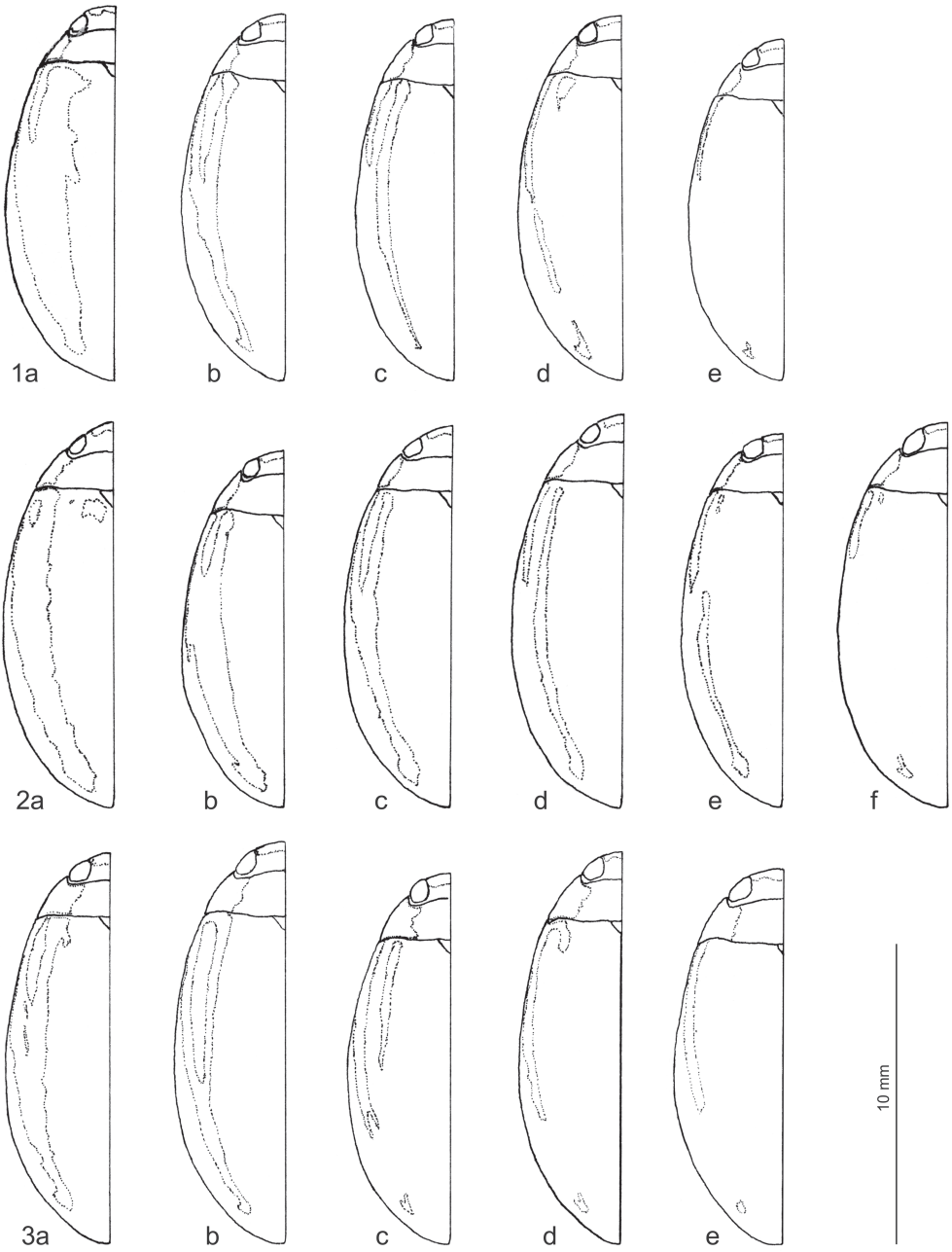
ADDITIONAL MATERIAL EXAMINED:

PHILIPPINES: Luzon: Manila Prov.: 2 ♀♀: "Manilla" (NHRS); Laguna Prov.: 2 ♂♂: Los Baños, Mt. Makiling, 13.XI.1992, leg. H. Schillhammer (CGW, NMW); 1 ♂: "Mt. Makiling Luzon, Baker Samml. A. Zimmermann" (ZSM); Camarines Sur Prov.: 1 ♀: Lagonoy, 1 km W San Sebastian, Kinayangan River, 2.II.2002, leg. H. Zettel (CHZ); 3 ♀♀: Lupi, 26.–28.IV.2006, leg. C.V. Pangantihon (CHZ); Quezon Prov.: 1 ♀: Atimonan, Old Zigzag Road, Quezon NP, 16.III.1999, leg. S. Vichozo & H. Zettel (CHZ); Cavite Prov.: 1 ♂: Tanza, 10.X.1992, leg. P. Riano (CPR); Catanduanes: 1 ♀: E San Andres, 12.III.1999, leg. F. Seyfert (CHZ); Mindoro: Oriental Mindoro Prov.: 4 ♂♂, 6 ♀♀: 4 km SE Puerto Galera, 14.XI.1992, leg. M.A. Jäch (CGW, NMW); 1 ♀: Mindoro Beach, 10 km W Puerto Galera, 23.XI.1993, leg. H. Zettel (CHZ); 1 ♀: Panaytayan, Mansalay, 300 m, VII.1971, leg. R. Zimmermann (SIW); Marinduque: Boac Prov.: 1 ♀: E Bantay, 10°25.308'N 121°55.490'E, 515 m, hilly secondary forest, 26.V.2009, leg. J.H. Lourens (ISNB); Masbate: 1 ♀: Uson, Del Carmen, 5.–6.VI.2009, leg. C.V. Pangantihon CHZ); Palawan: 2 ♀♀: "Palawan Taytay, 1 Schultze Samml. A. Zimmermann" (ZSM); 3 ♀♀: Taytay, Poblacion, Tubog Creek, Malaipit Campsite, residual pool, 80 m, 10°48'52"N 119°30'42"E, 16.IV.2007, leg. H. Freitag (NMW); 3 ♂♂, 2 ♀♀: Taytay, Lake Manguao, Alipuran Stream tributary, ca. 40 m, 10°45'N 119°32'E, 29.IV.1995, leg. H. Freitag (NMW); 2 ♂♂: Taytay, ca. 2 km NW Lake Manguao, Manguao Stream tributary, ca. 35 m, 10°47'N 119°31'E, 29.IV.1995, leg. H. Freitag (NMW); 6 exs.: San Vicente, Port Barton, 150 m, 14.–18.XII.1990, leg. BOLM (NHMB, NMW); 7 exs.: Brooke's Point, Mt. Tuba, V.–VI.1983, leg. P. Arnaud (CGW, NHMB); 1 ♂: Brooke's Point, VI.2000, leg. O. Šafránek (CJS); 1 ♂, 1 ♀: Brooke's Point, 1973, leg. R. Rodriguez (BMNH); 1 ♂, 1 ♀: Brooke's Point, 10.III.1988 (NMW); 2 ♂♂: Brooke's Point, Mate, 31.III.1994, leg. H. Zettel (CGW, NMW); 3 exs.: Puerto Princesa, Cleopatra's Needle Forest Reserve, Tanabank River Valley, 300 m, 20.–22.XII.1990, leg. BOLM (CGW, NHMB, NMW); 1 ♂: 2 km SE Laptay/Napsan, shallow creek, 9°43'N 118°28'E, 29.III.1995, leg. H. Freitag (NMW); 1 ♀: Conception, Tarabanan River, 0.5 km N highway, residual pool, 10°0'23"N 119°1'10"E, 10 m, 30.VI.1995, leg. H. Freitag (NMW); 1 ♂: Conception, Tarabanan River, 6 km W highway, mountain river pool, boulders, gravel, 10°2'30"N 119°0'45"E, 150 m, 20.I.1995, leg. H. Freitag (Balke 3684) (ZSM); 1 ♂: Irawan, 14 km W Puerto Princesa, 24.–29.XI.1965, leg. R. Davis (SIW); 1 ♀: Bahile, 50 m, 22.XII.1990, leg. BOLM (NMW); 1 ♀: Aborlan, Cabigaan, Talakaigan River, mountain river, 9°26'50"N 118°26'49"E, 50 m, 25.II.1995, leg. H. Freitag (Balke 3687) (ZSM); Romblon: 5 ♂♂, 3 ♀♀: España, 1985 (CGW, CPM); 3 ♂♂, 1 ♀: Romblon, 1982, leg. K. Witzgall (ZSM); Samar: 1 ♂: "Eastern Visayas, Samar, V.2013, local collector" (NMP); Panay: Antique Prov.: 2 exs.: 10 km E Sibalom, 100 m, 10.XII.1990, leg. BOLM (NHMB, NMW); 3 exs.: 8 km E Bontol, 200 m, 10.–11.XII.1990, leg. BOLM (CGW, NHMB, NMW); 2 ♂♂, 3 ♀♀: Panay Isl., 23.I.1994, leg. M. Graindl & F. Seyfert (CGW, NMW); Iloilo Prov.: 3 ♂♂: 10 km N Igbarass, ca. 400 m, 22.III.1994, leg. S. Schödl (NMW); Negros: Occidental Prov.: 2 ♂♂, 1 ♀: Caliban River, SE Murcia, ca. 250 m, 18.III.1994, leg. S. Schödl & H. Zettel (NMW); 5 ♂♂, 3 ♀♀: Mambucal, Seven Falls, ca. 900 m, 16.III.1994, leg. S. Schödl (CGW, NMW); 2 ♂♂, 5 ♀♀: Mambucal, Pula River, 11.II.1994, leg. F. Seyfert (CGW, NMW); 5 ♂♂, 5 ♀♀: Mambucal, Mt. Canlaon, ca. 900 m, 15.–16.III.1994, leg. H. Zettel (CGW, NMW); Negros Oriental Prov.: 1 ♀: W Dumaguente, Valencia, Banica Valley Resort, 25.II.1997, leg. H. Zettel (CHZ); Cebu: 1 ♂, 1 ♀: S Badian, Matutinao, Kawasan Falls, 1–30 m, 11.XI.2003, leg. C.V. Pangantihon (CHZ); 2 ♂♂: Cebu City, Cantipla-Uno, forest reserve, 300 m, 2.VIII.2008, leg. H. Zettel & C.V. Pangantihon (CHZ); Camiguin: 3 ♂♂, 1 ♀: W Mambajao, Katibawasan Spring area, 350–400 m, 13.–15.III.2010, leg. H. Zettel & C.V. Pangantihon (CHZ); Mindanao: Bukidnon Prov.: 4 exs.: 30 km W Maramac, 1600 m, 28.–30.XII.1990, leg. BOLM (NHMB, NMW); Surigao del Sur Prov.: 1 ♂, 3 ♀♀: Carmen, 21.–24.IV.1995, leg. R. Müller et al. (CGW, MNB).

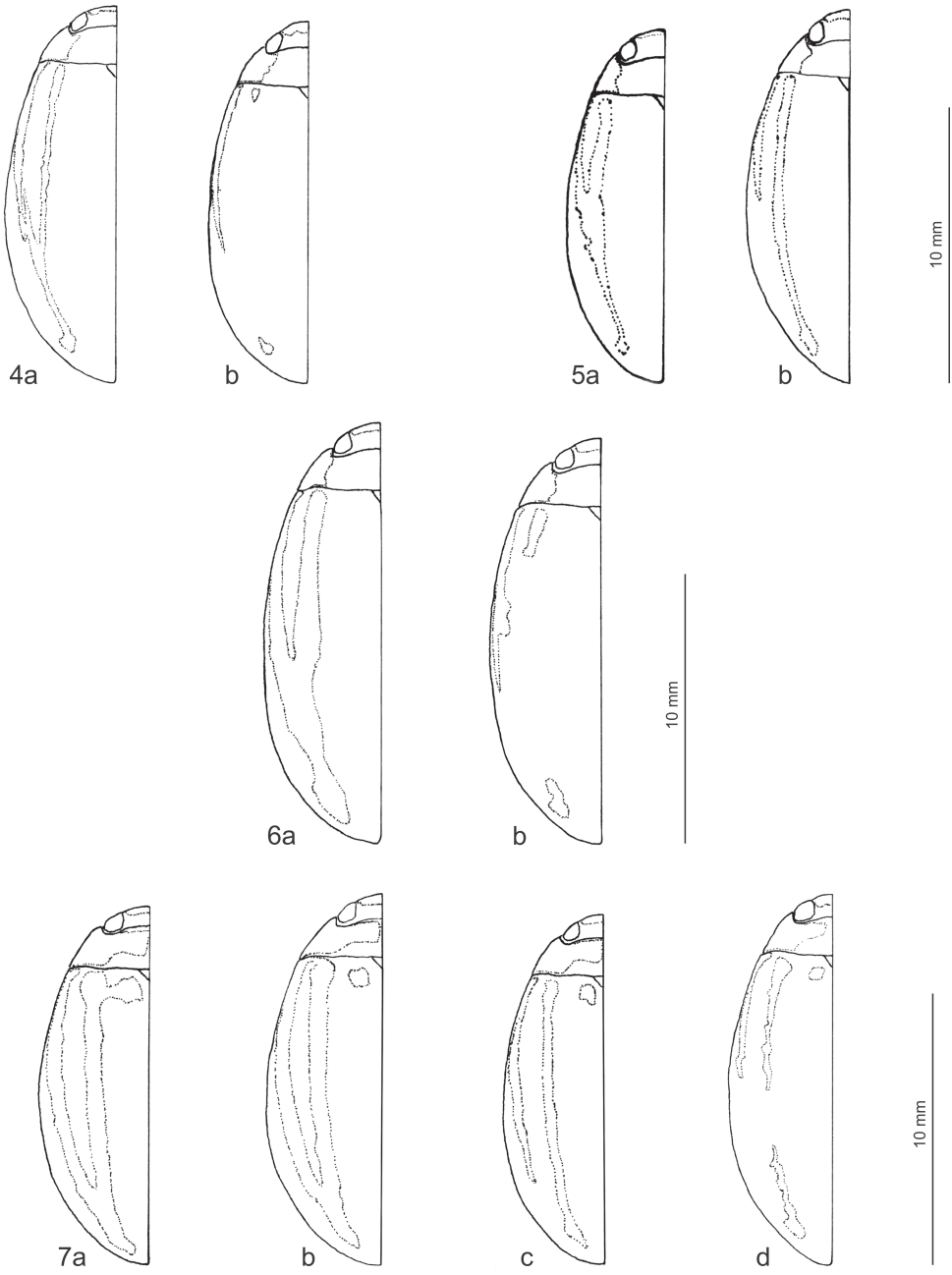
MALAYSIA: Sabah: 1 ♂: Poring Hot Springs, 26.V.1999, leg. Bačovský (NMP); 1 ♂: 45 km NE Sapuluh, Tibow, 600–900 m, 7.–15.IV.2000, leg. BOLM (NMP); 1 ♀: Kinabatangan River, Uncle Tan's Camp, 8.–15.VI.2003, leg. J. Šťastný (CJS).

INDONESIA: North Sulawesi: 1 ♂: "Sangir" [Sangihe Isl.], 27.VI.1994, leg. N. Nieser (NMP).

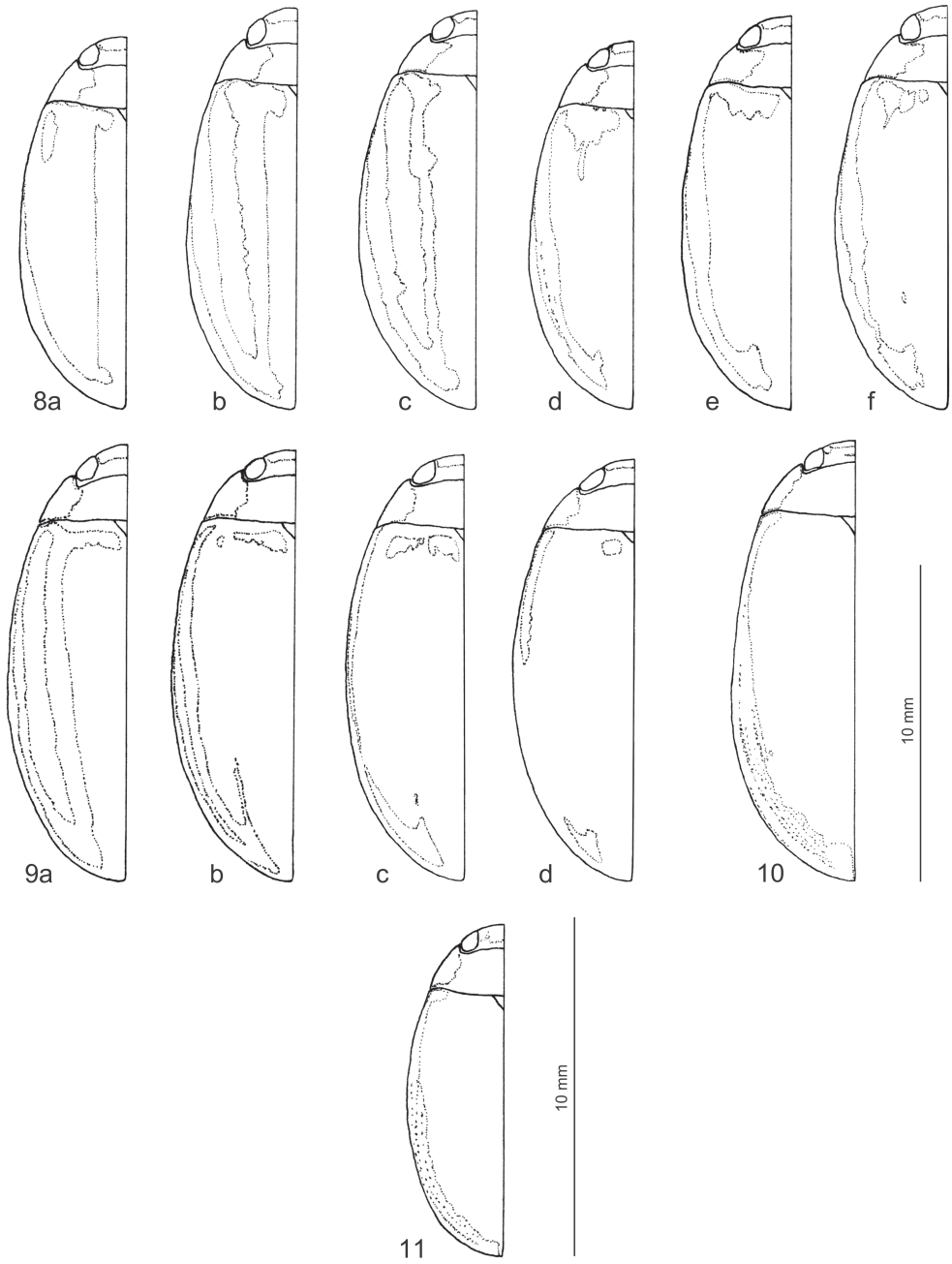
AFFINITIES: The elytral marks of *H. philippensis* are similar to those of *H. histrio*, but the latter is significantly smaller (TL: 13.6–15.7 mm; TL-h: 12.7–14.7 mm; MW: 7.6–9.1 mm).



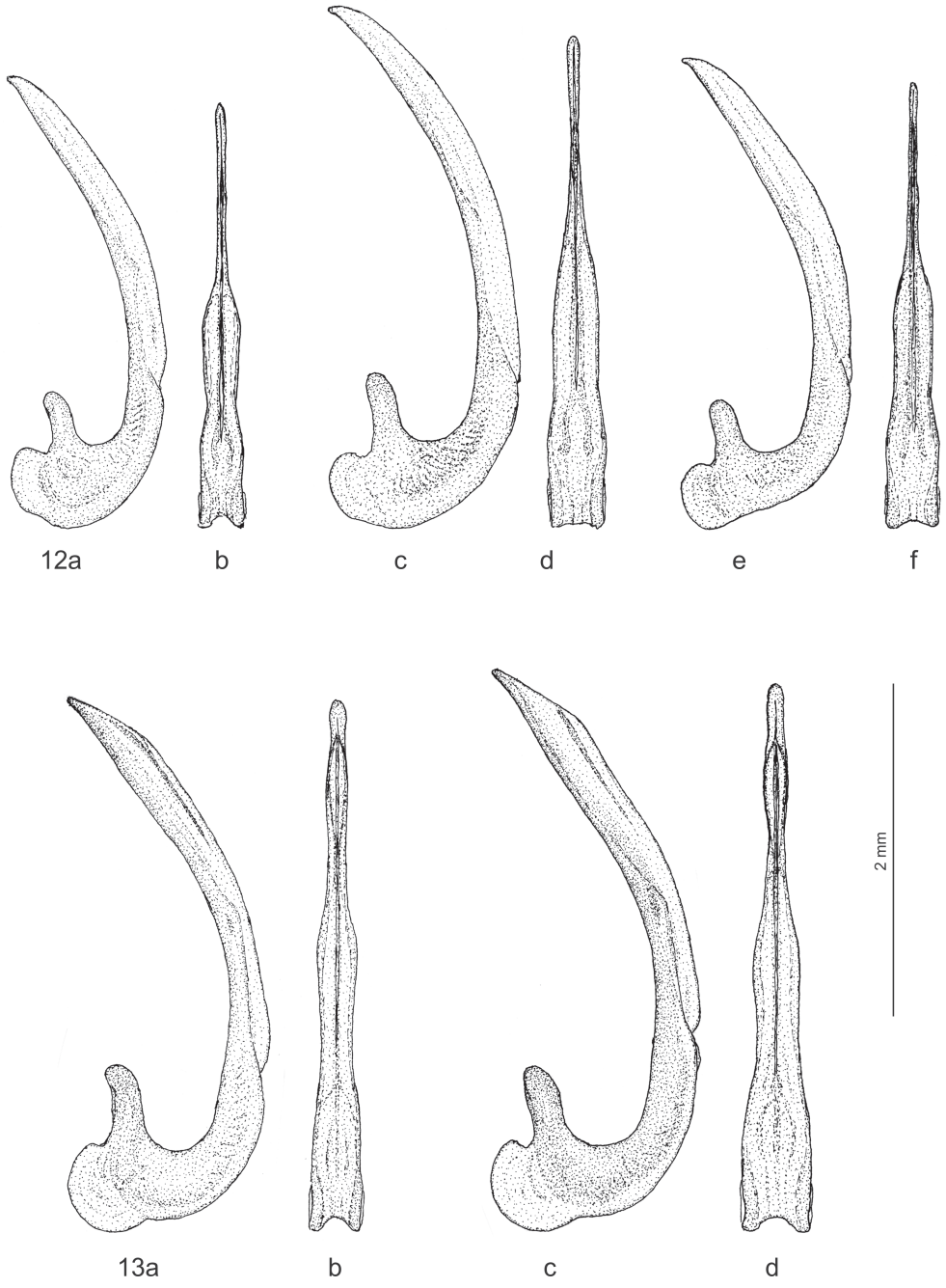
Figs. 1–3: Dorsal habitus and variation of colour patterns; 1) *Hydaticus vittatus*: a) Sri Lanka, b) India, c) Cambodia, d) Nepal, e) China; 2) *H. conjungens*: a) Java, b) Bali, c) Sulawesi, d) West Malaysia, e) Sumatra; f) Borneo; 3) *H. bipunctatus*: a) Sri Lanka, b) Japan (paratype of *H. satoi*), c) Bhutan, d) Philippines (Panay), e) Philippines (lectotype of *H. bipunctatus*).



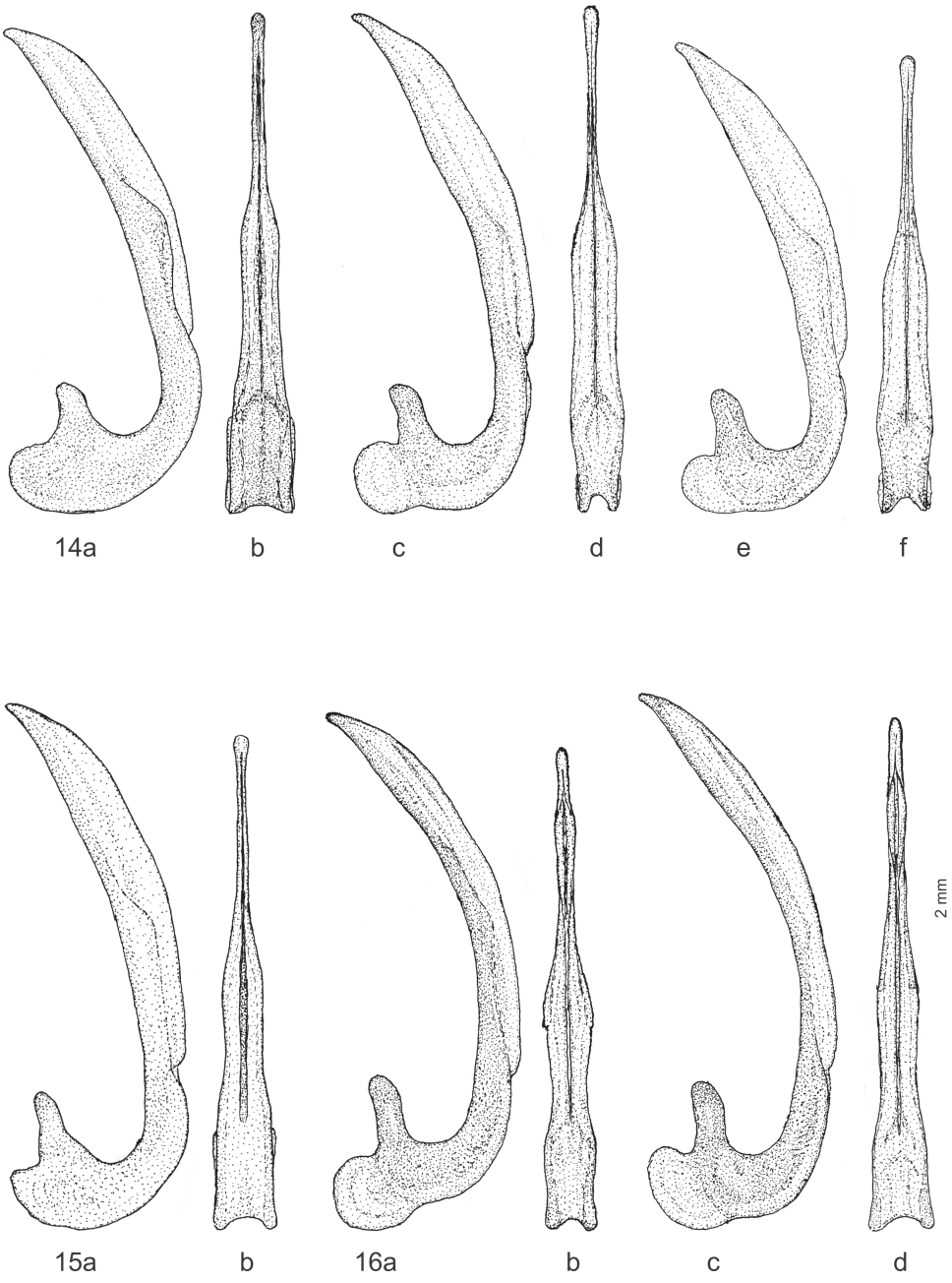
Figs. 4–7: Dorsal habitus and variation of colour patterns; 4) *Hydaticus dhofarensis*: a) Oman (Dhofar), b) Oman (Dhofar) (paratype); 5) *H. quadrivittatus*: a) Australia (Queensland), b) Australia (Northern Territory); 6) *H. major*: a) China (Yunnan), b) China (Yunnan); 7) *H. bowringii*: a) China (ab. *transverseguttatus*), b) China, c) Japan (ab. *nonconjungens*), d) Japan.



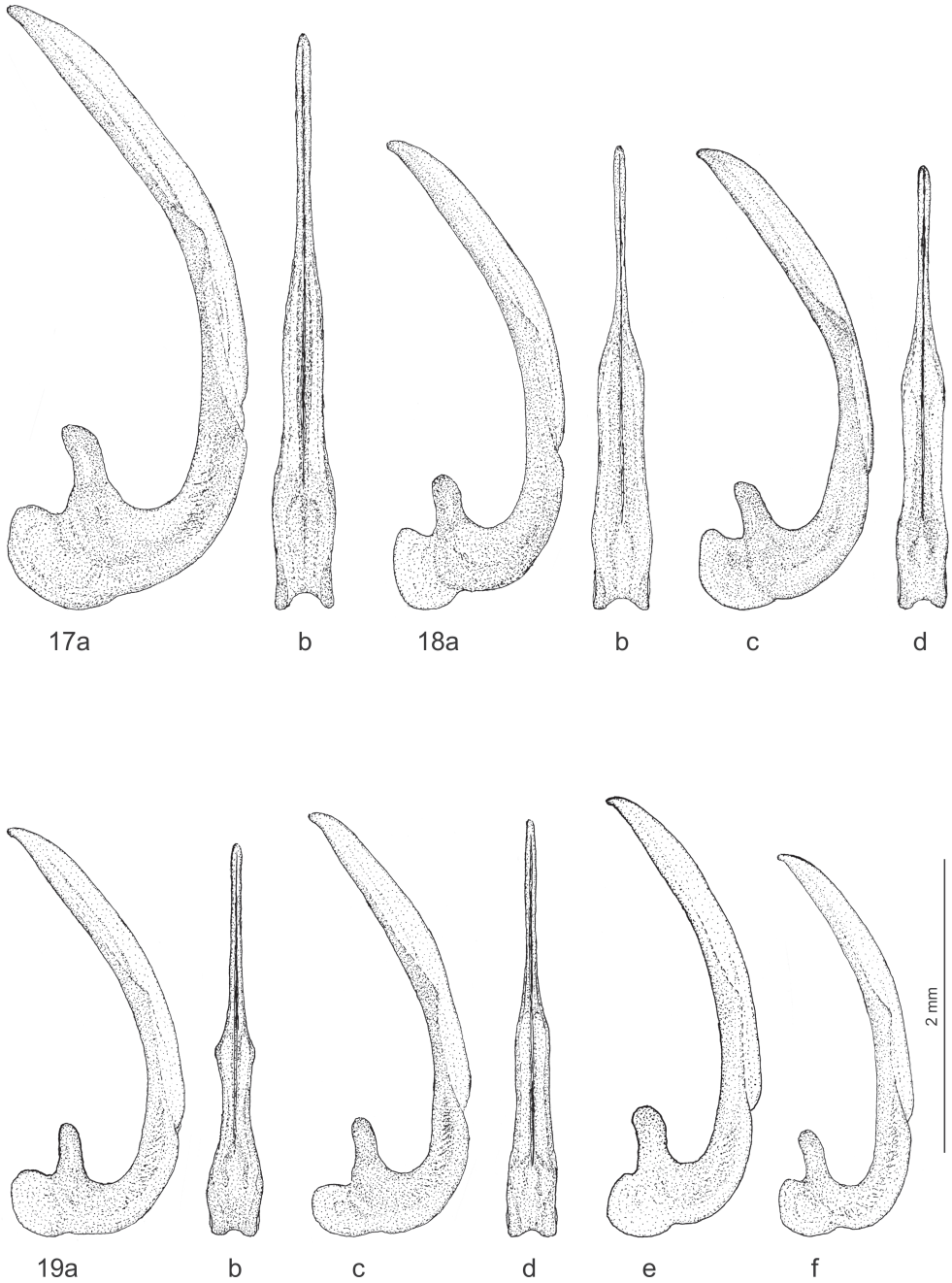
Figs. 8–11: Dorsal habitus and variation of colour patterns; 8) *Hydaticus histrio*: a) Pakistan, b) Iran (lectotype of *H. rectangulus*), c) Yemen (paratype of *H. arabicus*), d) North India (holotype), e) Yemen (holotype of *H. arabicus*), f) Yemen; 9) *H. philippensis*: a) Philippines (Palawan), b) Philippines (Negros), c) Philippines (holotype of *H. propinquus*), d) Indonesia (Sangihe Isl.); 10) *H. daemeli*: Australia (Queensland) (lectotype of *H. daemeli*); 11) *H. microdaemeli*: Australia (Northern Territory).



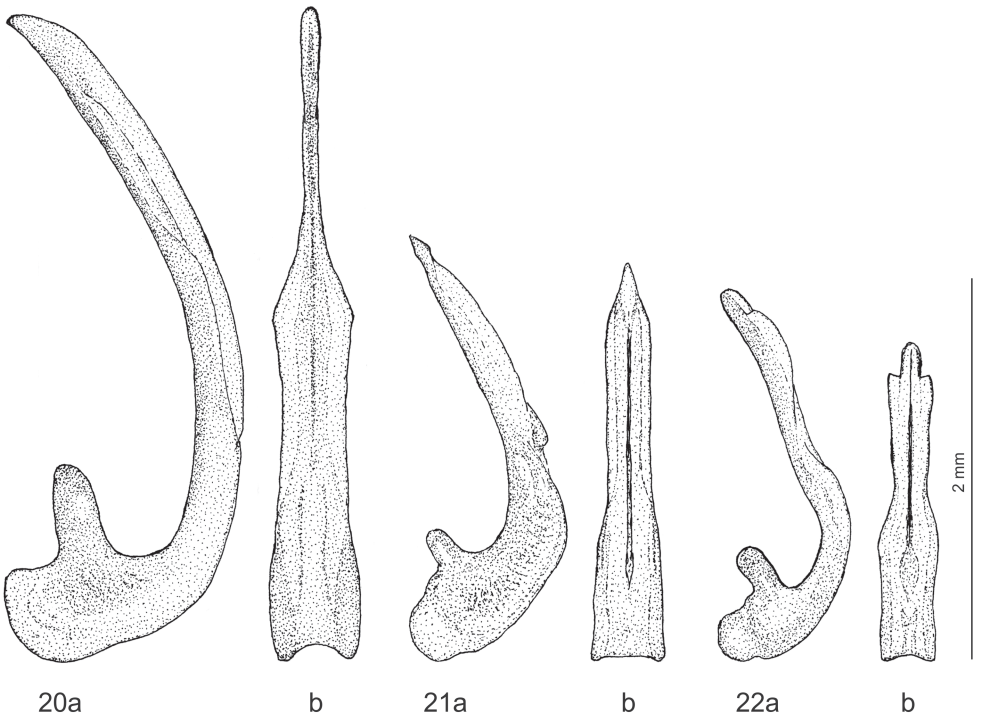
Figs. 12–13: Aedeagus, median lobe in lateral (a, c, e) and ventral view (b, d, f): 12) *Hydaticus vittatus*, a–b) Sri Lanka, c–d) Laos, e–f) China; 13) *H. conjungens*, a–b), Java (paralectotype of *H. vittatus* var. *conjungens*), c–d) West Malaysia.

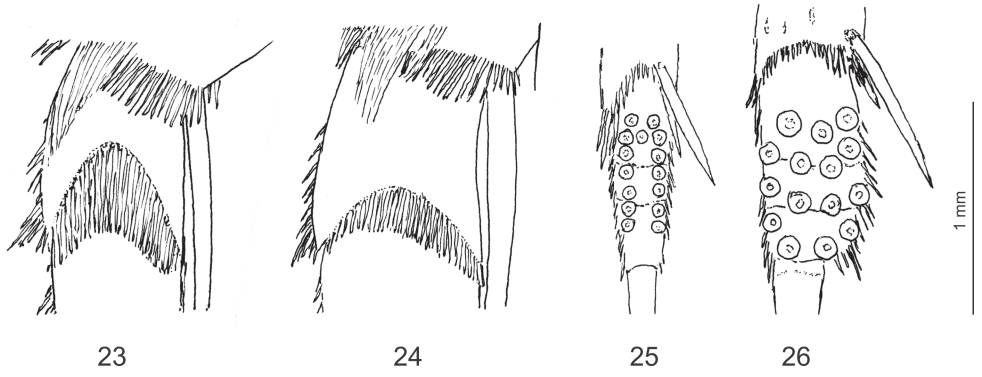


Figs. 14–16: Aedeagus, median lobe in lateral (a, c, e) and ventral view (b, d, f); 14) *Hydaticus bipunctatus*, a–b) Philippines (lectotype of *H. bipunctatus*), c–d) Japan (paratype of *H. satoi*), e–f) Sri Lanka; 15) *H. dhofarensis*, a–b) Oman (paratype); 16) *H. quadrivittatus*, a–b) Australia (Queensland), c–d) New Caledonia.



Figs. 17–19: Aedeagus, median lobe in lateral (a, c, e–f) and ventral view (b, d); 17) *Hydaticus major*, China (Yunnan) (paralectotype); 18) *H. bowringii*, a–b) China, c–d) Japan; 19) *H. histrio*, a–b) Pakistan, c–d) Oman, e) Yemen, f) Nepal.





Figs. 20–22: Aedeagus, median lobe in lateral (a) and ventral view (b); 20) *Hydaticus philippensis*, Philippines (Palawan); 21) *H. daemeli*, Australia (Northern Territory); 22) *H. microdaemeli*, Australia (Northern Territory).
Figs. 23–24: Dorsal view of first segment of left metatarsus; 23) *Hydaticus vittatus*; 24) *H. daemeli*.
Figs. 25–26: Ventral view of right mesotarsus; 25) *Hydaticus vittatus*; 26) *H. daemeli*.

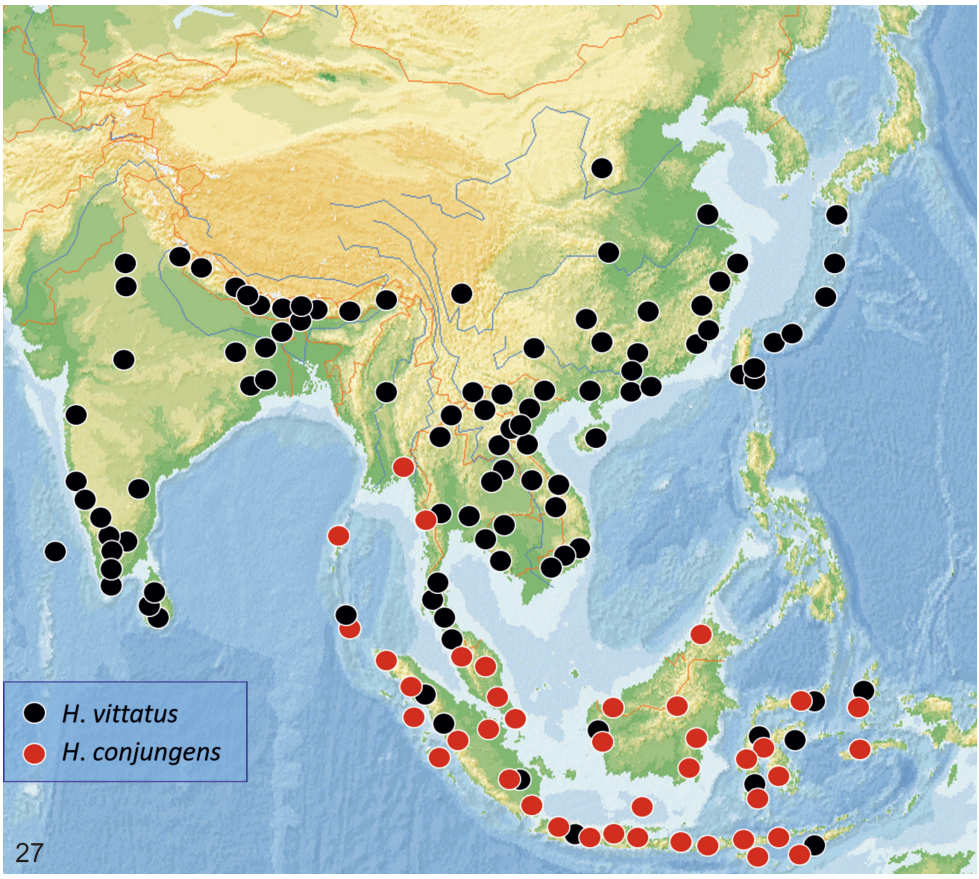


Fig. 27: Distribution of *Hydaticus vittatus* and *H. conjungens*.

Hydaticus philippensis can be separated from *H. bowringii* by the predominantly dark brown to black pronotum. From *H. conjungens* it can be distinguished by the broader yellow lateral pronotal stripes and by the shape of the median lobe (Fig. 20).

VARIABILITY: Most specimens of *H. philippensis* have two longitudinal elytral stripes merging subapically (Fig. 9a). In few specimens from the Philippines, the medial longitudinal stripe and the transverse basal elytral stripe are reduced (Fig. 9b). The holotype of *H. propinquus* has very similar elytral marks (Fig. 9c), and the aedeagus matches the male genitalia of typical specimens of *H. philippensis*. In one specimen from North Sulawesi (Sangihe Islands), the elytral marks are even more strongly reduced (Fig. 9d).

HABITAT: The species was collected in pools of rivers, shallow creeks and residual pools.

DISTRIBUTION (Fig. 29): Philippines; Malaysia: Sabah; Indonesia: North Sulawesi (Sangihe Islands). Erroneously regarded as endemic to the Philippines by FREITAG et al. (2016).

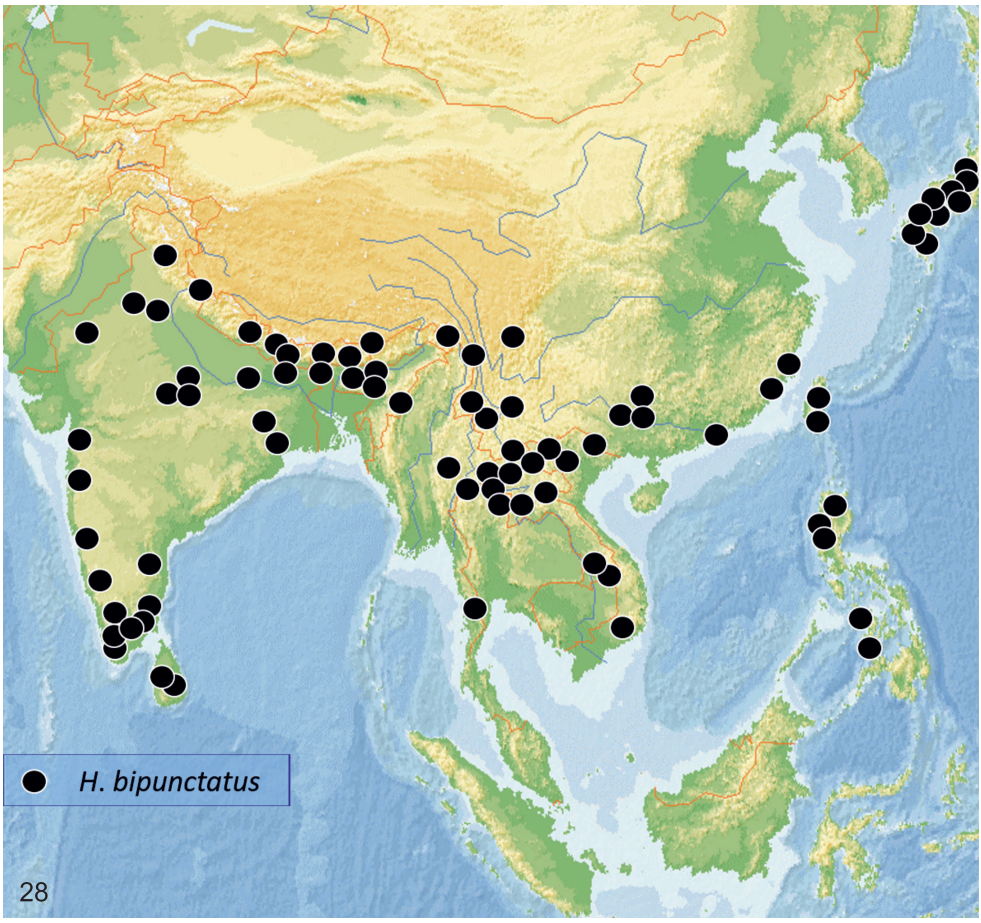


Fig. 28: Distribution of *Hydaticus bipunctatus*.

10. *Hydaticus daemeli* WEHNCKE, 1876

Hydaticus daemeli WEHNCKE 1876: 195; MASTERS 1886: 597; WATTS 1985: 26; NILSSON & HÁJEK 2020b: 93.
Hydaticus daemeli SHARP 1882: 668 (junior homonym); LEA 1895: 529; ZIMMERMANN 1919: 227; 1920: 218; WATTS 1978: 142; LAWRENCE et al. 1987: 355; LARSON 1993: 55; 1997: 272; DENTON 1998: 19; WATTS 2002: 43; NILSSON 2001: 10 (synonymy); HENDRICH 2003: 51.

TYPE LOCALITY: Australia, Queensland, Cape York.

TYPE MATERIAL: **Lectotype** ♂ of *H. daemeli* WEHNCKE (MNHN-CO), by present designation: "Nov. Holl. Cape York", "Daemel" [handwritten white labels with black frame], "♂" [handwritten white label], "Daemeli mihi" [handwritten white labels with black frame], "MUSÉUM PARIS 1952 coll. R. OBERTHÜR ex coll. E. WEHNCKE" [printed white label], "SYNTYPE" [printed red label], "SYNTYPE *Hydaticus daemeli* Wehncke, 1876", "MNHN EC7912" [printed white labels], "LECTOTYPUS Hydaticus daemeli Wehncke Wewalka 2019" [printed red label]. **Paralectotypes**: 1 ♂, 1 ♀ (MNHN): without locality labels (MNHN EC7913, MNHN EC7914). They are provided with red paralectotype labels.

Of the three syntypes in the MNHN-CO, a male specimen with complete locality labels was chosen as lectotype.

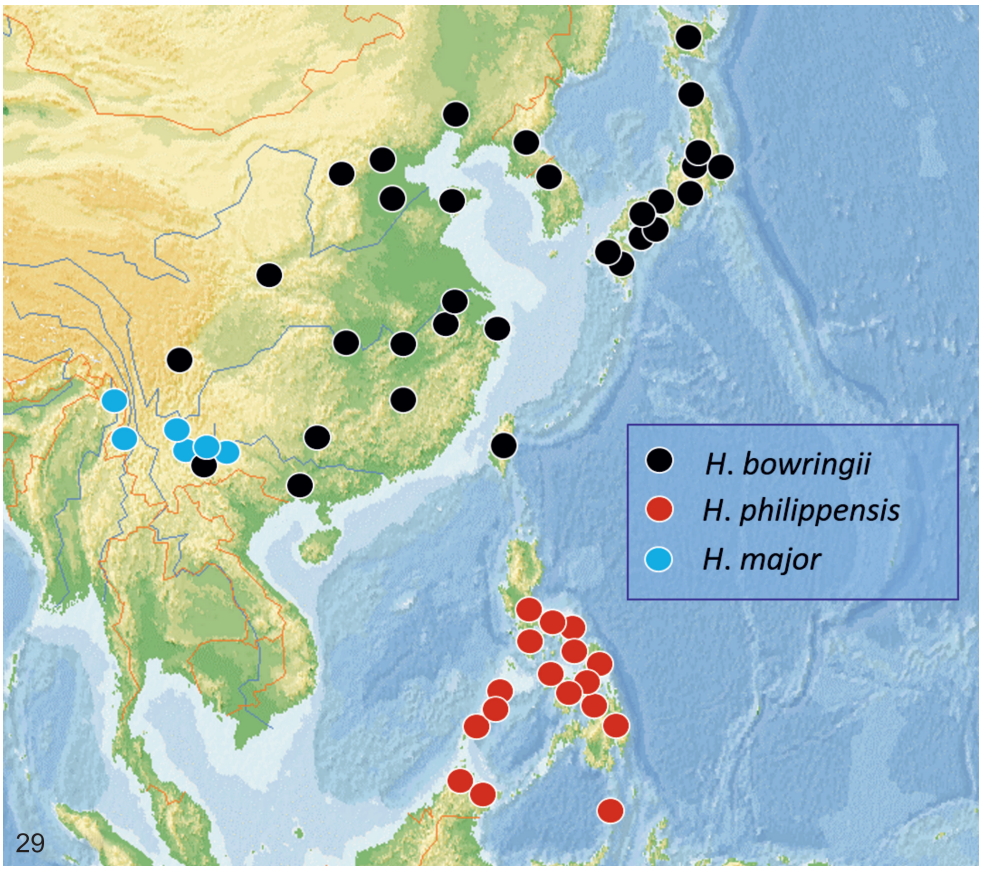


Fig. 29: Distribution of *Hydaticus bowringii*, *H. philippensis* and *H. major*.

Lectotype ♀ of *H. daemeli* SHARP (BMNH), designated by WATTS (1978): "Hydaticus daemeli Cape York. Australia." [handwritten on label on which the specimen is mounted], "Lectotype" [round printed white label with dark purple margin], "Sharp Coll. 1905-313" [printed white label], "Hydaticus Daemeli Australia Cape York" [handwritten white label], "Hydaticus daemeli Sharp Det. C. Watts 1979" [partly handwritten white label].

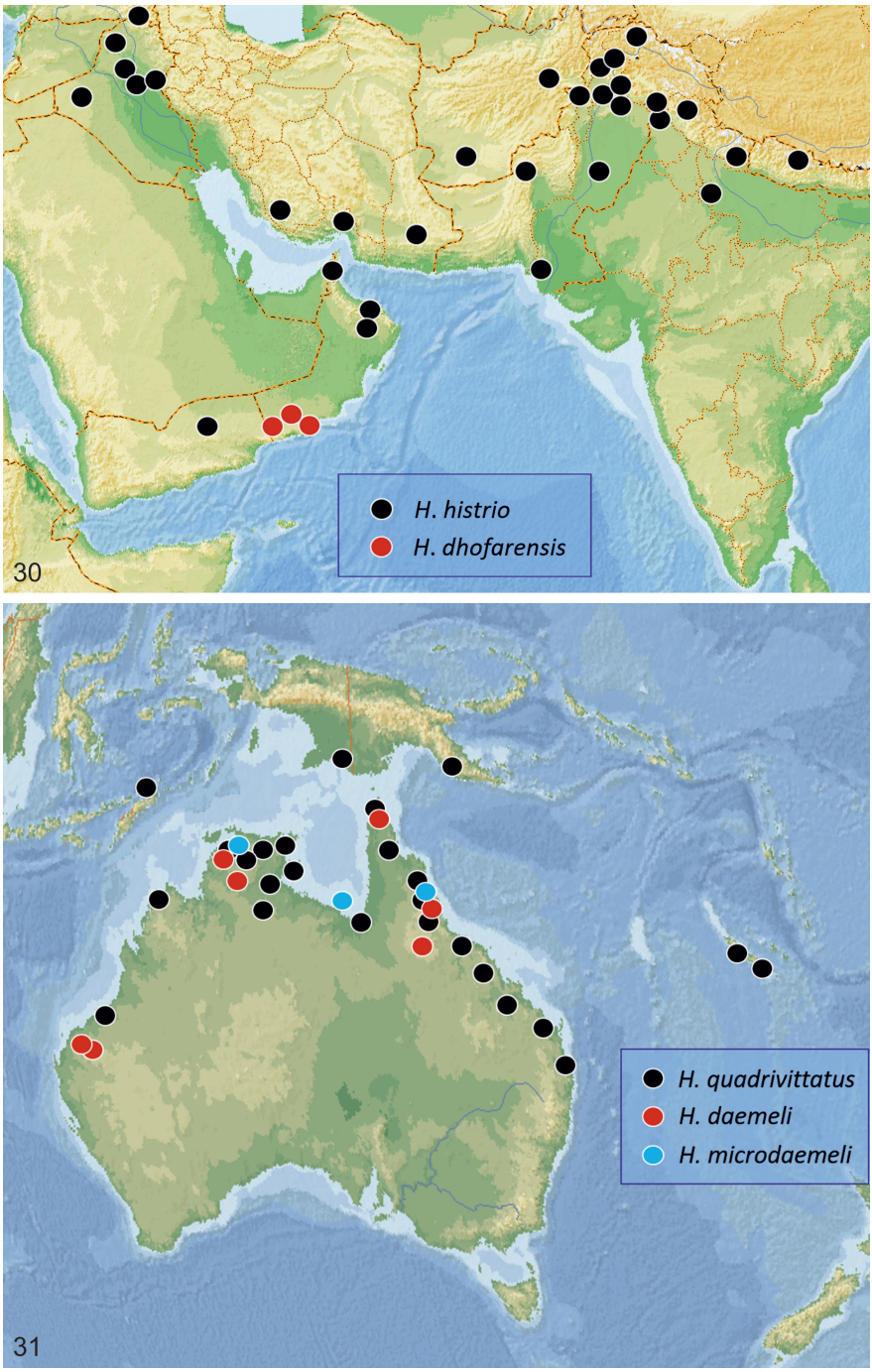
ADDITIONAL MATERIAL EXAMINED:

AUSTRALIA: Western Australia: 1 ♂, 1 ♀: Pilbara, Hamersley Range, Hamersley Gorge, 22°15'S 117°59'E, 400 m, 27.VIII.2002, leg. L. Hendrich (CGW); 2 ♂♂: Pilbara, Millstream Chichester NP, McKenzie Springs, 21°18'S 117°12'E, 200 m, 25.VIII.2002, leg. L. Hendrich (BMNH).

Northern Territory: 1 ♂: Katherine, 10.–14.I.2004 (NMP); 1 ♂: Litchfield NP, Tjaynera Falls, 13°15'S 130°44'E, ca. 60 m, at light, 20.–26.XI.2008, leg. S. Bílý (NMP).

Queensland: 1 ♂: 10 km S Tully, S Innisfail, ca. 30 m, small rivulet, 25.I.1993, leg. G. Wewalka (CGW); 1 ♀: Torrens Creek, 3.XI.1923, leg. G.H. Wilkins (BMNH).

AFFINITIES: *Hydaticus daemeli* (Fig. 10) and *H. microdaemeli* (Fig. 11) share the yellow stripes at the lateral sides of the pronotum and a submarginal longitudinal elytral stripe with the species of the *H. vittatus* group treated herein. The main differences to the species of the *H. vittatus* group are the black irrorations in the posterior part of the submarginal longitudinal elytral stripes, the shallow dorsal notch of the first metatarsomere (Fig. 24) and the peculiar shape of the median lobe (Figs. 21–22).



Figs. 30–31: Distribution of 30) *Hydaticus dhofarensis* and *H. histrio*; 31) *H. quadrivittatus*, *H. daemeli* and *H. microdaemeli*.

The species of the *H. sexguttatus* group also have a shallow dorsal notch on the first metatarsomere; therefore, *H. daemeli* and *H. microdaemeli* could be assigned to the *H. sexguttatus* group, which has to be confirmed by molecular analyses.

Hydaticus daemeli can be distinguished from *H. microdaemeli* by the distinctly larger size (*H. daemeli*: TL: 13.5–14.9 mm; TL-h: 12.6–14.0 mm; MW: 7.9–8.4 mm; *H. microdaemeli*: TL: 10.3–11.0 mm; TL-h: 9.4–10.1 mm; MW: 5.8–6.9 mm) and by the male genitalia.

VARIABILITY: The variation of the elytral marks of *H. daemeli* is marginal.

HABITAT: This species was collected in a slowly running rivulet and in different rock pools (2–20 m^2, up to 1 m deep) as well as in an isolated half-shaded spring-fed pool (6 m^2) of 1.5 m depth (HENDRICH 2003).

DISTRIBUTION (Fig. 31): Australia: Western Australia, Northern Territory, Queensland, New South Wales.

11. *Hydaticus microdaemeli* WATTS, 1978

Hydaticus microdaemeli WATTS 1978: 142; 1985: 26; LAWRENCE et al. 1987: 356; WATTS 2002: 43; NILSSON & HÁJEK 2020b: 96.

TYPE LOCALITY: Australia, Queensland, Cairns.

TYPE MATERIAL: **Holotype** ♂ (ANIC): "Cairns, Queensland, 7.i.1962, Carne and Britton" (WATTS 1978).

ADDITIONAL MATERIAL EXAMINED:

AUSTRALIA: Northern Territory: 1 ♂: South Alligator River, Arnhem Hwy., 11.XII.1982, leg. A. Walford-Huggins (CLH); 1 ♂: Kakadu NP, Yellow River, 3.IV.1996, leg. G. Höhn (NMP).

Queensland: 1 ♀: Cairns, at light, 18.I.1961, leg. E.B. Britton (BM. 1962–153) (BMNH); 2 ♂♂, 1 ♀: Mornington Isl., Mission, 12.V.1963, leg. P. Aitken & N.B. Tindale (NHRS).

AFFINITIES: See above, under *H. daemeli.*

VARIABILITY: The variation of the elytral marks of *H. microdaemeli* is marginal.

HABITAT: This species was collected in pools of rivers and at light.

DISTRIBUTION (Fig. 31): Australia: Northern Territory, Queensland.

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References

ALI, H.A. 1978: A list of some aquatic beetles of Iraq (Coleoptera: Dytiscidae). – Bulletin of the Natural History Research Centre 7 (2): 11–14.

ALI, H.A. & ABDUL-KARIM, R.M. 1989: A key to the Dytiscidae (Insecta, Coleoptera) of Iraq. – Iraq National History Museum, Publication 35: 1–21.

ANGELINI, F. 1978: Dytiscidae reperiti nel Pakistan occidentale (Baltistan) dal Dr. Giuseppe Osella (Coleoptera: Dytiscidae). – Bollettino del Museo di Storia Naturale di Verona 5: 385–389.

ATKINSON, E.T. 1891: Catalogue of the insects of the Oriental Region. No. 4, Order Coleoptera, Family Dytiscidae. – Journal of the Asiatic Society of Bengal 59 (2) Supplement 2 [1890]: 127–265+i–xxv (index).

AUBÉ, C. 1838: Species général des hydrocanthares et gyriniens; pour faire suite au species général des Coléoptères de la collection de M. le comte Dejean. – Paris: Méquignon Père et Fils, xvi+804 pp.

BAER, G.-A. 1886: Catalogue des Coléoptères des Îles Philippines. – Annales de la Société Entomologique de France (6) 6: 97–200.

BALFOUR-BROWNE, J. 1947: The aquatic Coleoptera of Manchuria (Weymarn collection). – Annals and Magazine of Natural History (11) 13 [1946]: 433–460.

BALFOUR-BROWNE, J. 1951: Coleoptera: Haliplidae, Dytiscidae, Gyrinidae, Hydraenidae, Hydrophilidae. – Expedition to South-West Arabia 1 (16): 179–220, pls. 10–11.

BALKE, M., HENDRICH, L., MAZZOLDI, P. & BISTRÖM, O. 2002: *Borneodessus zetteli*, new genus and new species, notes on biogeography and a checklist of Dytiscidae from Borneo (Insecta: Coleoptera: Dytiscidae). – Journal of Natural History 36: 963–978.

BALKE, M., HENDRICH, L. & YANG, C.M. 1998: Water beetles (Insecta: Coleoptera) in the Nature Reserves of Singapore. – Proceedings of the Nature Reserve Survey Seminar. Gardens' Bulletin Singapore 49 [1997]: 321–331.

BALL, A. 1932: Résultats scientifiques du voyage aux Indes Orientales Néerlandaises de LL. AA. RR le Prince et la Princesse Léopold de Belgique. Coleoptera. Dytiscidae, Gyrinidae. – Mémoires du Muséum d'Histoire Naturelle de Belgique 4 (4): 17–24, 1 pl.

BLANCHARD, C.É. 1843: Pl. 4 [livraison 7] – In Hombron, J.B. & Jacquinot, H. (eds.): Zoologie Atlas. – In: Voyage au Pole Sud et dans l'Océanie sur les corvettes l'Astrolabe et la Zélée; exécuté par ordre du roi pendant les années 1837–1838–1839–1840, sous le commandement de M.J. Dumont-d'Urville, Capitaine de vaisseau; publié par ordre du gouvernement, sous la direction supérieure de M. Jacquinot, Capitaine de vaisseau, commandant de la Zélée. – Paris: Gide et J. Baudry, 140 pls.

BRANCUCCI, M. 1979: Dytiscidae aus dem Himalaja (Col.). – Entomologica Basiliensia 4: 193–212.

BRANCUCCI, M. 1980: Insects of Saudi Arabia. Coleoptera: Haliplidae, Dytiscidae, Gyrinidae. Part 2. – Fauna of Saudi Arabia 2: 102–111.

BRANCUCCI, M. 1981a: Dytiscidae aus Nepal, Kashmir und Ladakh (Insecta: Coleoptera. –Senckenbergiana Biologica 61 [1980]: 179–186.

BRANCUCCI, M. 1981b: Insects of Saudi Arabia. Coleoptera: Fam. Dytiscidae (Part 3). – Fauna of Saudi Arabia 3: 227–230.

BRANCUCCI, M. 1985: Insects of Saudi Arabia. Coleoptera: Fam. Haliplidae, Noteridae, Dytiscidae, Gyrinidae (Part 4). – Fauna of Saudi Arabia 6 [1984]: 229–242.

BRANCUCCI, M. & WEWALKA, G. 2007: Dytiscidae collected by M.A. Jäch in Bhutan, 2005 (Coleoptera: Dytiscidae). – Koleopterologische Rundschau 77: 81–87.

BRANDEN, C. van den 1885: Catalogue des coléoptères carnassiers aquatiques (Haliplidae, Amphizoidae, Pelobiidae & Dytiscidae). – Annales de la Société Entomologique de Belgique 29: 1–118.

BRINCK, P. 1946: Waterbeetles from Manchuria. With some zoogeographical remarks. – Opuscula Entomologica 11: 146–156.

CHAUDHRY, G.U., CHAUDHRY, M.I. & MALIK, N.K. 1970: Survey of insect fauna of forests of Pakistan. – Biological Sciences Research Division, Pakistan Forest Institute, Peshawar 2: 1–205.

CLARK, H. 1864: Notes on the genus *Hydaticus* (Leach), with descriptions of new species. – Transactions of the Royal Entomological Society of London (3) II: 209–222, pl. xiv.

CSIKI, E. 1938: Die Schwimmkäfer (Haliplidae und Dytiscidae) von Sumatra, Java und Bali der Deutschen Limnologischen Sunda-Expedition. – Archiv für Hydrobiologie, Supplement 15 [1937]: 121–130.

DASH, S. & ROY, S. 2017: Aquatic coleopteran (Family: Dytiscidae) diversity of south costal Odisha, India. – International Journal of Zoological Research 13 (3): 83–92.

DEB, R. 2017: New records of *Hydaticus* (*Prodaticus*) *bipunctatus bipunctatus* Wehncke, 1876 (Coleoptera: Dytiscidae) from Meghalaya – Zoological Survey of India 117 (4): 394–396.

DENTON, J. 1998: Records of some Australian Coleoptera (Haliplidae, Dytiscidae & Gyrinidae). – Latissimus 10: 18–20.

DERWESH, A.I. 1963: A preliminary list of Coleoptera from Iraq. – Technical Bulletin of the Ministry of Agriculture, Iraq 13: 1–38.

ERMAN, Ö.K., TAŞAR, G.H., AYKUT, M. & KURT, K. 2018: First record of *Hydaticus histrio* Clark, 1864 (Coleoptera, Dytiscidae) from Turkey. – Acta Biologica Turcica 31 (4): 174–177.

ESAKI, T. 1941: Hans Sauter. – Arbeiten über morphologische und taxonomische Entomologie 8 (2): 81–87.

FABRICIUS, J.C. 1775: Systema entomologiae, sistens Insectorum classes, ordines, genera, species adiectis synonymis, locis, descriptionibus, observationibus. – Flensburgi et Lipsiae: Libraria Korte, xxxii+832 pp.

FABRICIUS, J.C. 1781: Species Insectorum exhibentes eorum differentias specificas, synonyma auctorum, loca natalia, metamorphosin adiectis observationibus, descriptionibus. Tom. I. – Hamburgi et Kilonii: C.E. Bohnii, viii+552 pp.

FABRICIUS, J.C. 1787: Mantissa Insectorum sistens species nuper detectas adiectis characteribus genericis, differentiis specificis, emendationibus, observationibus. Tom. I. – Hafniae: C.G. Proft, xx+348 pp.

FABRICIUS, J.C. 1797: Nomenclator entomologicus emendatus sistens Fabriciani systematis cum Linneano comparationem [etc.]. – Lipsiae: I.G. Feind, XVI+224 pp.

FABRICIUS, J.C. 1801: Systema Eleutheratorum secundum ordines, genera, species, adiectis synonymis, locis, observationibus, descriptionibus. Vol. 1. – Kiliae: Bibliopolii Academici Novi, xxiv+506 pp.

FAIRMAIRE, L. 1880: Diagnoses de coléoptères de la Chine centrale. – Le Naturaliste 1: 164.

FALKENSTRÖM, G.A. 1936: Halipliden, Dytisciden und Gyriniden aus West- und Zentral-China (Coleoptera). – Lingnan Science Journal 15 (2): 225–248.

FENG, H.T. 1932: Aquatic Insects of China. Article II. Catalogue of Chinese Dytiscidae. – Peking Natural History Bulletin 7: 17–37.

FENG, H.T. 1933: Classification of Chinese Dytiscidae. – Peking Natural History Bulletin 8 (2): 81–146, pls. I–II.

FREITAG, H., JÄCH, M.A. & WEWALKA, G. 2016: Diversity of aquatic and riparian Coleoptera of the Philippines: checklist, state of knowledge, priorities for future research and conservation. – Aquatc Insects 37 (3): 177–213.

GAHAN, C.G. 1895: On the Coleoptera obtained by Dr. Anderson's collector during Mr. T. Bent's expedition to the Hadramaut, South Arabia. – Journal of the Linnean Society (Zoology) 25: 285–291.

GEMMINGER, [M.] & HAROLD, [E.] de 1868: Catalogus Coleopterorum hucusque descriptorum synonymicus et systematicus. Tom II. – Monachii: E.H. Gummi, pp. 425–752.

GHOSH, S.K. 2012: Insecta: Coleoptera: Dytiscidae. – Fauna of Andaman and Nicobar Islands, State Fauna Series 19 (1): 137–142.

GHOSH, S.K. 2015: Further contribution on diving beetles from Maharashtra, India (Coleoptera: Dytiscidae). – Records of the Zoological Survey of India 115 (1): 81–84.

GHOSH, S.K. 2018: Diving beetles (Coleoptera: Adephaga: Dytiscidae) of Namdapha National Park, Arunachal Pradesh, India. – Records of the Zoological Survey of India 118 (2): 156–161.

GHOSH, S.K., CHAKRABORTI, U. & MITRA, B. 2018: Aquatic beetle fauna of Dadra & Nagar Haveli, Daman & Diu, India with a taxonomic notes [sic!] on *Eretes griseus* (Fabricius 1781) of national collections in Zoological Survey of India. – The Pharma Innovation Journal 7 (11): 439–444.

GHOSH, S.K. & HEGDE, V.D. 2015: Diving beetles of Karnala Bird Sanctuary, Maharashtra, India (Coleoptera: Dytiscidae). – Records of the Zoological Survey of India 115 (1): 73–75.

GHOSH, S.K. & MANDAL, G. 2013: Aquatic beetles of Nayachar Island, East Midnapore District, West Bengal, India. – Records of the Zoological Survey of India 113 (3): 93–95.

GHOSH, S.K., MUKHOPADHYAY, P. & BISWAS, S. 2000: Insecta: Coleoptera: Gyrinidae, Dytiscidae and Hydrophilidae. – Zoological Survey of India, Fauna of Tipura, State Fauna Series 7 (3): 35–51.

GHOSH, S.K. & NILSSON, A.N. 2012: Catalogue of the diving beetles of India and adjacent countries (Coleoptera: Dytiscidae). – Skörvnöpparn, Supplement 3: 1–77.

GHOSH, S.K. & SWAPAN, K.D. 2016: Aquatic beetles of North Bengal, India (Coleoptera: Noteridae, Dytiscidae and Hydrophilidae). – Records of the Zoological Survey of India 116 (4): 431–437.

GSCHWENDTNER, L. 1937: Monographie der paläarktischen Dytiscidae. VIII. Dytiscinae (Eretini, Hydaticini, Thermonectini). – Koleopterologische Rundschau 23: 57–92.

GUÉORGUIEV, V.B. 1965a: Sur la faune des coléoptères hydrocanthares d'Iran. – Bulletin de l'Institut de Zoologie et Musée 19: 101–117. [in Russian]

GUÉORGUIEV, V.B. 1965b: Zoologische Ergebnisse der österreichischen Iran-Expedition 1949/50, Karakorum-Expedition 1958 und Irak-Expedition 1963. – Reichenbachia 5: 114–118.

GUÉORGUIEV, V.B. 1967: Österreichische entomologische Expedition nach Persien und Afghanistan. – Annalen des Naturhistorischen Museums Wien 70: 473–477.

GUÉORGUIEV, V.B. & ROCCHI, S. 1993: Contributo alla conoscenza dei Dytiscidae della Nuova Guinea (Coleoptera). – Frustula Entomologica (N.S.) 15 [1992]: 147–166.

GUIGNOT, F. 1950: Trente-quatrième note sur les hydrocanthares. – Entomologische Arbeiten aus dem Museum G. Frey 1: 270–272.

GUIGNOT, F. 1951: *Hydaticus* nouveaux de la collection Régimbart. – Revue française d'Entomologie 18: 21–24.

GUIGNOT, F. 1954a: Dytiscides récoltés par la Yale North Indian Expedition au Kashmir et au Pendjab. – Opuscula Entomologica 19: 221–224.

GUIGNOT, F. 1954b: Entomological results from the Swedish expedition 1934 to Burma and British India. Coleoptera: Haliplidae et Dytiscidae. Recueillis par René Malaise. – Arkiv för Zoologi 6 (32): 563–567.

GUIGNOT, F. 1956: Dytiscides récoltés par le Dr L. Biró en Nouvelle-Guinée & dans l'Île de Java. – Annales Historico-Naturales Musei Nationalis Hungarici 7: 51–60.

GUIGNOT, F. 1959: Dytiscides du Pakistan Occidental. – Bulletin de la Société Linnéenne de Lyon 28 (1): 8–11.

GUIGNOT, F. 1961: Revision des hydrocanthares d'Afrique (Coleoptera Dytiscoidea). Troisième partie. – Annales du Musée Royal du Congo Belge, Série 8vo (Sciences Zoologiques) 90: 659–995.

HÁJEK, J. 2006: The westernmost record of *Neptosternus circumductus*, and a review of Dytiscidae (Coleoptera) of Baluchistan (Iran, Pakistan). – Acta entomologica Musei Nationalis Pragae 46: 43–56.

HÁJEK, J. & BRANCUCCI, M. 2011: Order Coleoptera, family Dytiscidae, pp. 126–143. – In Harten, A. van (ed.): Arthropod fauna of the UAE IV. – Abu Dhabi: Multiply Marketing Consultancy Services, 832 pp.

HÁJEK, J. & FERY, H. 2004: The water beetles (Coleoptera: Hydradephaga) of Afghanistan with particular emphasis on the collection of the Moravian Museum Brno, Czech Republic. – Acta Musei Moraviae, Scientiae Biologicae 89: 25–51.

HÁJEK, J. & REITER, A. 2014: Adephagous water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae) of Yemen and Dhofar region (Oman) with description of a new *Hyphydrus* from Socotra Island. – Acta entomologica Musei Nationalis Pragae 54 (Supplementum): 63–99.

HENDRICH, L. 2003: *Austrodytes plateni* sp.n., and a faunal analysis of the Hydradephaga of the Pilbara region, Western Australia (Coleoptera: Dytiscidae, Gyrinidae, Haliplidae). – Koleopterologische Rundschau 73: 43–58.

HENDRICH, L. & BALKE, M. 1995: Die Schwimmkäfer der Sunda-Insel Bali: Faunistik, Taxonomie, Ökologie, Besiedlungsgeschichte und Beschreibung von vier neuen Arten (Insecta: Coleoptera: Dytiscidae). – Faunistische Abhandlungen, Staatliches Museum für Tierkunde Dresden 20 (5): 29–56.

HENDRICH, L., BALKE, M. & WEWALKA, G. 2010: Dytiscidae: Annotated checklist of Bidessini, Hydrovatini, Hyphydrini, Laccophilinae and Dytiscinae, pp. 171–194. – In Jäch, M.A. & Balke, M. (eds.): Water beetles of New Caledonia (part 1). – Monographs on Coleoptera 3: IV+449 pp.

HENDRICH, L., BALKE, M. & YANG, C.M. 2004: Aquatic Coleoptera of Singapore: Species richness, ecology and conservation. – Raffles Bulletin of Zoology 52 (1): 97–145.

HEYDEN, L. von 1898: Catalog der Coleopteren von Sibirien mit Einschluss derjenigen des östlichen Caspi-Gebietes, von Turcmenien, Turkestan, Nord-Thibet und des Amur-Gebietes. Nachtrag III. – Berlin: A.W. Schade, 24 pp.

HOSSEINIE, S.O. 1978: Aquatic Coleoptera from southwestern Iran (Haliplidae, Dytiscidae and Gyrinidae, with a note on Hydrophilidae). – Coleopterists Bulletin 32 (2): 167–175.

HUA, L.-z. 2002: List of Chinese insects. Vol. 2. – Guangzhou: Zhongshan University Press, 612 pp.

JACOBSON, G.G. 1908: Fasc. 6, pp. 401–480. – In: Zhuki Rossii i zapadnoy Evropy. – S.-Peterburg: A.F. Devrien, 1024 pp., lxxxiii pls. [in Russian]

JÄCH, M.A. & EASTON, E.R. 1998: Water beetles of Macao (Coleoptera), pp. 43–50. – In Jäch, M.A. & Ji, L. (eds.): Water Beetles of China Vol. II. – Wien: Zoologisch-Botanische Gesellschaft in Österreich and Wiener Coleopterologenverein, 371 pp.

JÄCH, M.A. & JI, L. 1995: Introduction, pp. 5−32. – In Jäch, M.A. & L. Ji, L. (eds.): Water Beetles of China. Vol. I. – Wien: Zoologisch-Botanische Gesellschaft in Österreich and Wiener Coleopterologenverein, 410 pp.

JÄCH, M.A. & JI, L. 1998: China Water Beetle Survey (1995 - 1998), pp. 1–23. – In Jäch, M.A. & Ji, L. (eds.): Water Beetles of China. Vol. II. – Wien: Zoologisch-Botanische Gesellschaft in Österreich and Wiener Coleopterologenverein, 371 pp.

JÄCH, M.A. & JI, L. 2003: China Water Beetle Survey (1999 - 2001), pp. 1–20. – In Jäch, M.A. & Ji, L. (eds.): Water Beetles of China. Vol. III. – Wien: Zoologisch Botanische Gesellschaft in Österreich and Wiener Coleopterologenverein, VI+572 pp.

JÄCH, M.A., LI, J., ZHANG, X. & GAO, M. 2012: A remarkable collection of aquatic and riparian beetles from Xiachayu, Zayü County, southeastern Tibet (Coleoptera: Gyrinidae, Noteridae, Dytiscidae, Spercheidae, Hydrophilidae, Heteroceridae, Limnichidae). – Koleopterologische Rundschau 82: 65–69.

JAISWAL, D., CHANDRA, K., RAO, C.A.N. & GHOSH, S.K. 2014: On a collection of aquatic beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Hydrophilidae and Hydrochilidae) of Madhya Pradesh, India. – Records of the Zoological Survey of India 114 (1): 89–103.

KAMIYA, K. 1938: A systematic study of the Japanese Dytiscidae. – Journal of the Tokyo Agricultural University 5: 1–68, 7 pls.

KAMIYA, K. 1940: Aquatic beetles of Manchoukuo. – Report of the Limnobiological Survey of Kwangtung and Manchoukuo. – Otzu 1940: 113–139. [in Japanese]

KHOLIN, S.K. & NILSSON, A.N. 2000: Biogeography of the Dytiscidae (Coleoptera) of Kamchatka: Preliminary note. – Natural History Research, Special Issue (Chiba) 7: 93–99.

KIREJTSHUK, A.G. 2001: Dytiscidae. – In Tsalolikhin, S.J. (ed.): Key to the freshwater invertebrates of Russia and adjacent lands 5: 1–836. [in Russian]

LAPORTE, F.L.N. de 1835: Études entomologiques, ou description d'insectes nouveaux; et observations sur la synonymie. Première partie. – Paris: Méquignon-Marvis Père et Fils, 159 pp., 4 pls.

LARSON, D.J. 1993: Ecology of tropical Australian Hydradephaga (Insecta: Coleoptera). Part 1. Natural history and distribution of northern Queensland species. – Proceedings of the Royal Society of Queensland 103: 47–63.

LARSON, D.J. 1997: Habitat and community patterns of tropical Australian hydradephagan water beetles (Coleoptera: Dytiscidae, Gyrinidae, Noteridae). – Australian Journal of Entomology 36: 269–285.

LAWRENCE, J.F., WEIR, T.A. & PYKE, J.E. 1987: Haliplidae, Hygrobiidae, Noteridae, Dytiscidae and Gyrinidae. – Zoological Catalogue of Australia 4: 321–366.

LEA, A.M. 1895: Descriptions of new species of Australian Coleoptera. Part II. – Proceedings of the Linnean Society of New South Wales (2) 10: 224–319.

LEE, D.-H. & AHN, K.-J. 2018: Insect fauna of Korea, Vol. 12, No. 22, Aquatic Coleoptera I, Arthropoda: Insecta: Coleoptera: Dytiscidae. – Incheon: National Institute of Biological Resources, Ministry of Environment, 160 pp.

LEGROS, C. 1972: Contribution a la faune de l'Iran. 23. Coléoptères Hydrocanthares. – Annales de la Société Entomologique de France (N. S.) 8 (3): 573–578.

LI, J. 1992: The Coleoptera fauna of northeast China. – Jilin Education Publishing House, 205 pp. [in Chinese]

MACLEAY, W.S. 1825: Annulosa Javanica, or an attempt to illustrate the natural affinities and analogies of the Insects collected in Java by Thomas Horsfield, M.D. F.L. & G.S. and deposited by him in the museum of the honourable East-India Company. Number I. – London: Kingsbury, Parbury & Allen, xii+50 pp., 1 pl.

MASTERS, G. 1886: Catalogue of the described Coleoptera of Australia. Part II. – The Proceedings of the Linnean Society of New South Wales 10: 583–672.

MILLER, K.B. & BERGSTEN, J. 2016: Diving beetles of the World. Systematics and Biology of the Dytiscidae. – Baltimore: Johns Hopkins University Press, 320 pp.

MILLER, K.B., BERGSTEN, J. & WHITING, M.F. 2009: Phylogeny and classification of the tribe Hydaticini (Coleoptera: Dytiscidae): partition choice for Bayesian analysis with multiple nuclear and mitochondrial protein-coding genes. – Zoologica Scripta 38 (6): 591–615.

MILLER, K.B. & NILSSON, A.N. 2003: Homology and terminology: Communicating information about rotated structures in water beetles. – Latissimus 17: 1–4.

MIWA, Y. 1931: A systematic catalogue of Formosan Coleoptera. – Contribution of the Entomological Laboratory, Taihoku Imperial University 32: 1–315.

MIWA, Y. 1932: Additional notes to "A systematic catalogue of Formosan Coleoptera. 1931". – Transactions of Natural History Society Formosa 22: 141–147.

MORI, M. & KITAYAMA, A. 2002: Dytiscoidea of Japan. – Osaka: Kankyo-Kagaku Ltd., 231 pp. [in Japanese]

MOTSCHULSKY, V. de 1856: Sur les collections coléoptèrologique de Linné et de Fabricius. – Études Entomologiques 5: 60–75.

MOTSCHULSKY, V. de 1861: Essai d'un catalogue des insectes de l'île Ceylan. – Bulletin de la Société Impériale des Naturalistes de Moscou 34 (2): 95–155.

MUKHERJEE, A.K. & SENGUPTA, T. 1986: Dytiscidae (Coleoptera: Insecta) of Silent Valley: Kerala, India with a description of a new species. – Records of the Zoological Survey of India 84 (1–4): 277–283.

MUKHOPADHYAY, P. & GHOSH, S.K. 2003a: Insecta: Coleoptera, family Gyrinidae and family Dytiscidae. – Zoological Survey of India, Fauna of Sikkim, State Fauna Series 9 (3): 19–33.

MUKHOPADHYAY, P. & GHOSH, S.K. 2003b: Insecta: Coleoptera (aquatic). – Zoological Survey of India, Fauna of Asan Wetland, Wetland Ecosystem Series 5: 15–17.

MUKHOPADHYAY, P. & GHOSH, S.K. 2004: Insecta: Coleoptera (aquatic), Adephaga: Fam. Haliplidae, fam. Gyrinidae and fam. Dytiscidae. – Zoological Survey of India, Fauna of Manipur, State Fauna Series 10: 359–370.

MUKHOPADHYAY, P. & GHOSH, S.K. 2007: Insecta: Coleoptera (aquatic), Adephaga: Fam. Gyrinidae and fam. Dytiscidae. – Zoological Survey of India, Fauna of Andhra Pradesh, State Fauna Series 5 (3): 439–459.

MUKHOPADHYAY, P. & GHOSH, S.K. 2010: Insecta: Coleoptera: Adephaga, family Gyrinidae and Dytiscidae. – Fauna of Uttarakhand, State Fauna Series 18 (2): 269–282.

MUKHOPADHYAY, P. & GHOSH, S.K. 2015: Insecta: Coleoptera: Adephaga: Fam. Haliplidae, Gyrinidae, Noteridae and Dytiscidae. – Zoological Survey of India, Fauna of Uttar Pradesh, State Fauna Series 22 (2): 461–474.

MUKHOPADHYAY, P., GHOSH, S.K., SAHA, S.K. & BISWAS, S. 2000: Insecta: Coleoptera: Gyrinidae, Dytiscidae and Hydrophilidae. – Zoological Survey of India, Fauna of Meghalaya, State Fauna Series 4 (5): 77–92.

NAKAJIMA, J., HAYASHI, M., ISHIDA, K., KITANO, T. & YOSHITOMI, H. 2020: Aquatic Coleoptera and Hemiptera of Japan. – Tokyo: Bun-ichi Sogo Shuppan, 352 pp. [in Japanese]

NAKANE, T. 1964: The Coleoptera of Japan (48) Family Dytiscidae (continued). – Fragmenta Coleopterologica Japonica 3: 9–12. [in Japanese]

NAKANE, T. 1990: The beetles of Japan (new series) 89. – Nature Insects 25 (1): 26–31. [in Japanese]

NILSSON, A.N. 1995: Noteridae and Dytiscidae: Annotated check list of the Noteridae and Dytiscidae of China (Coleoptera), pp. 35–96. – In Jäch, M.A. & Ji, L. (eds.): Water beetles of China, Vol. 1. Wien: Zoologisch-Botanische Gesellschaft in Österreich and Wiener Coleopterologenverein, 410 pp.

NILSSON, A.N. 2001: World Catalogue of Insects, Volume 3. Dytiscidae (Coleoptera). – Stenstrup: Apollo Books, 395 pp.

NILSSON, A.N. 2003: The faunistic records of Palearctic Dytiscidae given by G.G. Jacobson in his Beetles of Russia. – Latissimus 16: 1–16.

NILSSON, A.N. & HÁJEK, J. 2020a: Catalogue of Palearctic Dytiscidae (Coleoptera). Internet version 2020-01-01. – http://www.waterbeetles.eu/documents/PAL_CAT_Dytiscidae_2020.pdf.

NILSSON, A.N. & HÁJEK, J. 2020b: A World Catalogue of the family Dytiscidae, or the diving beetles (Coleoptera, Adephaga). Version 1.I.2020. – http://www.waterbeetles.eu/documents/W_CAT_Dytiscidae_2020.pdf.

NILSSON, A.N., WEWALKA, G., WANG, L.-J. & SATÔ, M. 1995: An annotated list of Dytiscidae (Coleoptera) recorded from Taiwan. – Beiträge zur Entomologie 45: 357–374.

OLIVIER, A.G. 1795: Entomologie, ou histoire naturelle des insectes, avec leurs caractères génériques et spécifiques, leur description, leur synonymie, et leur figure enluminée. Coléoptères. Tome troisième. – Paris: Lanneau, 557 pp., 65 pls. [each genus separately paginated].

ÖZGEN, İ., PRZEWOŹNY, M. & AYAZ, T. 2018: New faunistic records of water and riparian beetles (Coleoptera) from Turkey. – Munis Entomology & Zoology 13 (1): 285–287.

PEDERZANI, F. 2003: *Hydaticus satoi dhofarensis* n.ssp. from Oman (Insecta Coleoptera Dytiscidae). – Quaderno di Studi e Notizie di Storia Naturale della Romagna 17 (suppl.): 17–24.

PERTY, M. 1831: Observationes nonnullae in Coleoptera Indiae orientalis. – Monachii: Mich. Lindauer, 44 pp., 1 tab.

REDTENBACHER, L. 1867: Reise der österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859 unter den Befehlen des Commodore B. von Wüllerstorf-Urbair. Zoologischer Theil. Zweiter Band (1): Coleopteren. – Wien: Carl Gerold's Sohn, IV+249 pp., 5 pls.

RÉGIMBART, M. 1877a: Description de douze nouvelles espèces d'hydrocanthares recueillis à Manille par M. Baër [sic!]. – Bulletin bimensuel des Séances de la Société Entomologique de France 1877 (8) (Séance du 25 Avril): 99–100.

RÉGIMBART, M. 1877b: Description de douze nouvelles espèces d'hydrocanthares recueillis à Manille par M. Baer. – Annales de la Société Entomologique de France (5) 7, Bulletin des Séances: 78–80.

RÉGIMBART, M. 1878: Descriptions de dytiscides nouveaux de Manille. – Annales de la Société Entomologique de France (5) 7 [1877]: 355–362.

RÉGIMBART, M. 1888. Viaggio di Leonardo Fea in Birmania e regioni vicine. – Annali del Museo Civico di Storia Naturale, Genova (2) 6 (26): 609–623.

RÉGIMBART, M. 1891: Viaggio di Leonardo Fea in Birmania e regioni vicine. XXXIII. Énumération des Dytiscidae et Gyrinidae recueillis par M. Leonardo Fea, dans ses voyages en Birmanie et régions voisines. – Annali del Museo Civico di Storia Naturale, Genova (2) 10 (30): 537–554.

RÉGIMBART, M. 1892: Viaggio di Lamberto Loria nella Papuasia orientale. IV. Haliplidae, Dytiscidae et Gyrinidae. – Annali del Museo Civico di Storia Naturale, Genova (2) 10 (30) [1890–1891]: 978–997.

RÉGIMBART, M. 1899: Revision des Dytiscidae de la région Indo-Sino-Malaise. – Annales de la Société Entomologique de France 68: 186–367.

RÉGIMBART, M. 1900: Contribution a l'étude de la faune entomologique de Sumatra (Côte ouest – Vice-résidence de Païnan) (Chasses de M.J.-L. Weyers). – Annales de la Société Entomologique de Belgique 44: 147–148.

RÉGIMBART, M. 1903: Voyage de M. Maurice Maindron dans l'Inde méridionale (Mai à Novembre 1901). 1. Dytiscides, gyrinides et palpicornes. – Annales de la Société Entomologique de France 72: 331–339.

RIBERA, I., HERNANDO, C. & CIESLAK, A. 2019: Aquatic Coleoptera of North Oman, with description of new species of Hydraenidae and Hydrophilidae. – Acta entomologica Musei Nationalis Pragae 59 (1): 253−272.

ROCCHI, S. 1976: Ditiscidi del Bengla-Desh [sic] con descrizione di *Copelatus brivioi* n. sp. (Coleoptera Dytiscidae). – Bollettino della Società entomologica italiana 108 (8–10): 177–180.

ROCCHI, S. 1982: Dytiscidi raccolti nel Nepal dal Dr. Enrico Migliaccio e dal Dr. Guido Sabatinelli (Coleoptera, Dytiscidae). – Bollettino della Associazione Romana di Entomologia 35: 57–60.

ROCCHI, S. 1986: Ditiscidi di Birmania, Thailandia e Sri Lanka, con descrizione di due nuove specie (Coleoptera). – Bollettino della Società entomologica italiana 118 (1–3): 31–34.

ROCCHI, S. 2003: Dytiscidae collected in India during two entomological expeditions (1995, 1997) organized by the Zoological Museum "La Specola" of the University of Florence (Coleoptera, Dytiscidae). – Atti del Museo di Storia Naturale della Maremma 19 [2001]: 63–75.

SATÔ, M. 1961a: *Hydaticus vittatus* (Fabricius) and its allied species (Coleoptera: Dytiscidae). – Transactions of the Shikoku Entomological Society 7 (1–2): 54–64.

SATÔ, M. 1961b: Aquatic Coleoptera from Amami-Oshima of the Ryukyu Islands (II). – Akitu 10: 7–10.

SATÔ, M. 1966: Some species of aquatic Coleoptera from New Caledonia. – Bulletin of the Osaka Museum of Natural History 19: 1–8, pl. 1.

SATÔ, M. 1972: Some notes on Dytiscoid-beetles from Vietnam (Coleoptera). – Annales Historico-Naturales Musei Nationalis Hungarici 64: 143–153.

SATÔ, M. 1996: Aquatic Coleoptera of the Ryukyu Archipelago 1. – Coleopterists' News 116: 1–6. [in Japanese]

SATÔ, M., MORITA, S., OHBAYASHI, N., KIMURA, M., SAKAI, M., NOTSU, Y., KANENO, S. & HORI, Y. 1994: The insects fauna of the Tokara Islands of the Ryukyu Archipelago. – WWF Japan Science Report 2 (2): 251–309.

SCHÖNFELDT, H. von 1890: Ein Beitrag zur Coleopterenfauna der Liu-Kiu-Inseln. – Entomologische Nachrichten, Berlin 16: 168–175.

SCHÖNHERR, C.J. 1808: Synonymia Insectorum, oder: Versuch einer Synonymie aller bisher bekannten Insecten; nach Fabricii Systema Eleutheratorum & c. geordnet. Vol. 1. Eleutherata oder Käfer. Part 2. – Stockholm: C.F. Marquard, x+424 pp., 1 pl.

SEVERIN, G. 1890: Note sur les hydrocanthares du Chota-Nagpore. – Annales de la Société Entomologique de Belgique 34, Comptes Rendus: clxxxvi–cxciv.

SHARMA, R.M. & BAMO, R. 2012: Insecta: Coleoptera (Aquatic). – Zoological Survey of India, Fauna of Maharashtra, State Fauna Series 20 (2): 499–501.

SHARP, D. 1873: The water beetles of Japan. – Transactions of the Entomological Society of London 1873: 45–67.

SHARP, D. 1882: On aquatic carnivorous Coleoptera or Dytiscidae. – Scientific Transactions of the Royal Dublin Society (2) 2: 179–1003, pls. 7–18.

SHARP, D. 1884: The water-beetles of Japan. – Transactions of the Entomological Society of London 1884: 439–464.

SHARP, D. 1890: On some aquatic Coleoptera from Ceylon. – Transactions of the Entomological Society of London 1890: 339–359.

SHAVERDO, H.V., ESFANDRIANI, A., KHADEMPUR, A., NASSERZADEH, H. & GHODRATI, A. 2013: Diving beetles of Ahvaz City, Khuzestan Province, Iran – Koleopterologische Rundschau 83: 17–22.

SUPRAYITNO, N., NARAKUSUMO, R.P., RINTELEN, T. von, HENDRICH, L. & BALKE, M. 2017: Taxonomy and biogeography without frontiers – WhatsApp, Facebook and smartphone digital photography let citizen scientists in more remote localities step out of the dark. – Biodiversity Data Journal 5:e19938 (38 pp.).

VAZIRANI, T.G. 1953: On a collection of aquatic Coleoptera from the Mettur Dam, Salem District, Madras, with the description of a new species. – Records of the Indian Museum, Calcutta 50 [1952]: 423–428.

VAZIRANI, T.G. 1968: Contribution to the study of aquatic beetles (Coleoptera). 1. On a collection of Dytiscidae from the Western Ghats with descriptions of two new species. – Oriental Insects 1 [1967]: 99–112.

VAZIRANI, T.G. 1969a: Contribution to the study of aquatic beetles (Coleoptera) 2. A review of the subfamilies Noterinae, Laccophilinae, Dytiscinae and Hydroporinae (in part) from India. – Oriental Insects 2 [1968]: 221–341.

VAZIRANI, T.G. 1969b: Two new species and notes on other species of aquatic Coleoptera from Ceylon. – Spolia Zeylanica 31: 399–403.

VAZIRANI, T.G. 1972: Contribution to the study of aquatic beetles. 13. A collection of Dytiscidae from Nilgiri Hills, South India, with the description of a new species. – Proceedings of the Zoological Society of Calcutta 25: 117–122.

VAZIRANI, T.G. 1973a: Contributions to the study of aquatic beetles (Coleoptera) 11. On a collection of Gyrinidae, Dytiscidae, and Hydrophilidae from Andaman Islands. – Records of the Zoological Survey of India 67 [1972]: 81–85.

VAZIRANI, T.G. 1973b: Contribution to the study of aquatic beetles. 12. On a collection of Dytiscidae from Gujarat with description of a new species. – Records of the Zoological Survey of India 67 [1972]: 287–302.

VAZIRANI, T.G. 1974a: Dytiscidae collected at light in the Oriental region. – Indian Museum, Bulletin 9 (1): 41–44.

VAZIRANI, T.G. 1974b: Two new species of Dytiscidae (Insecta: Coleoptera) from India. – Indian Museum Bulletin 7 (1) [1972]: 16–20.

VAZIRANI, T.G. 1977a: Catalogue of Oriental Dytiscidae. – Records of the Zoological Survey of India. Miscellaneous Publication. Occasional Paper 6: 1–111.

VAZIRANI, T.G. 1977b: Contribution to the study of aquatic beetles (Coleoptera), 14. On a collection of Dytiscidae from Gujarat part 2. – Records of the Zoological Survey of India 73: 53–62.

VAZIRANI, T.G. 1977c: Notes on a collection of Dytiscidae (Coleoptera) from Maharashtra, with description of a new species. – Records of the Zoological Survey of India 73 (1–4): 123–133.

VAZIRANI, T.G. 1980: Dytiscidae: Coleoptera from Himachal Pradesh with description of a new species. – Bulletin of the Zoological Survey of India 3 (1–2): 27–30.

WATANABE, K. & KATO, M. 2017: Reproductive ecology of *Hydaticus satoi* Wewalka, 1975 under rearing condition. – Sayabane (New Series) 25: 36–41. [in Japanese]

WATTS, C.H.S. 1978: A revision of the Australian Dytiscidae (Coleoptera). – Australian Journal of Zoology, Supplementary Series 57: 1–166.

WATTS, C.H.S. 1985: A faunal assessment of Australian Hydradephaga. – Proceedings of the Academy of Natural Sciences Philadelphia 137: 22–28.

WATTS, C.H.S. 2002: Checklist and guides to the identification, to genus, of adults and larval Australian water beetles of the families Dytiscidae, Noteridae, Hygrobiidae, Haliplidae, Gyrinidae, Hydraenidae and the subfamily Hydrophiloidea (Insecta – Coleoptera). Cooperative Research Centre for Freshwater Ecology (Australia). – Identification and Ecology Guide 43: 1–110.

WEHNCKE, E. 1876: Neue Dytisciden. – Stettiner Entomologische Zeitung 37: 194–197.

WEWALKA, G. 1972: Dytiscidae und Hydrophilidae aus Nepal. – Koleopterologische Rundschau 50: 115–119.

WEWALKA, G. 1975a: Ergebnisse der Bhutan-Expedition 1972 des Naturhistorischen Museums in Basel. Coleoptera: Fam. Dytiscidae, unter Berücksichtigung einiger Arten aus benachbarten Gebieten. – Entomologica Basiliensia 1: 151–165.

WEWALKA, G. 1975b: Revision der Artengruppe des *Hydaticus vittatus* (Fabricius) (Dytiscidae, Col.). – Koleopterologische Rundschau 52: 87–100.

WEWALKA, G. 1982: Results of the Austrian-Indian hydrobiological mission 1976, to the Andaman Islands. Part IX, Dytiscidae (Col.). – Koleopterologische Rundschau 56: 115–125.

WEWALKA, G. 2015: Revision of the *Hydaticus* (*Prodaticus*) *sexguttatus* species group, and resembling species from the Palearctic, Oriental, Australian and Pacific Regions (Coleoptera: Dytiscidae). – Koleopterologische Rundschau 85: 7–55.

WEWALKA, G. 2016: Revision of the *Hydaticus* (*Prodaticus*) *pacificus* group of the Palearctic, Oriental and Australian Regions, and description of a new species of the *H.* (*P.*) *bihamatus* group (Coleoptera: Dytiscidae). – Koleopterologische Rundschau 86: 9–45.

WHITE, A. 1847: Nomenclature of coleopterous insects in the collection of the British Museum. Part II. Hydrocanthari. – London: Edward Newman, 59 pp.

WINKLER, A. 1924: Catalogus Coleopterorum regionis palaearcticae. – Wien: Winkler [1924–1932], [1 p.]+VII pp.+[1 p.]+1648 columns [2 per page]+[1 p.]+pp. 1650–1698 [columns 1–240 issued in 1924].

WU, C.F. 1937: Dytiscidae. – Catalogus Insectorum Sinensium 3: 197–224.

YANO, K., CHU, Y.I. & SATÔ, M. 1983: Faunal and biological studies on the insects of paddy fields in Asia. XI. Records on aquatic Coleoptera from paddy water in the world. – Chinese Journal of Entomology 3: 15–31.

YOON, I.-B. & AHN, K.-J. 1988: A systematic study of Korean Dytiscidae III. Colymbetinae and Dytiscinae. – Korean Journal of Entomology 18: 251–268.

ZAITZEV, F.A. 1915: Les coléoptères aquatiques de la collection Motschulsky. I. Haliplidae, Dytiscidae, Gyrinidae. – Ezegodnik Zoologiceskago Muzeja Akademii Nauk 20: 239–295. [in Russian]

ZAITZEV, F.A. 1953: Nasekomye zhestkokrylye. Plavuntsovye i vertyachki. – Fauna SSSR 4 (N. S. 58): 1–376. [in Russian]

ZENG, H. 1989: Taxonomy of Chinese Dytiscidae in the museums of China. – Abstract of Ph.D. thesis. Guang Zhou: University of Zhong-Shan: 8 pp. [in Chinese]

ZIMMERMANN, A. 1919: Die Schwimmkäfer des Deutschen Entomologischen Museums in Berlin-Dahlem. – Archiv für Naturgeschichte 83 A (12) [1917]: 68–249.

ZIMMERMANN, A. 1920: Dytiscidae, Haliplidae, Hygrobiidae, Amphizoidae. – In Schenkling, S. (ed.): Coleopterorum Catalogus, Vol. 4, Pars 71. – Berlin: W. Junk, 326 pp.

ZIMMERMANN, A. 1927a: Fauna sumatrensis. (Beitrag Nr. 45). Revision der Haliplidae et Dytiscidae von Sumatra. – Supplementa Entomologica, Berlin Dahlem 16: 1–44.

ZIMMERMANN, A. 1927b: Dr. E. Mjöberg's zoological collections from Sumatra. 7. Haliplidae and Dytiscidae. – Arkiv för Zoologi (A) 19 (13): 1–6.

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