

Revision of the species 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)

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Abstract

The species of the *Hydaticus (Prodaticus) pacificus* species group (Coleoptera: Dytiscidae) from the Palearctic, Oriental and Australian Regions are revised based on the aedeagal median lobes and the colour patterns of the dorsum. Six species and three subspecies, including three new species (*H. jaechi* sp.n., *H. pauli* sp.n. and *H. zetteli* sp.n.) are treated. One new species of the *H. (P.) bihamatus* group, *H. laosensis* sp.n., is also included herein because of its external similarity to *H. pacificus* AUBÉ, 1838.

Lectotypes are designated for *Hydaticus andamanicus* RÉGIMBART, 1899 (regarded here as a subspecies of *H. pacificus*), *H. pacificus* var. *ceylonicus* GUIGNOT, 1935, *H. pacificus* var. *lathamatus* RÉGIMBART, 1899 (= syn.n. of *H. pacificus pacificus*), *H. pacificus lunatus* RÉGIMBART, 1899, *H. suffusus* RÉGIMBART, 1892, and *H. discindens* WALKER, 1858 (= *H. pacificus* var. *ceylonicus* GUIGNOT, 1935 syn.n. = *H. sharpi* VAZIRANI, 1969 syn.n. = *H. orissaensis* NILSSON, 1999 syn.n.). *Hydaticus conspersus sakishimanus* NAKANE, 1990 is synonymized with *H. pacificus conspersus* RÉGIMBART, 1899.

Key words: Coleoptera, Dytiscidae, *Hydaticus*, new species, new records, taxonomy.

Introduction

Many species of the genus *Hydaticus* LEACH, 1817 from the Oriental and Australian Regions have not been revised since RÉGIMBART (1899), who, having at his disposal extensive material, did not study male genitalia. Revisions based on male genitalia were carried out on the *H. vittatus* group (WEWALKA 1975), the *H. fabricii* group (WEWALKA 1979), and the *H. sexguttatus* group (WEWALKA 2015).

Here, a part of a group of species is revised, which BALKE & HENDRICH (1992) and BALKE et al. (2005) termed *H. pacificus* group, defined by the distinct dorso-lateral lobes on the distal part of the aedeagal median lobe. According to BALKE et al. (2005) this group comprises *H. pacificus* AUBÉ, 1838, *H. suffusus* RÉGIMBART, 1892, *H. goryi* AUBÉ, 1838, *H. luczonicus* AUBÉ, 1838, *H. batchianensis* SHARP, 1882, *H. okalehubyi* BALKE & HENDRICH, 1992, and *H. dintelmanni* BALKE et al., 2005. MILLER et al. (2009: 609) named this group *H. luczonicus* group. WEWALKA (2015) divided this group into the *H. pacificus* and the *H. bihamatus* group based on the shape of the median lobe. In the *H. bihamatus* group the apex is attenuate and quite uniformly shaped (Figs. 14, 28) while it is truncate (Figs. 15–21, 23–27) or broadly rounded (Fig. 22) in the *H. pacificus* group. Most species of the *H. pacificus* and the *H. bihamatus* group can be separated only by the male genitalia. The *H. pacificus* group is distributed only in the south-eastern Palearctic, the Oriental and the Australian Regions.

According to MILLER et al. (2009) the tribe Hydaticini comprises two genera: *Hydaticus* and *Prodaticus* SHARP, 1882. However, I treat *Prodaticus* as a subgenus of *Hydaticus*, following the online world catalogue (NILSSON 2016) and MILLER & BERGSTEN (2014).

All species treated in this revision share the following characteristics: (i) elytral sculpture including three rows of impressions consisting of groups of punctures, the admedian one quite regular and dense, the intermediate one less dense and the lateral one indicated only by few impressions, additionally with a band of strong punctures along lateral margin; (ii) male pro- and mesotarsomeres I–III dilated, with suckers ventrally: nine on protarsomere I, seven on protarsomere II, six on protarsomere III, seven on mesotarsomere I and four on mesotarsomeres II and III each; (iii) male protarsomere I with a dense fringe of setae along basal margin and with a row of few accessory spinous setae on dorsal surface; protarsomere II with a field of short dense fine setae as part of a stridulation device on dorsal surface.

A key to the species of the *H. pacificus* group is not provided here, because the revision is based mainly on the shapes of the median lobes.

Material and methods

This revision is based on about 840 specimens, which are deposited in the following institutions and private collections:

ANIC	Australian National Insect Collection, Canberra, Australia
BMNH	Natural History Museum, London, UK
CAS	Coll. André Skale, Hof/Saale, Germany
CFP	Coll. Fernando Pederzani, Ravenna, Italy
CGW	Coll. Günther Wewalka, Vienna, Austria
CHF	Coll. Hendrik Freitag, Quezon City, Philippines
CHZ	Coll. Zettel, Wien, Austria
CJS	Coll. Jaroslav Šťastný, Liberec, Czechia
CLH	Coll. Lars Hendrich, Munich, Germany (property of NMW)
CLW	Coll. Liang-Jong Wang, Taipei, Taiwan
CNS	Coll. Nano Suprayitno, Denpasar, Indonesia
CPM	Coll. Paolo Mazzoldi, Brescia, Italy
CSR	Coll. Saverio Rocchi, Firenze, Italy
ISNB	Institut royal des Sciences naturelles, Brussels, Belgium
MNB	Museum für Naturkunde, Berlin, Germany
MNHN	Muséum national d'histoire naturelle, general collection, Paris, France
MNHN-CG	Muséum national d'histoire naturelle, Coll. Guignot, Paris, France
MNHN-CL	Muséum national d'histoire naturelle, Coll. Legros, Paris, France
MNHN-CO	Muséum national d'histoire naturelle, Coll. Oberthür, Paris, France
MNHN-CR	Muséum national d'histoire naturelle, Coll. Régimbart, Paris, France
NMB	Naturhistorisches Museum Basel, Switzerland
MZB	Museum Zoologicum Bogoriense, Cibinong, West Java, Indonesia
NML	National Museum of Natural History, Leiden, Netherlands
NMP	National Museum, Museum of Natural History, Prague, Czechia
NMW	Naturhistorisches Museum Wien, Vienna, Austria
OLM	Oberösterreichisches Landesmuseum, Linz, Austria
SDEI	Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany
SIW	Smithsonian Institution, Washington D.C., USA
SMF	Senckenberg Museum, Frankfurt/Main, Germany
ZSI	Zoological Survey of India, Calcutta, India
ZSM	Zoologische Staatssammlung München, Germany

Abbreviations: TL (total length of beetle), TL-h (total length without head), MW (maximum width of beetle).

Label data of type specimens and some historical specimens are cited in quotation marks, and comments are given in square brackets. A backslash (\) indicates separate labels.

The specimens 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 are not figured because they are not very useful for determination of species of this group.

Checklist of the species and subspecies of the *Hydaticus pacificus* group

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

<i>discindens</i> WALKER, 1858 [4]	Bhutan, India, Sri Lanka
<i>jaechi</i> sp.n. [3]	Indonesia (Sulawesi, Moluccas)
<i>pacificus andamanicus</i> RÉGIMBART, 1899 [1b]	India (Andaman Islands, Nicobar Islands)
<i>pacificus conspersus</i> RÉGIMBART, 1899 [1c]	China, Korea, Japan, Taiwan
<i>pacificus lunatus</i> RÉGIMBART, 1899 [1d]	Philippines, Malaysia (Sabah, Sarawak), Indonesia (Kalimantan)
<i>pacificus pacificus</i> AUBÉ, 1838 [1a]	India, Myanmar, China, Thailand, Cambodia, Laos, Vietnam, Malaysia (Malay Peninsula), Singapore, Indonesia (Sumatra to Kai Islands)
<i>pauli</i> sp.n. [6]	Papua New Guinea
<i>suffusus</i> RÉGIMBART, 1892 [5]	Indonesia (Papua), Papua New Guinea, Australia
<i>zettelii</i> sp.n. [2]	Philippines

Species and subspecies of the *Hydaticus pacificus* group

1a. *Hydaticus pacificus pacificus* AUBÉ, 1838

Dytiscus ruficollis FABRICIUS 1787: 189 (junior primary homonym); GMELIN 1790: 1946; OLIVIER 1791: 303; OLIVIER 1795: 15; FABRICIUS 1801: 261; TURTON 1802: 424; SCHÖNHERR 1808: 14; FABRICIUS 1810: 24; LATREILLE 1816: 210; LATREILLE 1829: 425; PERTY 1831: XI; GRAY 1831: 247; SCHAUM 1848: 336; MASTERS 1886: 597; BALFOUR-BROWNE 1939: 110.

Hydaticus ruficollis; HOPE 1838: 139; WHITE 1847: 12; CROTCH 1872: 205.

Hydaticus pacificus AUBÉ 1838: 177; WHITE 1847: 12; GEMMINGER & HAROLD 1868: 466; RÉGIMBART 1899: 314; RÉGIMBART 1902: 470 (partim); JACOBSON 1908: 433 (partim); ZIMMERMANN 1919: 226; ZIMMERMANN 1920: 223; WINKLER 1924: col. 234; ZIMMERMANN 1927: 36; ZIMMERMANN 1928: 185; GSCHWENDTNER 1937: 21 (partim); WU 1937: 220 (partim); KAMIYA 1938: 49; BALFOUR-BROWNE 1939: 110; FRANCISCOLO 1968: 58 (partim); VAZIRANI 1969a: 263 (fig. 7G); VAZIRANI 1969b: 400 (fig. 1d); VAZIRANI 1977: 79; ZENG 1989: 5; BALKE & HENDRICH 1992: 300; GUÉORGUIEV & ROCCHI 1992: 161 (partim); NILSSON 1995: 74 (partim); NILSSON, WEWALKA, WANG & SATŌ 1995: 369 (partim); HEBAUER, HENDRICH & BALKE 1999: 339; KIREJTSHUK 2001: 224; NILSSON 2001: 104 (partim); HUA 2002: 37 (partim); GHOSH & NILSSON 2012: 26 (partim); NILSSON 2016: 93 (partim).

Graphothorax ruficollis; MOTSCHULSKY 1856: 67.

Hydaticus bihamatus; CLARK 1864: 211 (partim); SHARP 1882: 656 (partim); BRANDEN 1885: 99 (partim); ATKINSON 1891: 145 (partim); GSCHWENDTNER 1937: 22 (partim).

Hydaticus banksii CROTCH 1872: 205 (replacement name).

Hydaticus pacificus var. *latihamatus* RÉGIMBART 1899: 314; ZIMMERMANN 1920: 223; NILSSON 2001: 104; NILSSON 2016: 93. (**syn.n.**)

TYPE LOCALITY of *Dytiscus ruficollis*: “Siam” [Thailand] (according to original description (FABRICIUS 1787: 189)).

TYPE LOCALITY of *Hydaticus pacificus*: Indonesia, Timor.

TYPE LOCALITY of *Hydaticus pacificus* var. *latihamatus*: Indonesia, Java.

TYPE MATERIAL of *Dytiscus ruficollis*: **Lectotype** ♂, designated by (BALFOUR-BROWNE 1939): “Dyt. Ruficollis Fabr. Mant. Ins. n. 6.” [handwritten white label with black margin] \ Holotypus [printed red label (by Wewalka 2016)] (BMNH Banks Collection).

TYPE MATERIAL of *Hydaticus pacificus*: **Holotype** ♂: “Coll. R. I. Sc. N. B. Indonesia [printed pink label] \ Coll. Chevrolat det. Sharp 82 Timor [handwritten grey label] \ *Hydaticus pacificus* Aubé p 177 14 Ind or. Timor. D Dehaan [large handwritten yellow label] \ det. Aubé 1838 \ *Hydaticus* [handwritten white label] \ *pacificus* mihi [handwritten grey label] \ TYPE [printed red label]” (ISNB).

TYPE MATERIAL of *Hydaticus pacificus* var. *latihamatus*: **Lectotype** ♀, by present designation: “Java Plaboa Ratoe J.B. Ledru [printed white label] \ *pacificus* v. *latihamatus* Rég. [handwritten white label] \ Dr. Régimbt vidit 1898 [printed white label] \ Lectotypus *Hydaticus pacificus* var. *latihamatus* Rég. Wewalka 2016 [printed red label]” (MNHN-CO). **Paralectotype** ♀: “Java orient. M. Ardjoeno [printed white label] \ Ex-Musaeo van Lansberge [printed white label] \ *pacificus* var. *latihamatus* n.var. [handwritten white label] \ Régimbt vidit 1898 [printed white label] \ Paralectotypus *Hydaticus pacificus* var. *latihamatus* Rég. Wewalka 2016 [printed red label]” (MNHN-CO).

ADDITIONAL MATERIAL EXAMINED:

INDIA: Assam: 1 ♂: Kaziranga, Pan Bari Forest, 100 m, 12.XI.1997, leg. V. Siniaev & S. Murzin (CJS).

MYANMAR: Sagaing Prov.: 2 ♂♂: Alaungdaw Katthapa N.P., Khaung Din stream, between 22°18.360'N 94°25.937'E and 22°19.650'N 94°25.768'E, ca. 450 m, 11.V.2003, leg. D. Boukal et al. (119) (NMW); 1 ♀: Alaungdaw Katthapa N.P., 22°19.094'N 94°28.823'E, ca. 350 m, 9.–10.V.2003, leg. D. Boukal et al. (118) (NMW).

Shan Prov.: 3 ♂♂, 2 ♀♀: NE Mintaingbin Forest Camp, puddles, 22°55.640'N 96°33.643'E, 1290 m, 14.–20.VI.2004, leg. H. Shaverdo (150) (CGW, NMW); 1 ♀: NE Mintaingbin Forest Camp, pond, 22°55.640'N 96°33.643'E, 1290 m, 14.–20.VI.2004, leg. H. Shaverdo (150a) (NMW); 1 ♂, 1 ♀: NE Mintaingbin Forest Camp, puddles, 20°55.097'N 96°33.805'E, 1274 m, 13.–17.VI.2004, leg. H. Shaverdo (147) (NMW); 1 ♂: N Aungban, half way Pindaya and Ye'ngan, puddle, 20°58.271'N 96°32.488'E, 1241 m, 24.VI.2004, leg. H. Shaverdo (145) (NMW); 1 ♂: Road Kalaw – Thazi, km 23, 20°42.378'N 96°30.218'E, 720 m, 24.X.1998, leg. H. Schillhammer (30) (NMW).

THAILAND: Chiang Mai Prov.: 1 ♀: N-Thailand, Chiang Mai, Sopping – Pai, 1800 m, 1.–8.VI.1993, leg. P. Pacholátko & L. Dembicky (NMW).

Phrae Prov.: 1 ♀: N-Thailand, Wang Chin Res., 17°932'N 99°5610'E, 160 m, leg. R. Ohnesorge (CAS).

Tak Prov.: 5 exs.: Sangkhlaburi, Thung Yai Naresuan N.P., pool in forest, 27.XII.1996, leg. P. Mazzoldi (CGW, CPM, CSR); 2 ♂♂, 2 ♀♀: Mae Ping, at light, 6.–10.IX.1991, leg. H. Malicky (CGW, NMW).

Phitsanulok Prov.: 1 ex.: Phu Hin Rongkla N.P., small stream near school of politics, 1250 m, 25.XII.1999, leg. P. Mazzoldi (CPM); 3 exs.: Thung Salaeng Luang N.P., pools near river, 600–700 m, 4.I.1997, leg. P. Mazzoldi (CGW, CPM, CSR).

Loei Prov.: 1 ex.: Phu Kradung N.P., stream between Ano Dat pond and Tham Sor Noe waterfall, 1250 m, 28.XII.1999, leg. P. Mazzoldi (CPM).

Kanchanaburi Prov.: 1 ex.: Sai Yok N.P., pools on road, 23.VII.1996, leg. P. Mazzoldi (CGW).

Phetchabun Prov.: 3 exs.: Nam Nao N.P., pool of stream near park head quarter, 1100 m, 2.I.1997, leg. P. Mazzoldi (CPM); 1 ♀: Nam Nao NP, 25.XI.1995, leg. H. Zettel (24) (NMW).

Nakhon Nayok Prov.: 1 ♂: Khao Yai NP., 16.XI.1988, leg. M.A. Jäch (6) (NMW).

Chanthaburi Prov.: 1 ♂: Khao Seap, XI.1981, leg. T. Lander (NMB).

Trat Prov.: 1 ♂, 1 ♀: O-Thailand, Ko Chang, Than Mayom, 8.XII.1990, leg. M.A. Jäch (10) (NMW); 1 ♂: O-Thailand, Ko Chang, Klong Prao, roadside ditch, 11.XII.1990, leg. M.A. Jäch (13-1) (NMW).

Surat Thani Prov.: 1 ♂: Koh Tao, 18.IX.1928, leg. H. Smith (SIW).

CAMBODIA: 4 ♂♂, 2 ♀♀: “Cambodia \ *Hydaticus pacificus* \ Determined by Dr. Regimbart” (MNHN); 1 ♀: SW Cambodia, 20 km SE Koh Kong, Tatai riv., 11°34'N 103°07'E, 50–300 m, leg. E. Jendek & O. Šauša (NMB).

LAOS: Luang Namtha Prov.: 2 ♀♀: Namtha – Muang Sing, 21°05'N 101°19'E, 900–1200 m, 5.–31.V.1997, leg. V. Kubáň (NMB).

Bokeo Prov.: 3 ♂♂: 5 km W Ban Toup, Bokeo Nature Reserve, 20°27–28'N 100°45'E, 500–700 m, 4.–18.V.2011, leg. M. Brancucci et al. (CGW, NMB).

Oudomxay Prov.: 1 ♀: Pak Beng, 19°53'37"N 101°07'5155"E, 450 m, 18.–27.V., leg. J. Kolibáč (NMB).

Luang Prabang Prov.: 3 ♂♂, 7 ♀♀: Thong Khan, 19°35'N 101°58'E, ~750 m, 11.–21.V.2002, leg. V. Kubáň (CGW, NMB).

Sayaboury Prov.: 1 ♂: Hongsa env., 19°40–44'N 101°20'E, 550–750 m, 2.–3.VII.2010, leg. D. Hauk (NMB).

- Vientiane Prov.: 2 ♂♂, 4 ♀♀: Vang-Vieng, 18°55'23"N 102°26'55"E, 300 m, 10.–15.V., & 1.–6.VI.2001, leg. J. Kolibáč (CGW, NMB); 1 ♂: Lao Pako env., 55 km NE of Vientiane, 1.–4.V.2004, leg. F. & I. Kantner (NMB).
- Bolikhamsai Prov.: 1 ♀: Ban Nape Kaew Nua Pass, small stream, ca. 600 m, 18.IV.–1.V.1998 (NMW); 2 ♂♂, 2 ♀♀: Nam Kading N.P., Tad Paloy campsite, 18°21'–23'N 104°09'E, 250–400 m, 24.–28.V.2011 \ NHMB Basel, Laos 2011 Expedition, M. Geiser, D. Hauk, A. Phantala & E. Vongphachan (CGW, NMB).
- Khammouane Prov.: 1 ♂: Ban Khoun Ngeun, 18°07'N 104°29'E, ~200 m, 24.–29.IV.2001, leg. V. Kubáň (NMB); 1 ♂: Nakai-Nam Theun N.P., Ban Navang env., 17°57'–59'N 105°13'–16'E, 600–750 m, 18.–21.V.2012 \ NHMB Basel, Expedition Laos, M. Brancucci, M. Geiser, K. Phanthavong & S. Xayalath (NMB); 1 ♂: Nakai vill. env., ca. 70 km NNE Muang Khammouan, 17°43'N 105°09'E, 500–600 m, 7.–25.V.2002, leg. M. Štrba (CLH).
- Champasak Prov.: 1 ♀: Ban Nam Touad env., near Xe Katamtok, 500–800 m, 15°06'N 106°35'–38'E, 8.–10.VI.2010, leg. M. Geiser & D. Hauk \ NHMB Basel, Laos 2010 Expedition, M. Brancucci, M. Geiser, D. Hauk (NMB).
- Attapeu Prov.: 1 ♀: Bolaven Plateau, 15 km SE Ban Houaykong, Nong Lom (lake) env., 15°02'N 106°35'E, 800 m, 18.–30.IV.1999, leg. E. Jendek & O. Šauša (CLH).
- VIETNAM: North Vietnam: 1 ♂: “Tonkin [N-Vietnam] Region DB Hoa-Binh” (MNHN); 1 ♂: “Tonkin [N-Vietnam] \ Samml. [collection] A. Zimmermann” (ZSM).
- South Vietnam: Gia Lai Distr.: 15 exs.: 40 km NW An Khe Buon Luoi, 620–750 m, 14°10'N 108°30'E, 28.III.–12.IV.1995, leg. P. Pacholátko & L. Dembicky (CGW, NMW); Lam Dong Distr.: 1 ♂, 2 ♀♀: 120 km NNE Ho Chi Min City, Cat Tien vill. env., II.1995 & 14.–18.VII.1996, leg. A. Napolov (CGW, CLH); 1 ♂: Nam Cat Tien N.P., 11°25'N 107°26'E, 24.–27.V.1996, leg. P. Pacholátko & L. Dembicky (NMB); 1 ♂: Dong Sai, Nam Cat Tien N.P., 17.–18.IX.1995, leg. L.-J. Wang (CGW); 1 ♂: Nam Cat Tien N.P., 11°26'N 107°26'E, 200 m, 17.–25.VI.1995, leg. H. Malicky (CLW); 1 ♂: Dong Nai Distr., Nam Cat Tien N.P., Dong trail near guesthouse, 11°26'20"N 107°25'42"E, light trap, leg. E. Grassó Mirade & N. Than Mahn (NML); Binh Thuan Distr.: 1 ♂: Hiep-Hoa, leg. J. Barbier (MNHN-CL).
- MALAYSIA (without distinct locality data): 2 ♂♂, 1 ♀: “Malacca” (MNHN-CR); 1 ♂: “Malacca \ Sharp Coll 1905-313 \ *Hydaticus arcuatus* var.” (MNHN); 4 ♂♂, 1 ♀: “Malacca Castelnau \ Sharp Coll 1905-313” (BMNH); 1 ♂, 2 ♀♀: “Malaya \ 67 56” (BMNH); 3 ♂♂: “Malay \ Casteln” (MNHN); 1 ♂: “Malacca \ Staudgr \ *pacificus* nec Sharp \ Dr. Régimbart vidit 1898” (MNHN-CO).
- Palau Pinang Prov.: 1 ♂: Pulau Pinang, 16.VII.1993, leg. F. Papi (CSR).
- Perak Prov.: “Dinding Ins. H. N. Ridley 1900-111 \ determined by Dr. R. Regimbart *Hydaticus pacificus* Aubé” (BMNH).
- Terengganu Prov.: 1 ♀: Terengganu, 27.–30.VI.1989, leg. M. Schilthuizen (NML).
- Pahang Prov.: 1 ♂: Cameron Highlands, Tanah Rata, 1400 m, X.1987, leg. L. Bartolozzi (CSR).
- Johor Prov.: 2 exs.: Road Mersing – Kluang, small stream in secondary forest, 3.I.1996, leg. P. Mazzoldi (CPM).
- SINGAPORE: 1 ♂, 6 ♀♀: “Singapore. H N Ridley” (MNHN).
- PHILIPPINES (doubtful locality data): 1 ♂, 1 ♀: “Philippin ? Jagor” (MNB); 1 ♂, 1 ♀: “Luzon Semper \ Hist.-Coll. (Coleoptera) Nr. 39971 *Hydaticus ruficollis* Fab. Luzon, Semper Zool. Mus. Berlin” (MNB).
- INDONESIA: Sumatra (without distinct locality data): 1 ♂: “Sumatra” (MNHN-CR); 1 ♂: “Coll. R. I. Sc. N. B. Sumatra Staudinger vendit \ Sumatra Volz S. G.” (ISNB); 1 ♂: “Sumatra \ Foerster” (MNHN-CR); 1 ♂: “Sumatra \ 12.II.[18]85 \ *Hydaticus pacificus* Aubé \ Coll. Kraatz Régimbart det.” (SDED); 1 ♂: “Sumatra, leg. Deyrolle” (MNB Hist.Coll. 40808).
- North Sumatra: 1 ♀: “Medan, Mjöb., Samml. [collection] A. Zimmermann” (ZSM); 1 ♂, 1 ♀: “Medan, 20 m, 16.IX. & 1.X.1921, leg. J.B. Corporaal” (NML); 6 exs.: Dolok Merangir, III.–IV.1981, V.–VI.1983, E.W. Diehl (NMB); 1 ex.: Prapat, 1400 m, 22.VI.1982, leg. E.W. Diehl (NMB); 2 ♂♂: “Bedagei int. Sumatra’s O.K. ± 600’ 2.de Sem. [18]89. I.Z. Kannegieter” (MNHN-CO); 1 ♂: “N.O. Sumatra, Medan, leg. Dr. Marx \ Collection Prof. Dr. C. Bosch” (SMF).
- West Sumatra: 1 ♀: Sangir, road side pond, 17.XI.1994, leg. N. Nieser (NML).
- Riau Prov.: 1 ♀: nr. Pekanbaru, 0°21.988'S 101°25.680'E, 20 m, shaded swamp, 3.X.2009, leg. M. Balke & D. Amran (SUM023) (M. Balke 3905) (ZSM).
- South Sumatra: 1 ex.: Bengkulu, 20 km S Muku Muko, primary forest, at light, 20 m, 16.VIII.1981, leg. D. Erber (MNB).
- Lampung Prov.: 1 ♂: SE coast, Laut Tador, 90 m, 3.IV.1951, leg. R. Straatman (NML).
- Nias: 1 ♂: “Is. Nias, 1897-98, U. Raap \ Museo Civ. Genova” (MNHN-CR); 1 ♂, 1 ♀: “Sumatra Nias \ German Mission” (BMNH); 1 ♀: S-Nias, 40 km N Telukdalam, 13.II.1990, leg. S. Schödl (10) (NMW).
- Siberut: 1 ♂: S Siberut, Salappa vill. env., 100 m, I.2005, collector unknown (NMP); 1 ♂: Siberut, Madobak, W Muarasiberut, 19.II.1991, leg. M.A. Jäch (24) (NMW).
- Enggano: 1 ♂: “Coll. R. I. Sc. N. B. Sumatra \ Indonesia Enggano I. ult. V.–VII. 1936 Boeah-Boeah Dr. J.K. de Jong” (ISNB).

Java (without distinct locality data): 17 ♂♂, 19 ♀♀: "Java, ex. J. Waterstradt 1904" (CFP, CGW, CSR, MNHN, MNHN-CO); 1 ♀: "Coll. R. I. Sc. N. B. Java Fruhstorfer" (ISNB); 1 ♀: "Java \ Hydatiscus pacificus v. latihamatus Rég. det. A. Zimmermann" (SDEI); 2 ♂♂, 5 ♀♀: "Ned. India Java leg. A. Koller \ coll. C.F. Drescher" (NML); 3 ♀♀: "Java Drescher IX.1917 G. Kloet \ coll F.C. Drescher" (NML).

West Java: 3 ♂♂, 1 ♀: "Coll. R. I. Sc. N. B. \ West Java Mts. Djampang Radjamundala 1200 m, X.1936 \ Dr. F. Guignot det. 1948, Hydatiscus pacificus Aubé" (ISNB); 1 ♂: "S W Java Tjiletchtsart II. 1937 N. E. Walsh" (MNHN); 2 ♀♀: "S. W. Java Genteng Bay ult. III. 1937 M. A. Lichtnek" (MNHN); 3 ♂♂, 1 ♀: "Cordilliere Sud, Java (Rouyer) \ pacificus Aubé var." (MNHN-CR); 1 ♂: "Museum Paris Java 1905" (MNHN).

Central Java: 1 ♀: "Tjilatjap [Cilacap], X.1970, leg. Drescher" (NML); 1 ♂: "Semarang, V.[19]33, leg. v. Doesburg" (NML); 1 ♂: "Nusa Kambangan, XII.1916, leg. Drescher" (NML).

East Java: 3 ♂♂, 3 ♀♀: Meru Betiri N.P., Sukamade env., 0–100 m, XII.1996, leg. S.T. Jákl (CGW, NMP); 1 ♂: "Surabaya and surroundings, 1927, leg. W.C. van Heurn" (NML).

Karimunjawa Islands: 1 ♀: "Karimon Djawa, 22.–30.XI.1930, M.A. Lieftinck \ pacificus Aubé Gschwendtner" (OLM).

Bali: 13 ♂♂, 14 ♀♀: Bali Barat N.P., VI.2002, leg. A. Riedel (1 ♂: M. Balke 3165) (CGW, ZSM); 1 ex.: Badung, Kuta Selatan, Desa Ungasan near Pecatu, ca. 250 m, ditch without vegetation beside road, 20.VI.2016, leg. N. Suprayitno (CNS); 38 exs.: Karangasem, Jalan Karangasem – Seraya, 160–300 m, restpools of rivulets, 2.–16.VI.2016, leg. N. Suprayitno (CNS, MZB).

Lombok: 13 ♂♂, 9 ♀♀: Senaru area, 08°19.326'S 116°24.989'E, 834 m, 23.IV.2011, leg. M. Balke (LOM004) \ (2 ♀♀: M. Balke 5198, 5199) (CGW, ZSM); 1 ♂, 1 ♀: Sugulan – Sembalun, 9.II.1988, leg. M.A. Jäch (23) (NMW); 1 ♀: N Suranadi, Sesaot Forest, 6.II.1988, leg. M.A. Jäch (18) (NMW); 1 ♂: N Lombok, Senaru Waterfall, 470 m, stream in forest, 13.X.1991, leg. H. Huijbregts & J. Krikken (NML).

Sumbawa: 2 ♂♂, 2 ♀♀: "Indonesia, Sumbawa, Colffs. \ Ex Musaeo van Landsberge \ pacificus Aubé" (MNHN-CR, MNHN-CO); 1 ♂: "Sumbawa" (MNHN-CR); 13 ♂♂, 18 ♀♀: Dompu – Empang, residual pools, 08°35.563'S 118°17.454'E, 90 m, 15.IX.2011, leg. M. Balke (SUMB06) (M. Balke 1 ♂: 4716, 1 ♀: 4715) (CGW, ZSM); 1 ♀: Lemongkat, Batu Lantee ("Batoe Lanteh") Mt., 400 m, 10.V.1927, leg. B. Rensch (MNB).

Sumba: 2 ♂♂: "Coll. R. I. Sc. N. B. Indonesia, Waimangura 21.8.1949. Mata Kori W. Sumba Dr. Bühler Dr. Sutter" (ISNB); 1 ♂, 1 ♀: "Coll. I. R. Sc. N. B. Indonesia, Prai Jawang O. Sumba Rende Wai 18.7.1949, leg. Dr. Bühler Dr. Sutter" (ISNB); 1 ♂, 2 ♀♀: "Soemba \ Ex Musaeo Van Landsberge" (MNHN-CO); 3 ♂♂, 3 ♀♀: Sumba, puddles in dry streambed, 09°38.569'S 119°41.581'E, 570 m, 27.XI.2011, leg. M. Balke (SUA08) \ (M. Balke 1 ♂: 4622, 1 ♀: 4623) (ZSM).

Timor: 1 ♂: "Timor, [18]84, leg. De Haan" (MNB, Hist Coll. 9769); 2 ♀♀: Soe, near Oehala Falls, 09°48.172'S 124°18.427'E, 699 m, 1.X.2011, leg. M. Balke (TIM02) \ (1 ♀: M. Balke 4514) (ZSM); 2 ♂♂, 3 ♀♀: Naikliu area, 09°58.425'S 123°41.439'E, 130 m, 3.X.2011, leg. M. Balke (TIM11) \ (1 ♀: M. Balke 4495) (CGW, ZSM); 1 ♀: "Timor \ Collection Prof. Dr. C. Bosch" (SMF).

Romang: 6 ♂♂, 5 ♀♀: "Molukken, Ins. Roma [Romang]" (CGW, NMB); 2 ♂♂, 1 ♀: "Molukken Ins. Boma [sic] [Romang]" (MNB).

Tanimbar Islands: Yamdena: 1 ♂, 2 ♀♀: Mams village, 21 km N of Saumlaki (NMP); Larat: 3 ♂♂, 2 ♀♀: "Larat-Jns. [Larat Island] (Tanimber J.)" (CGW, NMB).

Kai Islands: 1 ♂: "Key Isl. [Kai Islands]" (MNHN-CG); 1 ♂: "Kei Ins. [Islands], 28.V.1908, H. Merton \ Klein Kei [Kai Kecil], Doelahn \ Hydatiscus bihamatus Aubé \ Hydatiscus pacificus Aubé det. A. Zimmermann" (SMF).

DESCRIPTION: Habitus oblong-oval, broadest distinctly behind middle, moderately convex.

Measurements: TL: 14.1–16.6 mm; TL-h: 13.3–15.5 mm; MW: 7.9–9.7 mm.

COLOURATION (Figs. 1–3): Head yellowish- to reddish-brown, more or less extended dark-brown to black along and between eyes and on vertex. Pronotum yellowish- to reddish-brown, more or less extended dark-brown to black in middle of anterior and posterior margins and narrowly along rest of anterior and posterior margin. Elytron dark-brown to black with yellowish to reddish-brown, more or less extended marks consisting of: a humeral mark, a transverse band near base not reaching suture but connected to humeral mark, an irregular band along whole distance of lateral side, a postmedian mark, sometimes well developed and connected to lateral band, sometimes reduced to a small spot, and a more or less extended subapical mark often connected to lateral band and sometimes reduced to a small spot. Light-coloured lateral band and apical mark often containing dark longitudinal marks and irrorations mostly arranged in rows. Ventral side predominantly dark reddish-brown to black, pronotum and epipleura yellowish- to

reddish-brown. Antennae yellowish- to reddish-brown. Anterior and middle legs reddish-brown, hind legs dark-brown to black.

SCULPTURE: Head with fine dense punctation and scattered stronger punctures; additional strong punctures concentrated in two spots in anterior third and along eyes; without microreticulation. Pronotum with very fine, dense punctation and scattered stronger punctures; with strong punctures along anterior and near lateral margins and less distinct near posterior margin, absent in middle; with traces of very fine microreticulation. Elytron with very fine punctation and scattered stronger punctures; with fine microreticulation. Ventral surface: metacoxae and ventrite I with moderately dense punctation, scattered stronger punctures and few wrinkles; other ventrites with very fine punctation; with fine microreticulation.

MALE: Median lobe as in Figs. 15–17.

FEMALE: Colour and surface sculpture as in male. Pro- and mesotarsomeres not modified. Pronotum laterally with extended, deeply incised wrinkles almost reaching middle.

AFFINITIES: *Hydaticus pacificus pacificus* is quite variable regarding the elytral markings and the shape of the apex of the median lobe. It cannot be distinguished from *H. discindens*, *H. jaechi* and *H. zetteli* by external features but only by the median lobe. From *H. pauli* and *H. suffusus* it can be separated by different elytral markings and male genitalia. Most specimens of *H. pacificus pacificus* are on average slightly larger than *H. pacificus andamanicus* but have the same colouration and the same form of the median lobe. Differentiation of *H. pacificus pacificus* from *H. pacificus conspersus* and *H. pacificus lunatus* is mostly based on elytral markings. The colouration of *H. pacificus pacificus* is also very similar to many species of the *H. bihamatus* group but most species are distinctly smaller, only few species, e.g. *H. bihamatus* and *H. laosensis* sp.n., can be distinguished by the male genitalia only.

COMMENTS: BALFOUR-BROWNE (1939) stated that “The type of *D. ruficollis* is in the Banks Collection in the British Museum”. This specimen in the Banks Collection is probably the only specimen that ever existed. However, since the original description does not state the number of type specimens, the statement by BALFOUR-BROWNE (1939) has to be regarded as a lectotype designation (ICZN 1999: Art. 74.6).

Furthermore, BALFOUR-BROWNE (1939) stated that “The type shows that the correct position of this species is with *H. pacificus*, which will be the valid name, the Fabrician name being a homonym of *D. ruficollis* Degeer”. A study of the male genitalia confirmed the latter statement.

RÉGIMBART (1899) described three new variations; two of them, *H. pacificus* var. *conspersus* and *H. pacificus* var. *lunatus*, are treated here as subspecies and the third one, *H. pacificus* var. *latihamatus*, as a synonym of *H. pacificus pacificus*.

GUÉORGUIEV & ROCCHI (1992) recorded *H. pacificus* for New Guinea quoting GSCHWENDTNER (1937) and FRANCISCOLO (1968), but the occurrence of this species in New Guinea needs confirmation.

NILSSON (1995) recorded *H. pacificus* from China (Yunnan). These specimens most probably belong to *H. pacificus pacificus*.

HABITAT: In Myanmar Shaverdo collected specimens in the shallow water at the margin of a partly shaded pond (50 × 50 m large) without vegetation but with leaf litter, and in residual puddles of a small stream (30–40 cm wide) with a fine gravel bottom, and in small smelly dirty roadside puddles without vegetation but with decaying leaf litter and fig fruits. Mazzoldi found this species in Thailand in pools of streams, pools on a road, and pools near a stream. Zettl found the species in Thailand in deep pools of an almost dry rivulet. Balke collected specimens in Sumatra in a shaded waterhole in a swamp with cold water and thick leaf packs, in Lombok in

pools in a streambed, in Sumbawa in a pool of a rivulet (Fig. 29) and in Timor in a small pool near a water fall (Fig. 30).

DISTRIBUTION (Fig. 36): India: Assam; Myanmar; Thailand; China: Yunnan; Cambodia; Laos; Vietnam; Malaysia: Malay Peninsula; Singapore; ? Philippines; Indonesia: Sumatra, Java, Karimunjawa Islands, Nias, Siberut, Enggano, Bali, Lombok, Sumbawa, Sumba, Timor, Romang, Tanimbar Islands, Kai Kecil.

1b. *Hydaticus pacificus andamanicus* RÉGIMBART, 1899

Hydaticus andamanicus RÉGIMBART 1899: 319; ZIMMERMANN 1920: 218; GUIGNOT 1935: 130.

Hydaticus fractifer WALKER 1858; BALFOUR-BROWNE 1939: 113 (partim); VAZIRANI 1969a: 365 (partim); VAZIRANI 1970: 177 (partim); NILSSON 2001: 94 (partim); GHOSH & NILSSON 2012: 25; NILSSON 2016: 91 (partim).

TYPE LOCALITY: India, Andaman Islands.

TYPE MATERIAL: **Lectotype** ♂, by present designation: “Andaman Islands [handwritten white label] \ Sharp Coll. 1905-313 [printed white label] \ Lectotypus *Hydaticus andamanicus* Rég. Wewalka 2015 [red printed label]” (BMNH). **Paralectotype** ♂: “Andaman Islands [yellow round handwritten label] \ Sharp Coll. 1905-313 [printed white label] \ Paralectotypus *Hydaticus andamanicus* Rég. Wewalka 2012 [red printed label]” (BMNH).

ADDITIONAL MATERIAL EXAMINED:

INDIA: Andaman Islands: 1 ♂: “Andaman \ G. Lewis Coll. 1915-38 \ *Hydaticus bihamatus* var.” (BMNH); 1 ♂: “Andamanen \ leg. P. Roepstorff” (MNB).

Nicobar Islands: 1 ♂: Car Nicobar, Shompen Hut, 6°57.997'N 93°49.543'E, 3.IV.2012, leg. E.E. Jahamalar (ZSI); 4 ♂♂, 2 ♀♀: Car Nicobar, Campbell Bay, 6°58.473'N 93°55.548'E, 7.XII.2010, leg. E.E. Jahamalar [personal communication by Sujit Ghosh] (ZSI).

DESCRIPTION: Habitus as of *H. pacificus pacificus*.

Measurements: TL: 13.1–15.5 mm; TL-h: 12.4–14.5 mm; MW: 7.2–8.3 mm. On average smaller than *H. pacificus pacificus*.

COLOURATION (Fig. 4): Dark colouration on head and pronotum often more extensive than in specimens of *H. pacificus pacificus*. Elytral markings within the range of variability of *H. pacificus pacificus*. Colouration of ventral side and appendages as in *H. pacificus pacificus*.

SCULPTURE: Sculpture on dorsal and ventral surface as in *H. pacificus pacificus*. Hind tarsi more slender and ciliae on the hind margins of metatarsomeres shorter than in *H. pacificus pacificus*.

MALE: Median lobe as in Fig. 18.

FEMALE: Colour and surface sculpture as in male. Pro- and mesotarsomeres not modified. Pronotum laterally with extended, deeply incised wrinkles almost reaching middle [personal communication by Sujit Ghosh].

AFFINITIES: Specimens of *H. pacificus andamanicus* on average smaller, with more slender metatarsi and shorter ciliae on the hind margins of the metatarsomeres than specimens of *H. pacificus pacificus*. The dark colouration on head and pronotum is often more extended. The shape of the median lobe lies within the variability of *H. pacificus pacificus*. From other species of the *H. pacificus* group, *H. pacificus andamanicus* can be distinguished by the male genitalia.

COMMENTS: SHARP (1882) mentioned specimens from the Andaman Islands being “rather small, slender and depressed, with unusual slender posterior tarsi, and with a diminished development of the ciliae on the hind margin of their joints” but he did not provide a name for this variety. RÉGIMBART (1899), referring to SHARP (1882: 657), named this variety *anda-*

manicus. BALFOUR-BROWNE (1939) and subsequent authors treated *H. andamanicus* as a synonym of *H. fractifer* but study of the type specimens proved that it is different from *H. fractifer*.

Because of the minimal differences to *H. pacificus*, I regard *H. andamanicus* as a subspecies.

HABITAT: According to Ghosh (pers. comm.) specimens were found in a pool with clay bottom and in a water pit with gravel and sand substrate.

DISTRIBUTION (Fig. 36): India: Andaman Islands (South Andaman), Nicobar Islands (Car Nicobar, Great Nicobar).

1c. *Hydaticus pacificus conspersus* RÉGIMBART, 1899

Hydaticus pacificus var. *conspersus* RÉGIMBART 1899: 315; JACOBSON 1908: 433; ZIMMERMANN 1920: 223; WINKLER 1924: col. 234; FENG 1932–1933: 33; FENG 1933: 124; GSCHWENDTNER 1937: 21 (partim); WU 1937: 220.

Hydaticus pacificus; KAMIYA 1938: 49; VAZIRANI 1977: 79 (partim); YOON & AHN 1988: 257 (partim); NILSSON 1995: 74; NILSSON, WEWALKA, WANG & SATÔ 1995: 369 (partim).

Hydaticus pacificus conspersus; NAKANE 1964: 10; SATÔ 1970: 67; NILSSON 1995: 74; KIREJTSHUK 2001: 224; HUA 2002: 37.

Hydaticus conspersus; NAKANE 1990: 28; MORI & KATAYAMA 1993: 186; NILSSON 2001: 101; NILSSON 2016: 90.

Hydaticus conspersus sakishimanus NAKANE 1990: 29; NILSSON 1995: 74; KIREJTSHUK 2001: 224; NILSSON 2001: 101; NILSSON 2016: 90. (**syn.n.**)

TYPE LOCALITY of *Hydaticus pacificus* var. *conspersus*: Japan.

TYPE LOCALITY of *Hydaticus conspersus sakishimanus*: Iriomote Island.

TYPE MATERIAL of *Hydaticus pacificus* var. *conspersus*: **Holotype** ♂: “Japon [handwritten white label] \ *pacificus* Aubé v. *conspersus* R. [handwritten white label] \ Holotypus *Hydaticus pacificus* Aubé var. *conspersus* Rég. Wewalka 2009 [printed red label]” (MNHN-CR).

TYPE MATERIAL of *Hydaticus conspersus sakishimanus*: not examined, deposited in Hokkaido University Museum, Sapporo, Japan (NILSSON 2016).

ADDITIONAL MATERIAL EXAMINED:

CHINA: 1 ♀: “Chefoo [Shandong, Yantai, Zhefu] \ Collector C.F. Wu \ Coll Gschwendtner” (OLM); 1 ♀: “China Shantg [Shandong] \ *H. bihamatus*” (MNHN).

JAPAN: Iriomote Island: 1 ♂: Sonai, Taketomi-cho, 22.VI.1973, leg. N. Watanabe (NMB); 1 ♂: Ohara, 20.III.1977, leg. Y. Hori (CFP); 1 ♀: Akaida-Gawa, 14.VII.1964, leg. S. Ishida (CFP).

TAIWAN: 6 ♂♂, 7 ♀♀: “S. Formosa Taihanroku VI.[19]09, Sauter S.V.” (CGW, MNB); 1 ♂: Kaohsiung, Chiahhsien, 29.III.1995, leg. L.-J. Wang (CGW); 1 ♂: Taitung Prov., 20 km N Taitung, 22.87112°N 121.16184°E, 424 m, 13.V.2012, leg. W. Grosser (NMW).

DESCRIPTION: Habitus as of *H. pacificus pacificus*.

Measurements: TL: 14.5–16.6 mm; TL-h: 13.8–15.7 mm; MW: 8.3–9.6 mm.

COLOURATION (Figs. 5–6): Dark colouration on head less extended than in most specimens of *H. pacificus pacificus*. Pronotum as in *H. pacificus pacificus*. Pale elytral markings more extended on lateral sides but variable, with many dark irrorations. Colouration of ventral side and appendages as in *H. pacificus pacificus*.

SCULPTURE: Sculpture on dorsal and ventral surface as in *H. pacificus pacificus*.

MALE: Median lobe as in Fig. 19.

FEMALE: Colour and surface sculpture as in male. Pro- and mesotarsomeres not modified. Pronotum laterally with extended, deeply incised wrinkles almost reaching middle.

AFFINITIES: *Hydaticus pacificus conspersus* can only be distinguished from *H. pacificus pacificus* by the elytral markings. The shape of the median lobe lies within the variability of *H.*

pacificus pacificus. From other species of the *H. pacificus* group, *H. pacificus conspersus* can be distinguished by the male genitalia.

COMMENTS: RÉGIMBART (1899) based the description of *H. pacificus* var. *conspersus* on a single specimen from “Japan”. NAKANE (1990) treated *H. conspersus* as a distinct species and described a new subspecies, *H. conspersus sakishimanus*, from Iriomote Island. Specimens from Iriomote Island examined show no significant differences from the type specimen, and therefore I synonymize *H. conspersus sakishimanus* with *H. pacificus conspersus*.

Due to the slight differences to *H. pacificus* I regard *H. conspersus* as a discrete subspecies of *H. pacificus* and *H. conspersus sakishimanus* as a new synonym of *H. pacificus conspersus*.

HABITAT: Wang collected a specimen in a drainage along the road with sand bottom, clean water and fallen leaves.

DISTRIBUTION (Fig. 36): China: Shandong; Korea; Japan: Honshu (Tokyo, Aichi), Ryukyu Islands (Iriomote Is.); Taiwan.

1d. *Hydaticus pacificus lunatus* RÉGIMBART, 1899

Hydaticus pacificus var. *lunatus* RÉGIMBART 1899: 316; RÉGIMBART 1902: 470 (partim); ZIMMERMANN 1920: 223; ZIMMERMANN 1928: 185; GSCHWENDTNER 1937: 21; BALFOUR-BROWNE 1939: 110; BALKE & HENDRICH 1992: 300; NILSSON 2001: 101; GHOSH & NILSSON 2012: 26; NILSSON 2016: 93.

Hydaticus pacificus lunatus; BALKE, HENDRICH, MAZZOLDI & BISTRÖM 2002: 975.

Hydaticus pacificus; NILSSON & HÁJEK 2016: 21.

TYPE LOCALITY: Malaysia, Sabah, Kinabalu.

TYPE MATERIAL: **Lectotype** ♀, by present designation: “Kini [Kina] Balu Borneo [handwritten white label] \ *pacificus* Aubé v. *lunatus* Reg. [handwritten white labels] \ Lectotypus *Hydaticus pacificus* Aubé var. *lunatus* Rég. Wewalka 2016 [printed red label]” (MNHN-CR). **Paralectotypes**: 1 ♂: “Borneo [handwritten yellow label] \ Grabowsky [handwritten white label] \ *pacificus* nec Sharp \ *pacificus* var. *lunatus* n.var [handwritten white labels] \ Dr. Régimbt vidit 1898 [printed white label]” (MNHN, MNHN-CO); 3 ♀♀: “Borneo Sandakan Windrath [printed white label] \ Dr. Régimbt vidit 1898 [printed white label]” (MNHN, MNHN-CO, MNHN-CR); 7 ♂♂, 15 ♀♀: “Borneo Occ Pontianak 1898 [printed white label] \ [some specimens with additional printed white label]: Dr. Régimbt vidit 1898” (CGW, MNHN-CO, MNHN-CR, SIW); 2 ♂♂, 1 ♀: “Pontianak Borneo Holl. [printed white label] \ [1 ex.:] ♂ [printed white label] \ Cotype [printed red label]”. All paratypes are provided with printed red paralectotype labels (MNHN-CL, MNHN-CR).

ADDITIONAL MATERIAL EXAMINED:

PHILIPPINES, Balabac: 1 ♂: “Balabac Staudinger [printed white label]” (MNHN-CO).

MALAYSIA, Sabah: 1 ♂: “Banguey I. [Banggi Is.] Staudinger” (MNHN-CO).

Sarawak: 1 ♂: Sarawak, Bario env., Pa Ukat, 24.VI.2003, leg. J. Štátný (CJS).

INDONESIA, West Kalimantan: 4 ♂♂, 6 ♀♀: “Borneo Occ. Pontianak 1899” (MNHN-CO, SIW); 2 ♂♂, 1 ♀: “Borneo Occ. Pontianak 1899” (MNHN-CO); 1 ♂, 1 ♀: “Borneo Occ. Pontianak 1903” (MNHN); 1 ♀: “Borneo Occ. Pontianak 1906” (MNHN-CO); 5 ♂♂, 7 ♀♀: “Bornéo Occ. Riv. Sambey Près Ngabang J.B. Ledru 1897” (MNHN-CL, MNHN-CO).

Central Kalimantan: 1 ♀: “Borneo: Sampit. 16–17. i. 1954. A.H.G. Alston. B.M. 1954-414” (BMNH).

South Kalimantan: 2 ♀♀: “Südborneo, Banjarmasin, L.W. Schaufuss G.” (MNB); 2 ♀♀: “Südost-Borneo, Wolf v. Schönberg G.” (MNB).

East Kalimantan: 2 ♀♀: Kutai, 38 km N Balikpapan, Samboja, Wanariset Res. Station, 1°2'S 117°2'E, primary forest, Malaise trap, 60 m, 2.–5.III.1992 (CLW); 2 ♂♂: “SEst Borneo Samarinda” (MNHN-CO).

DESCRIPTION: Habitus as of *H. pacificus pacificus*.

Measurements: TL: 14.3–16.8 mm; TL-h: 13.4–15.6 mm; MW: 8.0–9.6 mm.

COLOURATION (Fig. 7): Colouration of head and pronotum as in *H. pacificus pacificus*. In most specimens the pale postmedian mark on elytron is distinctly enlarged. Colouration of ventral side and appendages as in *H. pacificus pacificus*.

SCULPTURE: Sculpture on dorsal and ventral surface as in *H. pacificus pacificus*.

MALE: Median lobe as in Fig. 20.

FEMALE: Colour and surface sculpture as in male. Pro- and mesotarsomeres not modified. Pronotum laterally with extended, deeply incised wrinkles almost reaching middle.

AFFINITIES: *Hydaticus pacificus lunatus* can be distinguished from *H. pacificus pacificus* and the other species of the group by the large pale postmedian elytral mark. Only few specimens of *H. pacificus pacificus* from different locations have similar elytral markings. The shape of the median lobe lies within the variability of *H. pacificus pacificus*. From other species of the *H. pacificus* group *H. pacificus lunatus* can be distinguished by the male genitalia.

COMMENTS: I regard *H. pacificus* var. *lunatus* (sensu RÉGIMBART 1899) as a subspecies, because it appears to be quite homogeneous due to the large pale postmedian elytral mark, but it is not yet clear if this status is justified.

I examined two males labelled “Balabac Staudinger” (MNHN-CO): One belongs to *H. zetteli* and the other to *H. pacificus lunatus*. Because of their external similarity females of the *H. pacificus* group from this island cannot be determined with certainty.

HABITAT: Šťastný collected a specimen in Sarawak in a pool on the edge of a secondary forest (Fig. 31).

DISTRIBUTION (Fig. 36): Philippines: Balabac; Malaysia: Sabah, Sarawak; Indonesia: Kalimantan.

2. *Hydaticus zetteli* sp.n.

Hydaticus pacificus RÉGIMBART 1899: 315 (partim); JACOBSON 1908: 433 (partim).

Hydaticus bihamatus; CLARK 1864: 211 (partim); SHARP 1882: 656 (partim); RÉGIMBART 1899: 317 (partim).

TYPE LOCALITY: Philippines, Mindoro, Puerto Galera, Tamaraw Beach.

TYPE MATERIAL: **Holotype** ♂: “PHIL.: Mindoro, 1992 W Puerto Galera Tamaraw Beach (19) 2.12., leg. H. Zettel [printed white label]” (NMW). **Paratypes**: Philippines (without distinct locality data): 4 ♂♂, 1 ♀: “Philippines [handwritten white label] \ [1 ♂] pacificus Aubé [handwritten white label]” (CGW, MNHN-CR); 1 ♂: “Philippines Ch. Semper [printed white label]”; 1 ♂: “Thorey \ Philippines [handwritten white label] \ Coll E. Wehncke [handwritten yellow label]” (MNHN-CO); 1 ♂: “Philip Islands [handwritten white label]” (MNHN); 1 ♀: “Ins. Phil \ bihamatus Esch [handwritten white label] \ Ex cab. Baden [printed white label]” (MNHN-CO); 1 ♂: “Philippines [round handwritten yellow label] \ Sharp Coll. 1905-313 [printed white label]” (BMNH); 1 ♀: “Philippine Islands [handwritten white label] \ Sharp Coll. 1905-313 [printed white label]” (CGW); 1 ♀: “H. bihamatus Esch Thorey Philippine I. [handwritten white label] \ 67-56 [printed white label]” (BMNH); 1 ♂, 1 ♀: “Ins. Philipp. [handwritten white label] \ Coll. Gärtner [printed white label]” (SDEI).

Luzon: 1 ♀: “Philippinen Luzon In. Zambales [printed and partly handwritten white label]” (MNB).

Samar: 1 ♂: “PHIL.: Eastern Samar, Taft, Bgy. San Rafael, small upland river, side pool, sand; sec. vegetation; c. 170m asl. 11°50'38"N 125°16'54"E 22.10.1992, leg. Mendoza (509t)M” [printed white label] (CHF).

Busuanga: 1 ♂: “PHIL.: Busuanga Isl., Busuanga; Salvacion Proper, “watershed”, lowld. creek; sec. forest.; residual pools, leaf litter, c. 50m asl, 12°07'38"N 119°56'26"E 23.12.1995, leg. Freitag (174)M” [printed white label] (CHF).

Palawan: 1 ♂: “Phil.: Palawan 1994 10 km NE Quezon Tumarbon riv., 3.-4.4., leg. H. Zettel (58) [printed white label]” (NMW); 1 ♂: “Palawan VII.2000 Brooke's Point [handwritten white label] \ coll. J. Hájek Prague Charles University [printed white label]” (NMP); 1 ♂: “Philippines V.-VI.1983 P. Arnaud \ Mt. Tuba S. Palawan Brook Point [printed white labels]” (MNB); 1 ♀: “Palawan, P. Princesa, Bgy. Bacungan, forest creek, 1 km S Nagtabon, sec. forest (heavy metal soil), side \ pools, 10 m, 28.viii.1995, 09°55'33"N 118°38'20"E, Freitag (Philippines 9881/188b (188b)M) [printed white labels] \ M. Balke 5449 [green printed white label]” (ZSM); 1 ♀: “PHIL.: Palawan, P. Princesa; Conception, Taranaban R.; c6 km W Highw., mount. riv., pool, bolder, gravel, CPOM; c. 150 m asl 10°02'30"N 119°00'45"E, 20.1.1995 leg. Freitag (16e)M [printed white label] \ M. Balke 3685 [printed

green label]" (ZSM); 1 ♀: "PHIL.:Palawan, P. Princessa; Conception, Taranaban Riv; 0.5km N Highw., mount. riv.; resid. pool, 10m asl 10°00'31"N 119°01'10"E, 30.4.1995 leg. Freitag (16)M \ *Hydaticus (Guignotites) sp. pacificus* group det Hendrich & Freitag 2008 [printed white labels]" (NMW).

Balabac: 1 ♂: "Balabac Staudinger [printed white label]" (MNHN-CO); 1 ♂, 1 ♀: "PHIL.: Balabac, Bgy. Catagupan, Catagupan Riv.; resid. pool; mud, leaves, algae, gravel; Coco plantation, 7°59'14"N 116°58'36"E 22.5.1994, leg. Freitag (82a)M \ *Hydaticus (Guignotites) sp. pacificus* group det Hendrich & Freitag 2008 [printed white labels]" (CGW, NMW); Balabac: 1 ♀: "Balabac. [printed white label] \ *bihamatus* var. \ intermédiaire à *pacificus* & *bihamatus* [handwritten by Régimbart]" (MNHN-CO); 1 ♀: "Balabac [handwritten white label] \ *bihamatus* Aubé var. [handwritten by Régimbart]" (MNHN-CR).

Negros: 1 ♀: "Phil.: Negros 1994 Mt. Canlaon, ca. 900 m Mambucal, 15.-16.3., leg. H. Zettel (39a) [printed white label]" (NMW).

Camiguin: 1 ♂: "Camiguin, W Mambajao, Katabawasan spring area, 350–400 m, 13./15.3.2010, leg. H. Zettel & C.V. Pangantihon (515)" [printed white label] (CHZ).

Mindanao: 1 ♂: "West Mindanao [printed white label] \ Philippines Ch. Semper [printed white label] \ *ruficollis* Fbr [handwritten white label]" (MNHN-CO); 1 ♂: "Mindanao, Thor Ins. Philip. [handwritten white label] \ 67-56 [printed white label]" (BMNH); 1 ♂: "Philippines: Mindanao, Davao, C. F. Baker. \ Brit. Mus. 1924 – 486 [printed white labels]" (BMNH); 2 ♂♂, 1 ♀: "Davao Mindanao Baker" [printed brown label] (CGW, SIW).

All paratypes are provided with printed red paratype labels.

DESCRIPTION: Habitus as of *H. pacificus* but often less convex.

Measurements: TL: 14.8–17.0 mm; TL-h: 13.8–15.7 mm; MW: 8.3–9.6 mm.

COLOURATION (Figs. 8, 35): Colouration of head and pronotum as in *H. pacificus pacificus*. Elytral markings within the range of variability of *H. pacificus pacificus*. Colouration of ventral side and appendages as in *H. pacificus*.

SCULPTURE: Sculpture on dorsal and ventral surface as in *H. pacificus*.

MALE: Median lobe as in Fig. 21; apex in lateral view distinctly rounded.

FEMALE: Colour and surface sculpture as in male. Pro- and mesotarsomeres not modified. Pronotum laterally with more or less extended, deeply incised wrinkles.

AFFINITIES: *Hydaticus zetteli* can only be separated with certainty from *H. pacificus*, *H. jaechi*, *H. discindens* and from species of the *H. bihamatus* group with similar elytral markings by the apex of the median lobe being distinctly rounded in lateral view.

HABITAT: Zettel collected the type specimen in a small rivulet near the sea, on Negros in pools near a brook and on Camiguin in shallow spring pools. Freitag found specimens on Palawan in almost stagnant sections (pools) of a forest river, in residual pools of a mountain river (Figs. 32–33), and on Balabac in a muddy residual pool in a coconut plantation.

ETYMOLOGY: This species is dedicated to Dr. Herbert Zettel, Naturhistorisches Museum Wien, Austria, who collected some of the type specimens.

DISTRIBUTION (Fig. 38): Philippines: Mindoro, Luzon, Samar, Busuanga, Palawan, Balabac, Negros, Camiguin, Mindanao.

3. *Hydaticus jaechi* sp.n.

Hydaticus pacificus RÉGIMBART 1899: 315 (partim); ZIMMERMANN 1920: 223 (partim).

Hydaticus bihamatus; CLARK 1864: 211 (partim); SHARP 1882: 656 (partim).

TYPE LOCALITY: Indonesia, North Sulawesi, Dumoga Bone N.P.

TYPE MATERIAL: **Holotype** ♂: “N-Sulawesi 1992 Dumoga Bone NP / Torout (14) leg. M.A. Jäch 21.IV [printed white label] \ Holotypus *Hydaticus* jaechi sp.n. Wewalka 2015 [printed red label]” (NMW). **Paratypes**: 1 ♂, 2 ♀♀ from the same locality (CGW, NMW).

Sulawesi (without distinct locality data): 1 ♂, 1 ♀: “Celebes [handwritten white label] Sharp Coll. 1905-313 [printed white label]” (BMNH); 1 ♀: “*Hydaticus bihamatus* ♂ D.S. Celebes, Wallace [handwritten white label] \ Sharp Coll. 1905-313 [printed white label]” (BMNH); 2 ♂♂, 1 ♀: “Celebes” [handwritten label] (MNHN, MNHN-CR); 2 ♂♂, 3 ♀♀: “Holländ. Indien \ Java? [probably Sulawesi] [printed white label] \ *Hydaticus pacificus* Aubé [handwritten white label]” (SDEI, ZSM).

Gorontalo Prov.: 2 ♀♀: “Toelabollo [Tulabolo] \ Celebes sept. [handwritten white labels]” (MNHN-CR); 1 ♂: “Rosenberg Toelabollo [Tulabolo] Celebes [printed partly handwritten white label] \ *pacificus* Aubé V. [handwritten white label]” (MNHN-CR); 1 ♂: “N-Sulawesi 1992 Dumoga Bone NP (20) Lombongo \ Gorontalo leg. S. Schödl 24.IV” [printed white label] (NMW).

North Sulawesi: 1 ♀: “N-Sulawesi 1992 Tasek Ria W Manado (6) leg. M.A. Jäch 13.IV.” [printed white label] (NMW); 2 ♀♀: “N-Sulawesi 1992 Mt. Klabat bei Airmadidi (9) leg. M.A. Jäch & S. Schödl 17.IV.” [printed white label] (NMW); 1 ♂, 1 ♀: “Sulawesi N Tangkoko nat.res. dendrotelm pools 24.X.2001 J. Šťastný lgt.” [printed white label] (CJS); 15 ♂♂, 7 ♀♀: “Indonesia: Sulawesi Utara, Dumoga-Bone N.P. 17 January – November 1985 \ [second label with several alternative label text versions:] ‘Lowland forest 200–300 m’, ‘Base camp area’, ‘190 m pools’, ‘Plot A ca. 200 m Lowland forest’, ‘Rothamsted light trap, site 2, 220 m H. Barlow [printed white labels]’, ‘Temporary pool at foot of fallen tree’, ‘temporary pool in sun [handwritten white label]’, ‘Flight interception trap [printed white label]’ \ R. Ent. Soc. Lond. Project Wallace B.M: 1985-10 [printed white label]” (BMNH, CGW); 2 ♂♂, 2 ♀♀: “Tondano Celebes” [printed white label] (MNHN-CG, MNHN-CL); 1 ♀: “Celebes S Menado \ ex Musaeo Van Lansberge \ Dr. Régimbert vidid 1898 [printed white labels]” (MNHN-CO).

Central Sulawesi: 3 ♂♂, 3 ♀♀: “Indon.: C-Sulawesi 28 km SE Palu 19.12. 01°07'S 119°59'E 850 m leg. Haft (3) 1994 [printed white label]” (CGW, NMW); 1 ♂, 2 ♀♀: “Indon.: C-Sulawesi 45 km SE Palu 01°11'S 120°08'E leg. Haft (5) 1994 [printed white label]” (NMW); 4 ♂♂: “Indonesia N-Sulawesi [C-Sulawesi] vic. Raja Basar b. Moutong, 15m N 0°29'78”, E 121°12'99” 28.II.2009 leg. A. Skale (016) [printed white label] \ DNA M. Balke 3704 [printed green label]” (CAS, ZSM); 10 ♂♂, 11 ♀♀: “Indonesia Sulawesi Tengah, Moutong, swampy pool, 43m, 3.IX.2011, 00 30.985N 121 16.860E Balke (SUL017) [printed white label] \ M. Balke 4814 and M. Balke 4813 [printed green label]” (CGW, ZSM); 3 ♂♂, 4 ♀♀: “Sulawesi Tengah: Nr. Morowali, Ranu River Area. 27.i.–20.iv.1980 \ at light \ M.J.D. Brendell B.M. 1980-280 [printed white labels]” (BMNH, CGW).

South Sulawesi: 1 ♂: “Indonesia: Sulawesi, W Soroako, 400 m, 31.vii.2007, 02.30.655S 121.19.671E, Zistler [printed white label] \ M. Balke 3586 [printed green label]” (ZSM); 1 ♂, 1 ♀: “Indonesia: S Sulawesi, Maros, karst, trib. of Anda River near waterfall, 4.ix.2003, 04.55.376S 119.42.658E, Rintelen [printed white label] \ M. Balke 4269 and M. Balke 4268 [printed green label]” (ZSM).

All paratypes are provided with printed red paratype labels.

ADDITIONAL MATERIAL EXAMINED:

INDONESIA: Banggai Islands: 1 ♀: “Banggai Arch. Polit Kecil, 1°28'S 123°34'E, 12.–19.XI.1980 \ M.J.D. Brendell, B.M. 1980-280” (BMNH).

Tiworo Islands: 1 ♂: “Tevor-Ins.” (NMB).

Buru: 2 ♂♂: “Binnenland Boeroe [Buru] Exp. Martin V [18]92” (CGW, MNHN); 2 ♂♂: “Wae Kibo Boeroe [Buru] Exp. Martin V [18]92” (MNHN); 1 ♂: “Buru, Station 1, 10.II.–16.III.1921, L. J. Toxopeus, Samml. [collection] A. Zimmermann” (ZSM).

Ambon: 3 ♂♂, 1 ♀: Waai, 4.II.1989, leg. M.A. Jäch (6) (CGW, NMW); 1 ♂, 1 ♀: Waai, 300–600 m, 6.II.1989, leg. S. Schödl (7) (NMW); 1 ♂: Lai Timur, Laihatu, Namalatu, 10.II.1997, leg. J. Horák (NMW); 1 ♂: “Amb. [Ambon] \ Wallace” (MNHN); 1 ♂: “Amboina \ Dohrn \ Coll. E. Wehncke” (MNHN-CO); 2 ♀♀: “Amboina Bowring N. Guinea” (BMNH, MNHN-CR); 1 ♂: “Amboina [Ambon] Wallace 1025 \ Sharp Coll. 1905-313” (BMNH); 1 ♀: “Amboina [Ambon] \ Sharp Coll. 1905-313 \ *Hydaticus arcuatus* var. *amboina*” (BMNH); 1 ♀: “Amboina [Ambon] Felder \ Hist.-Coll. (Coleoptera) Nr. 38354 *Hydaticus ruficollis* Fab. Amboina [Ambon] Faber Zool. Mus. Berlin” (MNB); 1 ♀: “Amboine [Ambon] J.B. Ledru 1899” (MNHN-CO).

Saparua: 8 ♂♂, 3 ♀♀: “Oeliasers Saparoea [Saparua] Exp. Martin I [18]92” (CGW, MNHN, MNHN-CO).

Seram: 1 ♂: Solea 12 km SE Wahai 16.X.–4.XI.1998 S. Bilý leg \ coll. Jiří Hájek, Prague Charles University \ *Hydaticus batchianensis* Sharp Hendrich det 1999 (NMP); 1 ♂: Wahai, 12.II.1989, leg. S. Schödl (10) (NMW); 1 ♂, 1 ♀: Roho-Kanikeh village, waterhole near Roho, 117 m, 7.IV.2012, 03°01.193'S 129°23.480'E, M. Balke (AMB06) \ M. Balke 5400 and M. Balke 5401 (ZSM); 1 ♀: “Ceram (Serang) Moluccas Isl.” (SIW); 1 ♂, 1 ♀: Sahulau env., 400 m, 5.–17.V.2013, local collectors (NMP).

Gorong Islands: 1 ♂: “Gorom-Ins.” [Gorom Island] (NMB).

DESCRIPTION: Habitus oblong-oval, broadest shortly behind middle, moderately convex.

Measurements: Type material: TL: 15.3–17.2 mm; TL-h: 14.2–15.6 mm; MW: 8.6–9.7 mm. Specimens of the “additional material” are on average smaller: TL: 14.5–15.9 mm.

COLOURATION (Fig. 9): Colouration of head and pronotum as in *H. pacificus pacificus* but pronotum with a complete dark-brown to black longitudinal line in middle. Elytral markings within the range of variability of *H. pacificus pacificus*. Colouration of ventral side and appendages as in *H. pacificus*.

SCULPTURE: Sculpture on dorsal and ventral surface as in *H. pacificus*.

MALE: Median lobe as in Fig. 22.

FEMALE: Colour and surface sculpture as in male. Pro- and mesotarsomeres not modified. Pronotum in specimens from Sulawesi laterally with more or less extended, deeply incised wrinkles. In specimens from Ambon, Saparua and Seram these wrinkles are missing.

AFFINITIES: With *H. discindens*, *H. pacificus andamanicus*, *H. suffusus* and *H. pauli*, *H. jaechi* has in common a complete dark-brown to black longitudinal line or band in the middle of the pronotum but can be separated with certainty from all species of the group and from species of the *H. bihamatus* group with similar elytral markings by the completely different median lobe, which lacks lateral lobes in the distal part.

COMMENTS: RÉGIMBART (1899) recognized that specimens from Sulawesi differ from typical specimens of *H. pacificus* in having a continuous longitudinal dark line in the middle of the pronotum, but he determined them as *H. pacificus*.

Specimens of *H. jaechi* from Sulawesi are on average larger than specimens from the other islands (Banggai, Tiworo, and Moluccas), and females from Sulawesi have more or less extended, deeply incised wrinkles on the pronotum laterally, which are missing in specimens from the Banggai Islands, Tiworo Islands and the Moluccas. However, no other significant differences in colouration, sculpture and male genitalia have been detected. Therefore they are treated as single species but only specimens from Sulawesi are included in the type series.

HABITAT: Jäch found specimens in N-Sulawesi in a shadowy pool aside a river and in a lowland pool in Ambon. Šťastný collected two specimens between roots in a small pool with dark water and full of mosquito larvae. Other specimens have been collected in swampy or temporary pools in lowland forest and at light. Balke collected specimens in half shaded swampy pools with muddy ground with leaves and some grasses at the edge in pasture land with coconut palms near the coast, and in Seram in waterholes on hard clay ground in a disturbed forest.

ETYMOLOGY: This species is dedicated to Dr. Manfred Jäch, Naturhistorisches Museum Wien, Austria, who collected the holotype.

DISTRIBUTION (Fig. 38): Indonesia: Sulawesi, Banggai, Tiworo, Buru, Ambon, Saparua, Seram, Gorom.

4. *Hydaticus discindens* WALKER, 1858

Hydaticus discindens WALKER 1858: 204; MOTSCHULSKY 1861: 109; GEMMINGER & HAROLD 1868: 465; VAZIRANI 1977: 76 (incorrect spelling: “*discidens*”).

“*Hydaticus dislocans* WALKER” (nomen nudum); BALFOUR-BROWNE 1939: 111.

Hydaticus bihamatus; CLARK 1864: 211 (partim); SHARP 1882: 994 (partim); BRANDEN 1885: 99 (partim); SHARP 1890: 346 (partim); ATKINSON 1891: 145 (partim); ZIMMERMANN 1919: 226 (partim); ZIMMERMANN 1920: 218 (partim).

Hydaticus pacificus; RÉGIMBART 1899: 316 (partim); RÉGIMBART 1902: 470 (partim); BALFOUR-BROWNE 1939: 111 (partim); NILSSON, WEWALKA, WANG & SATŌ 1995: 369 (partim); GHOSH & NILSSON 2012: 26 (partim); NILSSON 2016: 93.

Hydaticus fractifer; RÉGIMBART 1899: 316 (partim); MOTSCHULSKY 1861: 109 (partim).

Hydaticus pacificus var. *ceylonicus* GUIGNOT 1935: 130. (**syn.n.**)

Hydaticus ceylonicus; VAZIRANI 1969b: 403.

Hydaticus sharpi VAZIRANI 1969a: 264 (junior primary homonym); VAZIRANI 1977: 81; PEDERZANI 1982: 139; BALKE & HENDRICH 1992: 300; NILSSON 1999: 20; GHOSH 2012: 141 (= *H. pacificus andamanicus*, misidentified). (**syn.n.**)

Hydaticus orissaensis NILSSON 1999: 20 (replacement name for *H. sharpi* VAZIRANI, 1969a); NILSSON 2001: 104; ROCCHI 2001: 72; MILLER, BERGSTEN & WHITING 2009: 596 ff.; GHOSH & NILSSON 2012: 26; NILSSON 2016: 93. (**syn.n.**)

TYPE LOCALITY: Sri Lanka.

TYPE MATERIAL of *Hydaticus discindens*: **Lectotype** ♀, by present designation: “Ceylon [round handwritten grey label] \ *Hydaticus dislocans* Walker Ann. Nat. Hist (Type) [handwritten grey label] \ *dislocans* [handwritten white label] \ Type H. T. [round printed white label with red border] \ Lectotypus *Hydaticus discindens* Walker Wewalka 2011 [printed red label]” (BMNH). **Paralectotype** ♀: “Ceylon [round handwritten grey label] \ *Hydaticus dislocans* Walker Ann. Nat. Hist (Type) [handwritten grey label] \ Paralectotypus *Hydaticus discindens* Walker Wewalka 2011 [printed red label]” (BMNH).

TYPE MATERIAL of *Hydaticus pacificus* var. *ceylonicus*: **Lectotype** ♂, by present designation: “Ceylon [printed white label] \ ♂ \ Type [red printed label] \ Holotypus *Hydaticus pacificus* var. *ceylonicus* Guignot Wewalka 2012” (MNHN-CG). **Paralectotype** ♀: “Staud. Ceylan [white handwritten label] \ ♀ \ Allotype [red printed label] \ Paratypus *Hydaticus pacificus* var. *ceylonicus* Guignot Wewalka 2012” (MNHN-CG).

TYPE MATERIAL of *Hydaticus sharpi* (not examined): **Holotype** ♂: “ORISSA: Tangana Nalla, stn. 26, Nilgiri [Nilagiri] forest, Balasore Dist., 12.xii.1955 (*T.G. Vazirani*)” (ZSI). **Paratypes**: 3 exs. from same locality; 1 ex.: “ANDHRA: Eastern Ghats Survey, 10.–22.vi.1929 (*H.S. Pruthi*)” (ZSI) (VAZIRANI 1969a).

ADDITIONAL MATERIAL EXAMINED:

BHUTAN: 1 ♂: Beguna, 2730 m, 24.VIII.1976, leg. B. Bhakta (NMB); 1 ♀: Sargham, 1000 m, VIII.1982, leg. C.J. Rai (NMB).

INDIA: West Bengal: 1 ♀: “Sukna, E. Himalayas, 500 ft, in small pools of drying streamlet in forest, 17.III.[19]24 leg. B.N. Chopra \ Coll. Gschwendtner” (OLM).

Tamil Nadu: 1 ♂: “Nilgiri Hills, A.K.W. Downing, B.M. 1923-344 \ 838” (BMNH); 2 ♂♂, 1 ♀: Nilgiris, 15 km SE of Kotagiri, Kunchappanai, 900 m, 11°22'N 76°56'E, 7.–22.V.2000, leg. J. Rolčík (NMP); 2 ♂♂, 3 ♀♀: Nilgiri Hills, 11 km SE of Kotagiri, Kunchappanai, 900 m, 11°24'N 76°56'E, 3.–15.V.2002, leg. P. Pacholátko (CGW, NMB); 1 ♀: 15 km SE Kotagiri, Kunchappanai, 900 m, 11°22'N 76°56'E, 17.–28.XI.2003, leg. Z. Kejval & D. Boukal (3) (NMW); 1 ♀: Shevaroy Hills, Yercaud, Kiliyur Falls env., 11°47'N 78°12'E, 1400 m, 25.I.1999, leg. D. Boukal (84) (NMW); 1 ♂: “Madras [Chennai], Nedungayam, Nilambur, S.K. Pillai, 24.VIII., in stagnant water, Samml. [collection], A. Zimmermann” (ZSM).

Karnataka: 9 exs.: W. Ghats, 20 km W Talguppa, Jog Falls, 14°14'N 74°44'E, 500±200 m, 22.–28.V.2002, leg. P. Pacholátko (CGW, NMB); 2 ♂♂: Chikmagalur, 12.VI.2004, leg. K. Werner (M. Balke 5685 and 5686) (ZSM); 3 ♂♂, 1 ♀: Coorg, Kakkabe env., 12°15'N 75°35'E, 900–1200 m, 23.XII.1998, leg. D. Boukal (18) (CGW, NMW).

SRI LANKA (without specific data): 1 ♂: “Ceylon \ Coll. R. Mouchamps \ R. Mouchamps det 1956 *Hydaticus fractifer* Walk.” (ISNB); 1 ♂: “Ceylon \ coll. P.J. Roelofs” (ISNB); 2 ♂♂, 2 ♀♀: “Ceylon, Lewis \ Sharp Coll 1905-313 \ [1 ex.]: *H. bihamatus* var. *dislocans* Walk. Ind. comp.” (BMNH); 1 ♂, 1 ♀: “Ceylon \ Sharp Coll 1905-313” (BMNH); 1 ♂: “Ceylon \ 67.56” (BMNH); 1 ♂, 1 ♀: “Ceylon \ Nietner \ Fry 1905-100 \ [1 ex.] *Hydaticus fractifer* Walker, 1858 Det. AN Nilsson, 2001” (BMNH); 2 ♂♂, 2 ♀♀: “Ceylon 2de trim. 1889 (H. Fruhstorfer)” (MNHN, NMB); 1 ♂, 1 ♀: “Ceylon, Heyne” (MNB); 2 ♂♂, 3 ♀♀: “Ceylon \ *Hydaticus pacificus* Aubé Zim. det.” (MNB); 25 exs.: “Ceylan, Kannegieter, 1889” (CGW, NMB); 7 exs.: “Ceylan, Deschamps, 1889, Museum Paris” (NMB); 1 ♂, 2 ♀♀: “Ceylon \ Hyd. *pacificus* v. *fractifer*, Régimbart vid., Sammlung [collection] C. Müller” (ZSM); 1 ♂, 3 ♀♀: “Ceylon, Samml. [collection], A. Zimmermann” (ZSM); 1 ♂, 1 ♀: “Ceylon, Heuser, [18]91” (NMW); 2 ♂♂, 1 ♀: “Ceylon \ Coll. Gschwendtner \ *pacificus* Aubé det. Gschwendtner” (OLM); 1 ♂: “Ceylon, Yerbury, 92-59” (BMNH); 2 ♂♂, 1 ♀: “Ceylon” (SDEI); 2 ♂♂: “Ceylon” (NML).

North-Western Prov.: 1 ♂: “Puttalam, W. Horn, 1899, Samml. [collection], A. Zimmermann” (CGW, ZSM).

North-Central Prov.: 2 exs.: Polonnaruwa, 14.X.1982, leg. G. Duranton (NMB); 2 ♀♀: Polonnaruwa, 28.XI.1980, leg. M.A. Jäch (CGW, NMW); 1 ♂: "Anuradhapura, 1970" (CGW).

Western Prov.: 1 ♂: "Henarathgoda [Gampaha Distr.], 16.II.[19]02, leg. Dr. Uzel" (NMW); 1 ♀: "Gampaha Distr., 50 km N Colombo, V.1969, leg. P. Schmitz \ Mus. Frey, Tutzing" (CGW); 7 ♂♂, 6 ♀♀: "Negombo [Gampaha Distr.], Dr. W. Horn 1899 \ *Hydaticus pacificus* var. *fractifer* Walker \ Zimmermann det." (MNB, MNHN-CR, SDEI, SIW, ZSM); 1 ♀: "Colombo 5. 02 \ H.E. Andrewes Bequest. B.M.1922-221 \ *Hydaticus bihamatus* Aube = *dislocatus* Wik." (BMNH); 2 ♀♀: "Colombo, 2de trim. [18]89, I.Z. Kannegieter" (MNHN); 1 ♂: Colombo env., 15.II.1994, leg. G. Zelenka (NMW).

Central Prov.: 1 ♀: "Kandy, 15.–28.V.1901, M. Maindron \ *H. pacificus* v. *ceylonicus* Rég., det. Dr. Regimbart 1904" (MNHN); 4 ♂♂: "Kandy, 28.III. & 5.V. [19]02, leg. Dr. Uzel" (CGW, NMW); 1 ♂, 1 ♀: "Kandy (Simon)" (MNHN-CR); 1 ♂: "Bogawantalawa [Kandy Distr.], G. Lewis \ 4,900–3,200 ft. 28.II.–12.III.[18]82" (BMNH); 1 ♂: "Haragama [Kandy Distr.], VII.1910 \ 2866 \ H.E. Andrewes Bequest, B.M.1922-221" (BMNH); 7 ♂♂, 16 ♀♀: "Nalanda [Kandy Distr.], W. Horn, 1899 \ *Hydaticus pacificus* var. *fractifer* Walker \ Zimmermann det." (CGW, SDEI, ZSM); 2 ♂♂: Matale Distr., Dambulla env., 300 m, 19.IV.–9.V.1991, leg. J. Kolibáč (NMB, NMW); 1 ♀: "Weg [path] Dambulla Sigiria [Matale Distr.] 13.II.[19]06, H. Schoede S.G." (MNB); 1 ♀: Kegalle Distr., Kitulgala env., XII.1980, leg. M.A. Jäch (C45b) (NMW); 1 ♂: Nuwara Elyia env., 3.XII.1980, leg. M.A. Jäch (C26) (NMW); 1 ♀: "Nuwara Eliya (Simon)" (MNHN-CR).

Eastern Prov.: 1 ♀: "Trincomalee, XI.[19]06 \ 2866 \ H.E. Andrewes Bequest, B.M.1922-221 \ *Hydaticus bihamatus* Aub." (BMNH).

Southern Prov.: 2 ♀♀: Ratnapura env., 4.I.1981, leg. M.A. Jäch (C53) (NMW); 7 exs.: Ratnapura, 50–200 m, 29.V.1983 (CGW, NMB); 8 ♂♂, 3 ♀♀: "Belihul-Oya [Ratnapura Distr.], 2de trim. [18]89, I.Z. Kannegieter" (MNHN); 1 ♀: Ratnapura Distr., Sinharaja, 17.II.1997 (CFP); 4 ♂♂, 4 ♀♀: Badulla Distr., Koslanda env., Diyuluma Falls, 06°44'09.56"N 81°01'58.12"E, 760 m, 26.II.2012, leg. J. Šťastný (5322) (CJS, CLH, ZSM); 1 ♂: "Galle, Bainbridge, 5.VI.[19]07, Fletcher \ T.B. Fletcher, 1909-80" (BMNH).

DESCRIPTION: Habitus oblong-oval, broadest distinctly behind middle, moderately convex.

Measurements: TL: 13.1–16.5 mm; TL-h: 12.2–15.4 mm; MW: 7.1–9.0 mm.

COLOURATION (Fig. 10): Colouration of head and pronotum as in *H. pacificus pacificus* but pronotum with a complete dark-brown to black longitudinal band in middle. Elytral markings within the range of variability of *H. pacificus pacificus*. Colouration of ventral side and appendages as in *H. pacificus*.

SCULPTURE: Sculpture on dorsal and ventral surface as in *H. pacificus*.

MALE: Median lobe as in Figs. 23–25.

FEMALE: Colour and surface sculpture as in male. Pro- and mesotarsomeres not modified. Pronotum laterally with extended, deeply incised wrinkles almost reaching middle.

AFFINITIES: Together with *H. jaechi*, *H. pacificus andamanicus*, *H. suffusus* and *H. pauli*, *H. discindens* has in common a complete dark-brown to black longitudinal line or band in the middle of the pronotum but it can be separated with certainty from all species of the group and from species of the *H. bihamatus* group with similar elytral markings by the completely different median lobe (lateral lobes on distal part reaching the tip).

COMMENTS: SHARP (1882) treated *H. discindens* and *H. fractifer* in the index of his book as synonyms of *H. bihamatus* but some years later (SHARP 1890) he stated that: "it is more probable that there will prove to be several good species, each variable in colour". RÉGIMBART (1899) regarded specimens from Sri Lanka as a uniform variety of *H. pacificus*, characterized by the more slender and less convex habitus, and by a continuous longitudinal dark band in the middle of the pronotum, and therefore he assumed that they might be *H. fractifer*.

BALFOUR-BROWNE (1939) mentioned that "*H. discindens* is conspecific with *H. pacificus* AUBÉ, not with *H. bihamatus* AUBÉ as stated by ZIMMERMANN 1920: 218". The type specimens are labelled as '*dislocans*' (BALFOUR-BROWNE (1939) stated "that between labelling the specimen '*dislocans*' and the date of publication with the name '*discindens*' Walker changed the name without altering the label").

RÉGIMBART (1899) mentioned specimens of *H. pacificus* from Sri Lanka with slender and flat habitus and a well developed black longitudinal band in the middle of the pronotum. GUIGNOT (1935) described this “variety” as *H. pacificus* var. *ceylonicus* referring to two specimens in his collection: “Ceylan, 2 ex. dans ma collection” (GUIGNOT 1935: 130). One of these, which was labelled “Type” by Guignot, is here designated as lectotype.

The study of the male genitalia confirms that *H. pacificus* var. *ceylonicus* is a synonym of *H. discindens*.

Although the type material of *H. sharpi* was not examined there is no doubt about the synonymy with *H. discindens* because of the accurate description and aedeagus illustration provided by VAZIRANI (1969a).

HABITAT: Specimens have been collected in small pools of a drying forest streamlet and in stagnant water. Šťastný found specimens above a waterfall (Fig. 34) in rock pools and rifts with stagnant water (about 30–50 cm deep), under decomposed foliage.

DISTRIBUTION (Fig. 37): Bhutan; India: West Bengal, Orissa, Andhra Pradesh, Karnataka, Tamil Nadu; Sri Lanka.

5. *Hydaticus suffusus* RÉGIMBART, 1892

Hydaticus suffusus RÉGIMBART 1892: 992; RÉGIMBART 1899: 320; ZIMMERMANN 1920: 226; GUIGNOT 1956: 55; BALKE & HENDRICH 1992: 300; GUÉORGUEV & ROCCHI 1993: 162; NILSSON 2001: 106; NILSSON 2016: 95.

TYPE LOCALITY: Papua New Guinea, Rigo.

TYPE MATERIAL: **Lectotype** ♂, by present designation: “N GUINEA MER. RIGO Luglio 1889 L. LORIA [printed white label] \ suffusus [handwritten white label] \ Lectotypus Hydaticus suffusus Rég. Wewalka 2011 [printed red label]” (MNHN-CR). **Paralectotypes:** 2 ♂♂, 2 ♀♀ from same locality. All paralectotypes are provided with printed red paralectotype labels (MNHN-CO, MNHN-CR).

ADDITIONAL MATERIAL EXAMINED:

INDONESIA: Papua: 1 ♀: 90 km SW Sentani, Taja, 400 m, 7.XII.1997, leg. K. Černý (NMW).

PAPUA NEW GUINEA: 4 ♂♂, 2 ♀♀: Port Moresby, Mt. Lawes, 1300 ft., 5.III.–12.V.1963, leg. W.W. Brandt (ANIC, CGW).

AUSTRALIA: 1 ♂: “Queensland \ Gehr. W. Müller Vermächt. 1909 [printed blue labels] \ Coll. Gschwendtner [printed white label]” (OLM).

DESCRIPTION: Habitus oblong-oval, broadest shortly behind middle, moderately convex.

Measurements: TL: 13.4–15.2 mm; TL-h: 12.2–14.2 mm; MW: 7.4–8.6 mm.

COLOURATION (Fig. 11): Head predominantly dark-brown to black, yellowish- to reddish-brown along clypeus and two marks on vertex sometimes fused in middle. Pronotum yellowish- to reddish-brown, more or less extended dark-brown to black in middle and narrowly along anterior and posterior margin. Elytron in most specimens predominantly yellowish to reddish-brown with more or less extended dark-brown to black partly confluent irrorations mostly arranged in rows. Areas without irrorations forming a humeral mark, a transverse band near base not reaching suture but connected to humeral mark, an irregular lateral band along whole distance or sometimes interrupted in middle. Additionally, very often two lines near suture and two on disk free of irrorations. Ventral side as in *H. pacificus pacificus*.

SCULPTURE: Dorsal surface as in *H. pacificus pacificus*. Ventral surface: metacoxae with moderately dense punctation, ventrites almost impunctate; posterior part of metacoxae and ventrites I–III with distinct wrinkles; with fine microreticulation.

MALE: Median lobe as in Fig. 26.

FEMALE: Colour and surface sculpture as in male. Pro- and mesotarsomeres not modified. Pronotum laterally with more or less extended, deeply incised wrinkles.

AFFINITIES: *Hydaticus suffusus* is closely related to *H. pauli* having in common relatively small size and sculpture. The colouration is also very similar but on average yellowish- to reddish-brown colour on elytron predominates. It can be distinguished from the latter mainly by the median lobe. *H. suffusus* also resembles *H. okalehubyi* in size and colouration but can be distinguished by more ovoid and convex habitus, more distinct rows of impressions consisting of groups of punctures on elytron, and by the aedeagus.

COMMENTS: When BALKE & HENDRICH (1992) described *H. okalehubyi* they stated that this species “belongs to the *pacificus*-group and may perhaps prove to be the sister species of *H. suffusus*”. Here, *H. suffusus* is treated as a member of the *H. pacificus* group based on the form of the tip of the aedeagus, while *H. okalehubyi* is regarded as a member of the *H. bihamatus* group.

HABITAT: No information available.

DISTRIBUTION (Fig. 38): Indonesia: Papua; Papua New Guinea; Australia: Queensland (not marked in the distribution map).

6. *Hydaticus pauli* sp.n.

Hydaticus bihamatus; CLARK 1864: 211 (partim).

TYPE LOCALITY: Papua New Guinea, Morobe District.

TYPE MATERIAL: **Holotype** ♂: “New Guinea [Papua New Guinea]: Morobe Dist., Gusap, Markham, Valley c. 90 m W. of Lae, 1,000 ft. 27.–30.i.1965 [printed white label] \ M.E. Bacchus. B.M. 1965 -120 [printed white label] \ Stn. No. 162 [white printed label] \ Holotypus *Hydaticus pauli* sp.n. Wewalka 2015 [printed red label]” (BMNH). **Paratypes**: 3 ♂♂, 4 ♀♀ from same locality (BMNH, CGW); 1 ♂, 2 ♀♀: “Papua New Guinea: Madang, middle ramu [Ramu river], Akaraski, 50m, 12.iii.2007, 05.04.787S 144.43.137E, Kinibel (PNG 157) [printed white label]” (CGW, ZSM); 1 ♂: “Papua New Guinea: Madang, Trans Gogol, 30 m, ii.2008, 518.0915S 145.36 4532E, BRC leg. (PNG 179) [printed white label] \ M. Balke 4115 [printed green label]” (ZSM). All paratypes are provided with printed red paratype labels.

DESCRIPTION: Habitus oblong-oval, broadest distinctly behind middle, moderately convex.

Measurements: TL: 12.7–14.8 mm; TL-h: 11.9–13.8 mm; MW: 7.1–8.0 mm.

COLOURATION (Fig. 12): Head and pronotum very similar to *H. suffusus*. Elytron also similar to *H. suffusus* but dark-brown to black irrorations more confluent on disc; dark colour predominating in many specimens and light-coloured lines near suture and on disk are missing. Ventral side, antennae and legs as in *H. pacificus pacificus*.

SCULPTURE: Dorsal surface as in *H. pacificus pacificus*. Ventral surface very similar to *H. suffusus* but wrinkles on posterior part of metacoxae and ventrites I–III less distinct.

MALE: Median lobe as in Fig. 27.

FEMALE: Colour and surface sculpture as in male. Pro- and mesotarsomeres not modified. Pronotum laterally with more or less extended, deeply incised wrinkles.

AFFINITIES: *Hydaticus pauli* is closely related to *H. suffusus* having in common relatively small size, and sculpture. The colouration also very similar but on average dark-brown to black colour predominates on elytron. It can be distinguished from the latter mainly by the median lobe.

HABITAT: Balke collected specimens in a shaded pool with thick layers of leaves.

ETYMOLOGY: This species is dedicated to my nephew Paul Wewalka, Linz, Austria.

DISTRIBUTION (Fig. 38): Papua New Guinea.

New species of the *Hydaticus bihamatus* group

Hydaticus laosensis sp.n.

TYPE LOCALITY: Laos, Attapeu Province.

TYPE MATERIAL: **Holotype** ♂: “Laos, Attapeu prov., Ban Vang Tat Noi env., 900 m, 15°03–04'N/107°24'E, 10.–25.VI.2011 \ NHMB Basel, Laos 2011 Expedition, M. Brancucci, M. Geiser, D. Hauk, Z. Kraus, A. Phantala & E. Vongphachan [printed white labels] \ Holotypus *Hydaticus laosensis* Wewalka 2016 [printed red label]” (NMB). **Paratypes**: 3 ♂♂, 1 ♀ from same locality (CGW, NMB); 1 ♂, 2 ♀♀: “LAO [sic], Phongsaly prov., 21°21'N 102°03'E, Ban Sano Mai, 19–26.v.2004, ~1150 m, M. Brancucci leg. [printed white label]” (CGW, NMB). All paratypes are provided with printed red paratype labels.

DESCRIPTION: Habitus oblong-oval, broadest distinctly behind middle, distinctly convex.

Measurements: TL: 16.2–18.0 mm; TL-h: 15.1–17.2 mm; MW: 9.0–10.5 mm.

COLOURATION (Fig. 13): Head yellowish- to reddish-brown, more or less extended dark-brown to black along and between eyes and on vertex; sometimes dark colour predominating. Pronotum yellowish- to reddish-brown, more or less extended dark-brown to black in middle and narrowly along anterior and posterior margin; sometimes dark colour predominating. Elytron dark-brown to black with yellowish to reddish-brown, more or less extended marks consisting of: a humeral mark, often a transverse band near base not reaching suture but connected to humeral mark, often an irregular band all along lateral side, and a more or less extended subapical mark often connected to lateral band and sometimes reduced to a small spot. Light-coloured transverse band near base, lateral band and apical mark often containing dark longitudinal marks and irrorations mostly arranged in rows. Ventral side predominantly dark reddish-brown to black, pronotum and epipleura yellowish- to reddish-brown. Antennae yellowish- to reddish-brown. Anterior and middle legs reddish-brown, hind legs dark-brown to black.

SCULPTURE: Sculpture on dorsal and ventral surface as in *H. pacificus pacificus*. Hind tarsi more robust than in *H. pacificus pacificus*.

MALE: Median lobe as in Fig. 28.

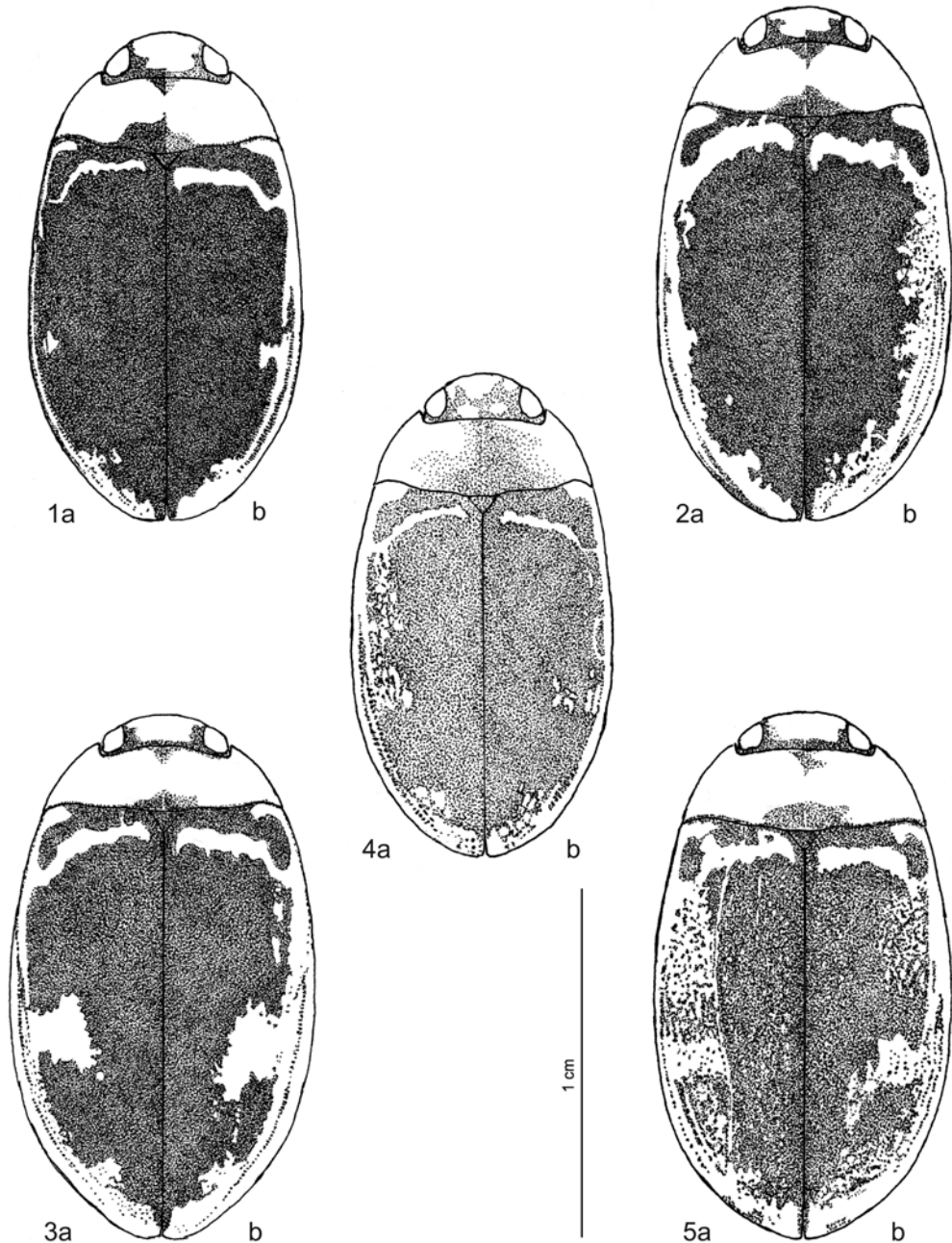
FEMALE: Colour and surface sculpture as in male. Pro- and mesotarsomeres not modified. Pronotum laterally with extended, deeply incised wrinkles.

AFFINITIES: *Hydaticus laosensis* very much resembles *H. pacificus pacificus* but can be distinguished by on average larger size, more convex habitus, much more extended dark colouration on pronotum and elytron, more robust mesotarsomeres and by the median lobe which is typical for the *H. bihamatus* group. From other species of the *H. bihamatus* group it can be distinguished by the larger size.

HABITAT: Unknown; according to Geiser (pers. comm.) the holotype was most likely collected at light.

ETYMOLOGY: The epithet is an adjective referring to the distribution of this species.

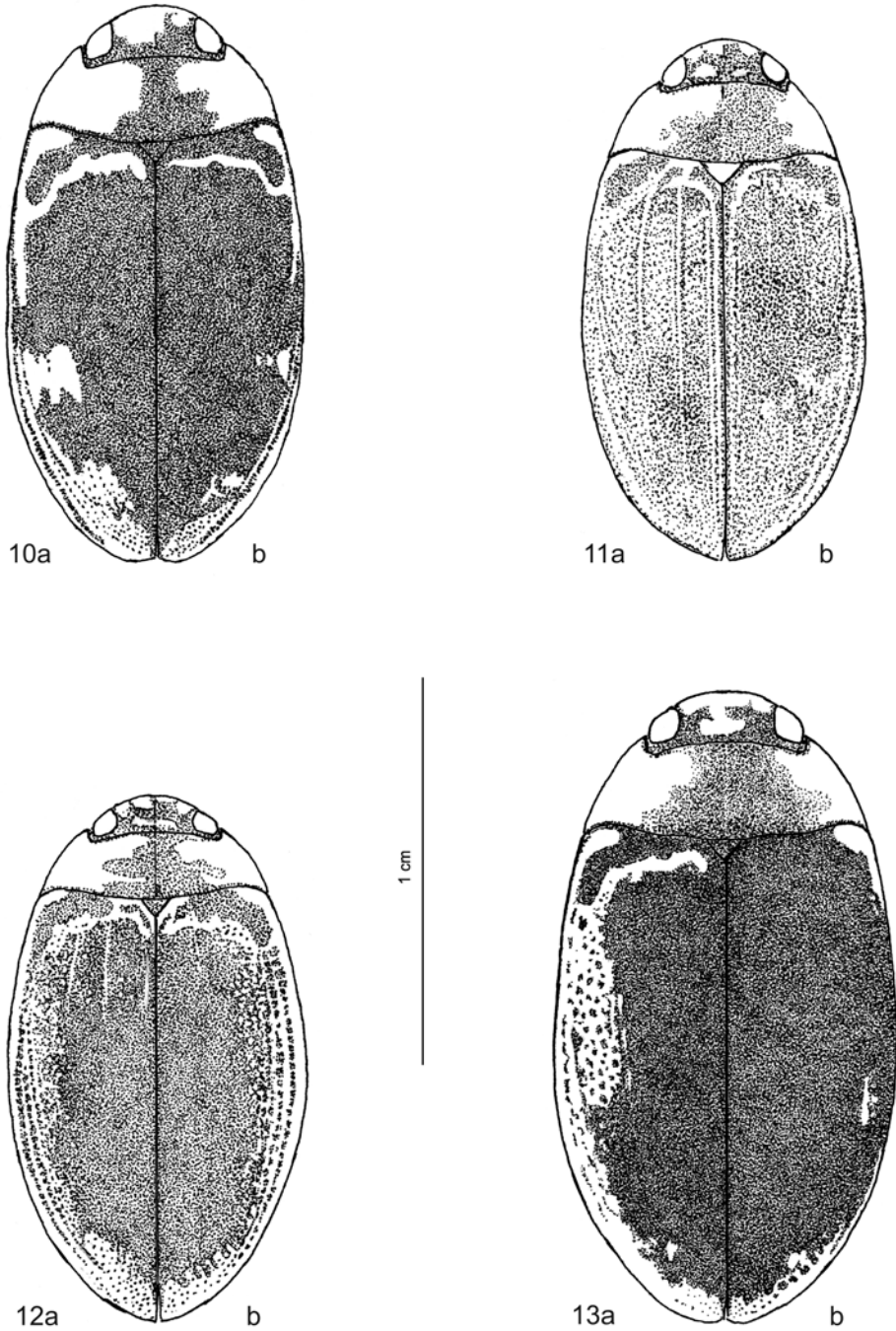
DISTRIBUTION (Fig. 37): So far known only from two provinces in Laos.



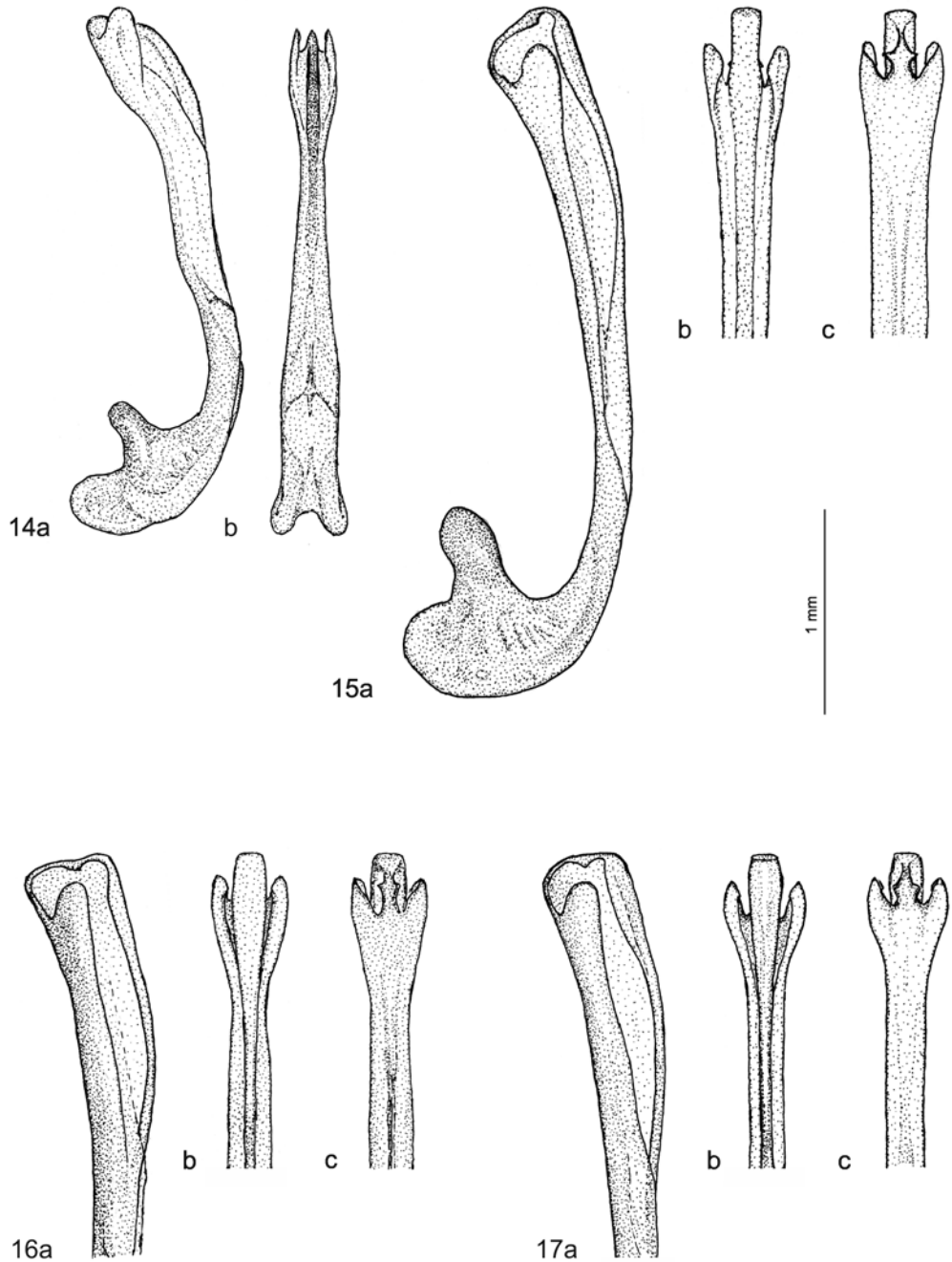
Figs. 1–5: Body outlines and variation of dorsal colour patterns of 1) *Hydaticus pacificus pacificus*, a) Timor, b) Thailand (lectotype of *Dytiscus ruficollis*); 2) *H. pacificus pacificus*, a) Java (lectotype of *H. pacificus* var. *latihamatus*), b) Lombok; 3) *H. pacificus pacificus*, a–b) Java; 4) *H. pacificus andamanicus*, a–b) specimens from Andaman Islands (lectotype and paralectotype of *H. andamanicus*); 5) *H. pacificus conspersus*, a) “Japan” (holotype of *H. pacificus* var. *conspersus*), b) Iriomote Island.



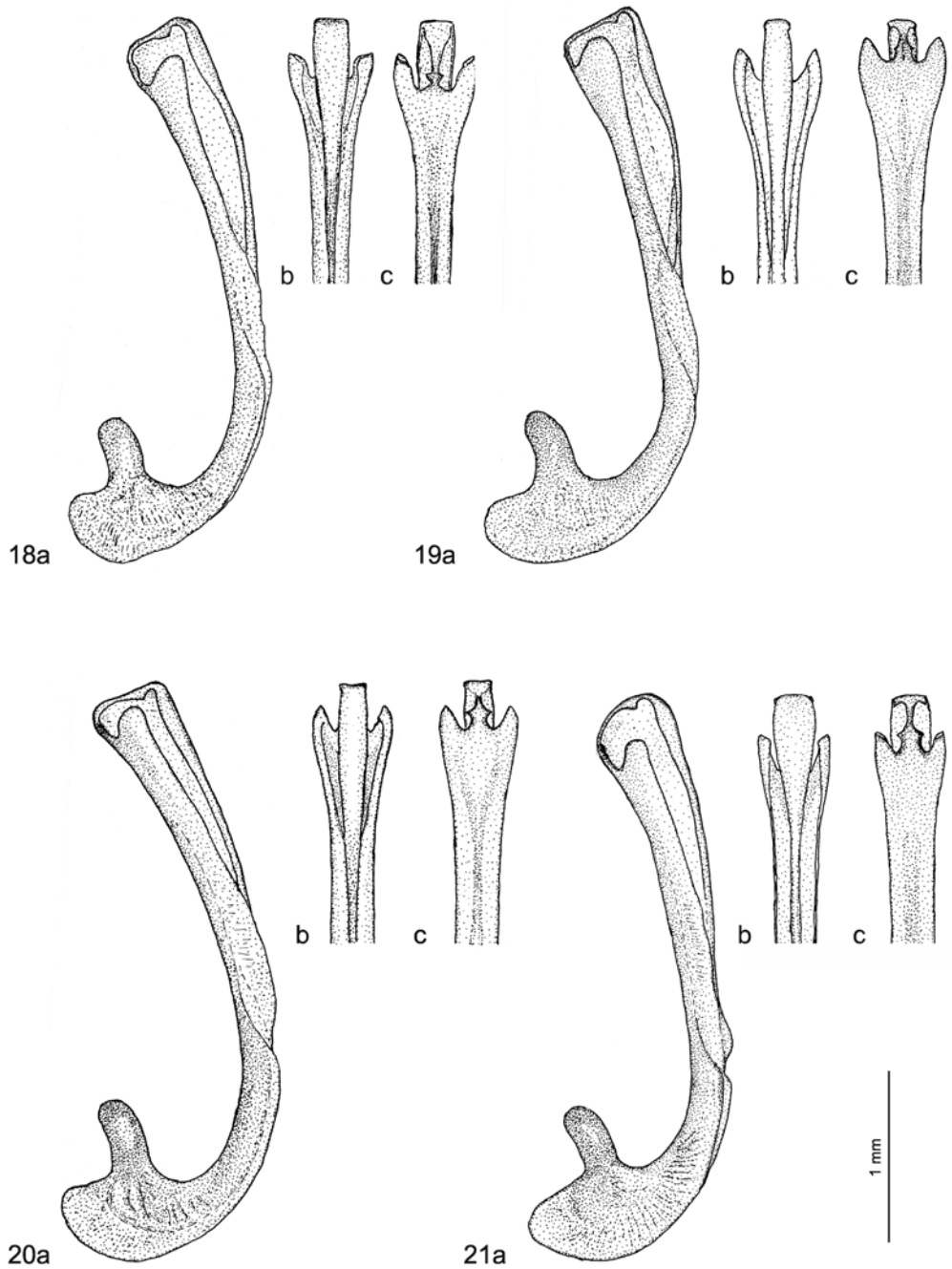
Figs. 6–9: Body outlines and variation of dorsal colour patterns of 6) *Hydaticus pacificus conspersus*, a) China, Shandong, b) Taiwan; 7) *H. pacificus lunatus*, a–b) Pontianak (West Kalimantan, Borneo); 8) *H. zetteli* (paratypes), a) Palawan, b) “Philippines”; 9) *H. jaechi*, a) Sulawesi (paratype), b) Ambon.



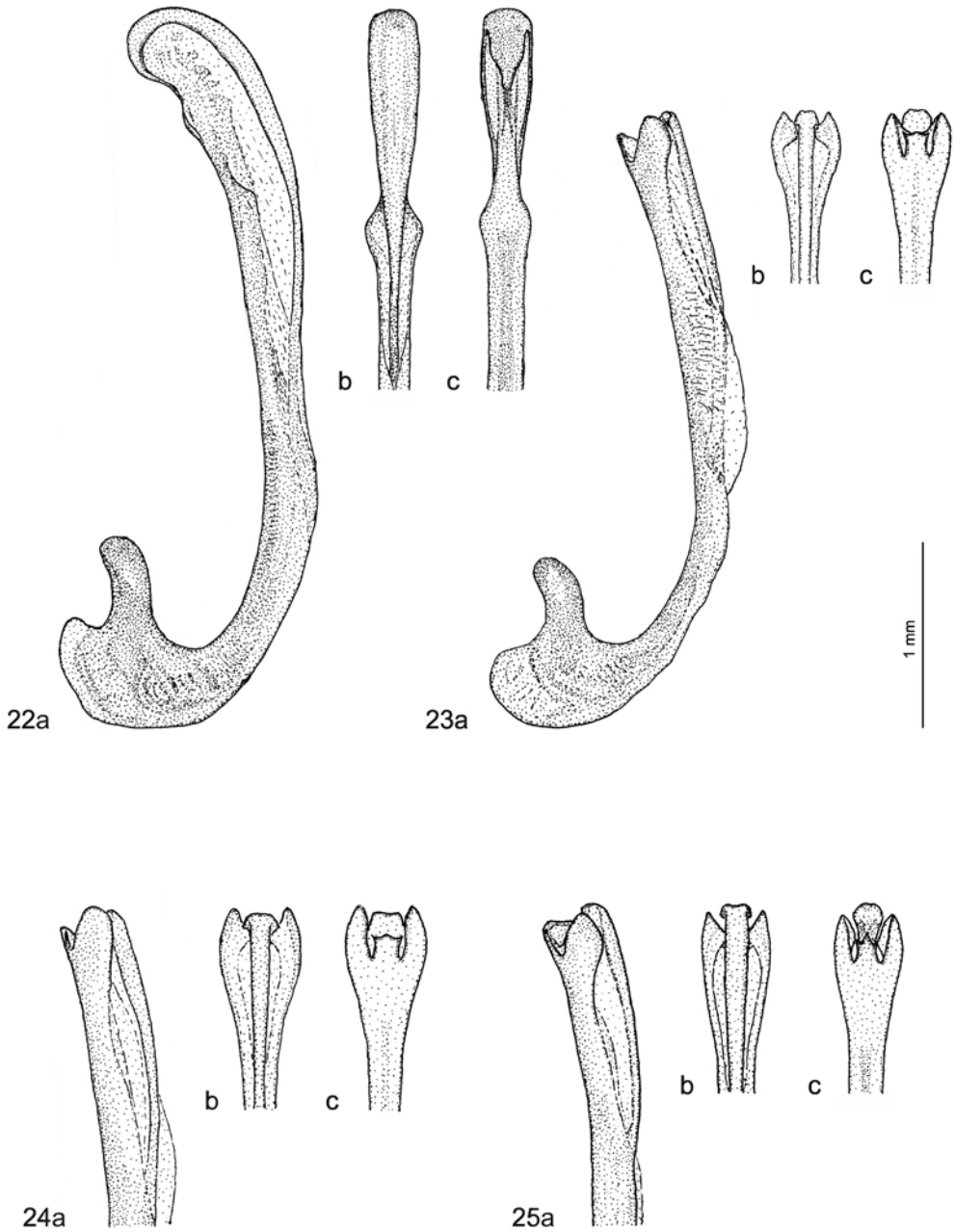
Figs. 10–13: Body outlines and variation of dorsal colour patterns of 10) *Hydaticus discindens*, a) Sri Lanka, b) Karnataka, India; 11) *H. suffusus*, a–b) Papua New Guinea (paralectotypes); 12) *H. pauli*, a–b) paratypes; 13) *H. laosensis*, a–b) paratypes.



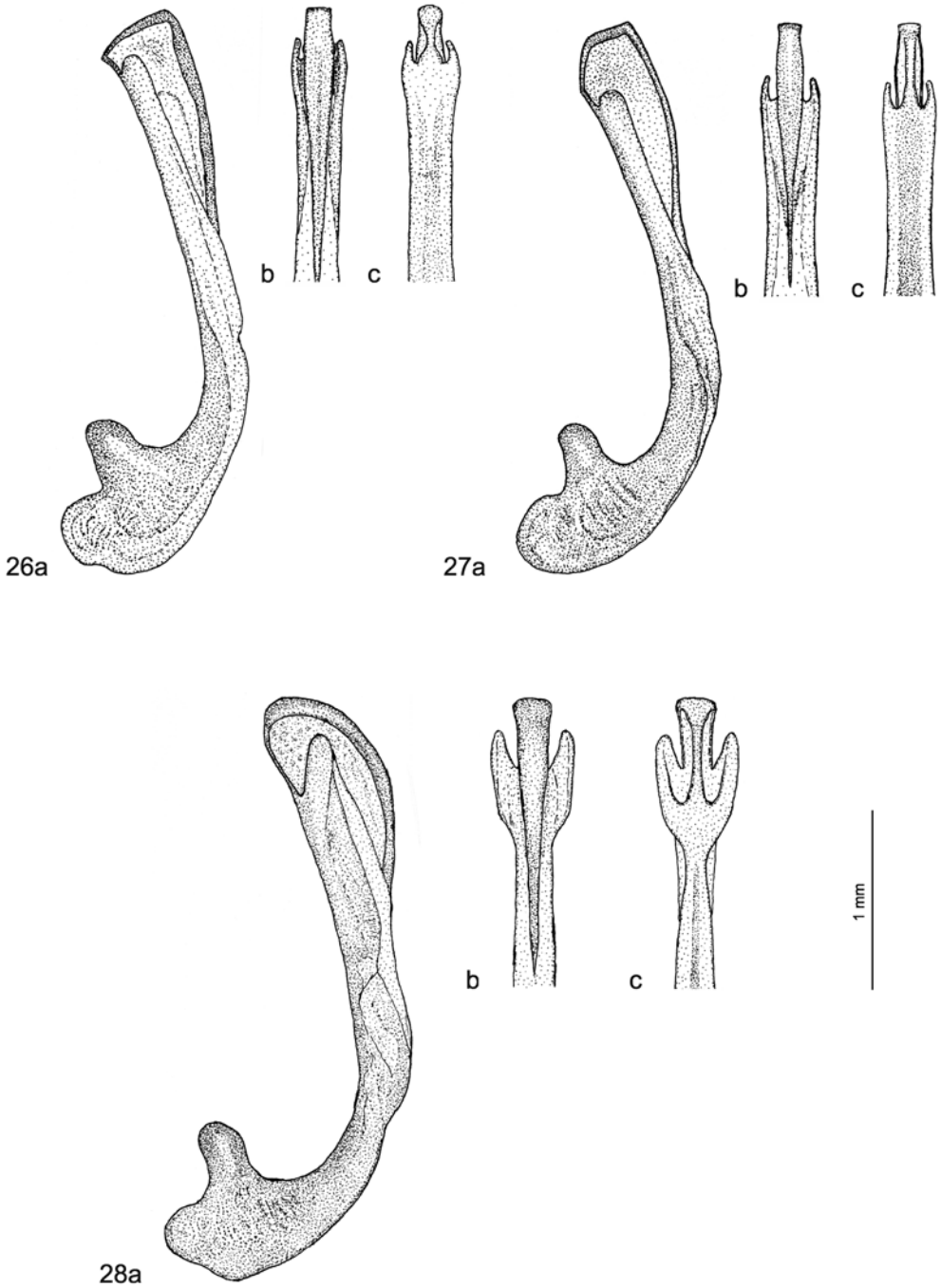
Figs. 14–17: Aedeagus, median lobe in a) lateral, b) ventral and c) dorsal view: 14) *Hydaticus bihamatus* (Philippines); 15) *H. pacificus pacificus* (Timor, holotype of *H. pacificus pacificus*); 16) *H. pacificus pacificus* (Thailand, lectotype of *Dytiscus ruficollis*); 17) *H. pacificus pacificus* (Lombok).



Figs. 18–21: Aedeagus, median lobe in a) lateral, b) ventral and c) dorsal view: 18) *Hydaticus pacificus andamanicus* (Andaman Islands, lectotype); 19) *H. pacificus conspersus* (“Japan”, holotype of *H. pacificus* var. *conspersus*); 20) *H. pacificus lunatus* (Pontianak, West Kalimantan, Borneo, paralectotype); 21) *H. zetteli* (Palawan, paratype).



Figs. 22–25: Aedeagus, median lobe in a) lateral, b) ventral and c) dorsal view: 22) *Hydaticus jaechi* (Sulawesi, holotype); 23) *H. discindens* (Sri Lanka); 24) *H. discindens* (Karnataka, India); 25) *H. discindens* (Bhutan).



Figs. 26–28: Aedeagus, median lobe in a) lateral, b) ventral and c) dorsal view: 26) *Hydaticus suffusus* (Papua New Guinea, paralectotype); 27) *H. pauli* (paratype); 28) *H. laosensis* (paratype).



Figs. 29–30: Habitats of *Hydaticus pacificus pacificus*; 29) Indonesia, Sumbawa, Dompu – Empang; 30) Indonesia, Timor, Soe, near Oehala Falls (photographs M. Balke).



Fig. 31: Habitat of *Hydraticus pacificus lunatus*; Malaysia, Sarawak, Bario env., Pa Ukat (photograph J. Šťastný).



Figs. 32–33: Habitat of *Hydaticus zetteli*; Philippines, Palawan, P. Princesa, Conception, Taranaban River (photographs H. Freitag).



Fig. 34: Habitat of *Hydaticus discindens*; Sri Lanka, Badulla Distr., Koslanda env., Diyaluma Falls (photograph J. Šťastný).

Discussion

RÉGIMBART (1899) revised the genus *Hydaticus* LEACH, 1817 from the Oriental and Australian Regions by using external characters only. He characterized most species very well but he did not study male genitalia. Based on the study of the median lobes three new species are described here and the *H. pacificus* group is separated from the *H. bihamatus* group.

Further molecular analyses are necessary to verify relationships within this group and to other species groups.

Specimens of the *H. pacificus* group are represented in collections more frequently than those of the *H. sexguttatus* group but less often than specimens of the *H. fabricii* and *H. vittatus* group. While species of the *H. sexguttatus* group prefer habitats in primary lowland rainforests and occur mostly in small shallow, sometimes swampy pools and puddles with leaf layers (WEWALKA 2015), species of the *H. pacificus* group live in a broader range of habitats occurring also in pools of streamlets. Species of the *H. fabricii* and *H. vittatus* groups occur in larger water bodies, e.g. rice fields, often in great numbers.



Fig. 35: Holotype of *Hydaticus zetteli* (photograph H. Schillhammer).

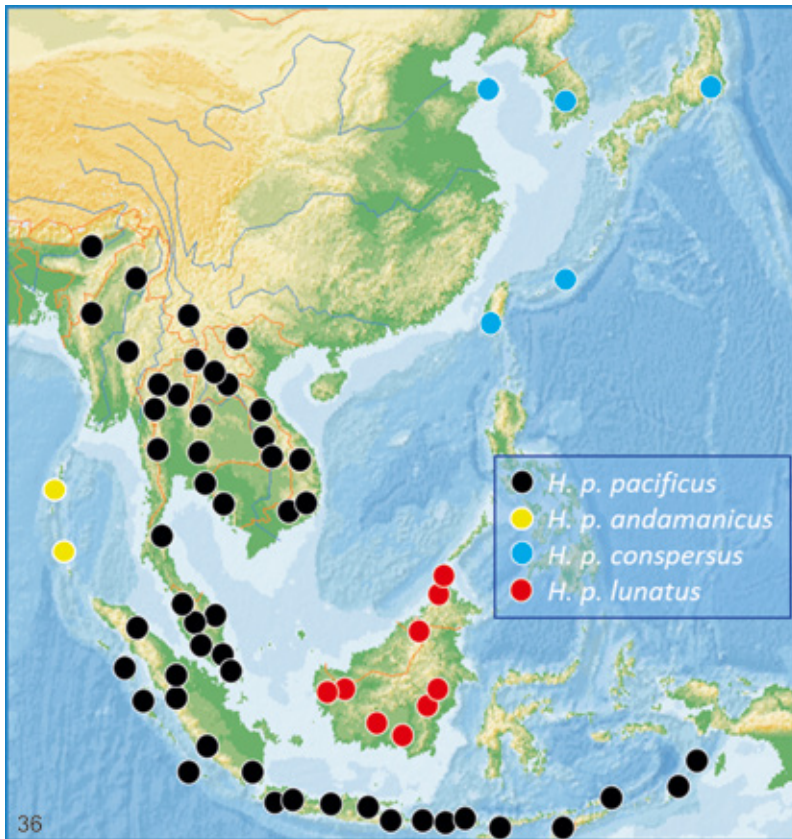
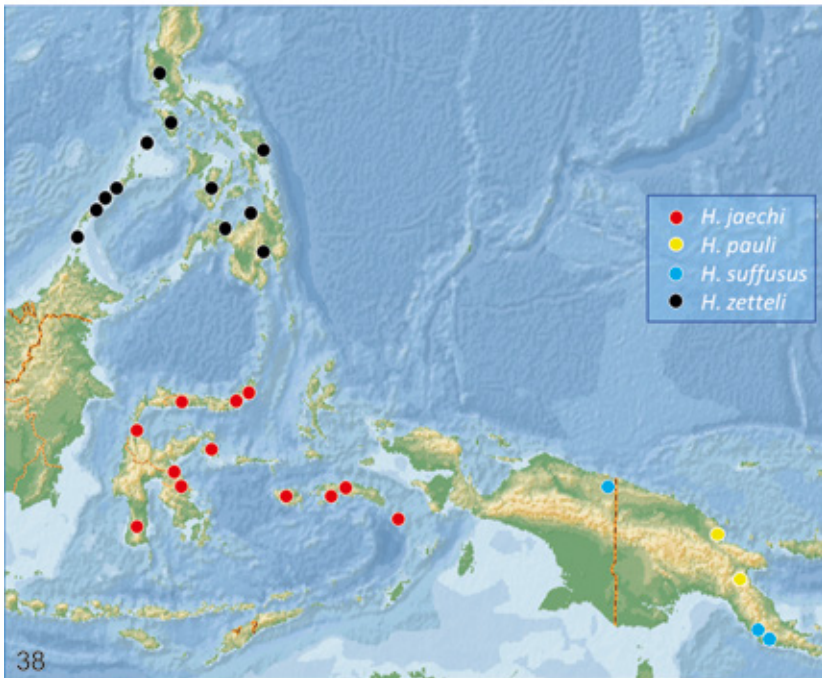
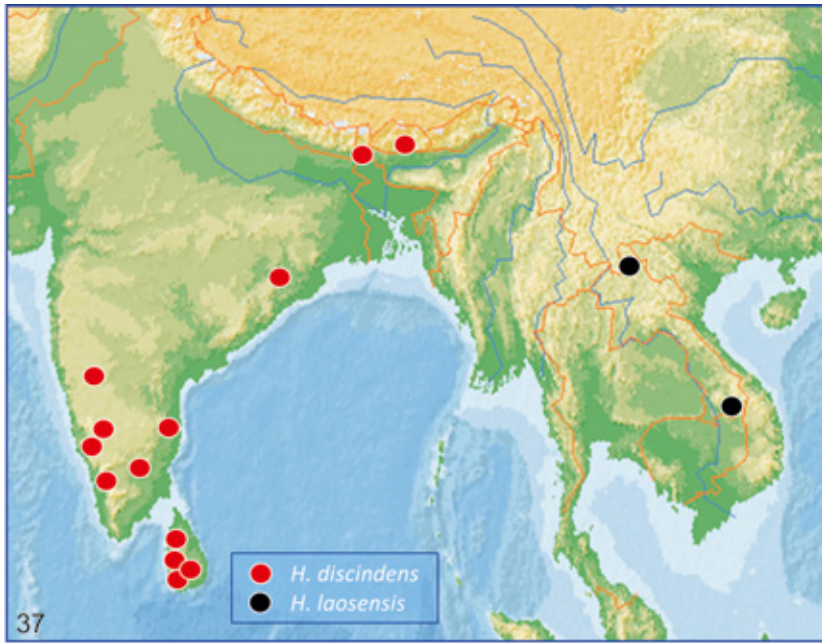


Fig. 36: Distribution map of the subspecies of *Hydaticus pacificus*.

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Figs. 37–38: Distribution maps of 37) *Hydaticus discindens* and *H. laosensis*; 38) *H. jaechi*, *H. pauli*, *H. suffusus*, and *H. zetteli*.

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