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6.5.9. Species group 9 (sp.gr. *acuminatus*)

Hydrovatus ovalis Sharp

Figs 702–707, 714.

Hydrovatus ovalis SHARP, 1882a:327 (orig. descr., faun.); BRANDEN, 1885:26 (faun.); ZIMMERMANN, 1920a:34 (faun.); WATTS, 1978:16, 19, 21 (descr., faun.); 1985:23 (faun.); LAWRENCE & al., 1987:332 (faun., biol.).

Hydrovatus armstrongi WATTS, 1978:16, 19, 20 (orig. descr., faun.); 1985:23 (faun.); LAWRENCE & al., 1987:332 (faun., biol.). **New synonym.**

Type locality: Brisbane, Queensland, Australia.

Type material studied: *H. ovalis*: Holotype, m: *Hydrovatus ovalis* Wehncke Ind. comp. Type mihi D.S. Brisbane/Holotype/Queensland Australia/*Hydrovatus ovalis* Wehncke (BMNH). – *H. armstrongi*: Holotype, m: K.K. Spence Collection/Bogan Riv./Holotype *Hydrovatus armstrongi* Det. C. Watts, 1976/Holotype K 71417 (AM-SA).

Additional material studied: Australia: N. Territory: Tindal 14.31S,132.22E, 1–20.XII.1967 light trap (5 exx. ANIC); NT Nourlangie Cr. 8 km E Mt Cahil 27.X.1972, at light, 12.52S,132.47E (7 exx. ANIC, 2 exx. MZH); same but 22.V.1973 (1 ex. ANIC); same but 16.VI.1973 (3 exx. ANIC); NT Nourlangie Cr. 8 km N Mt Cahil 21.V.1973 at light (3 exx. ANIC, 1 ex. MZH); NT Mc Arthur R. 16.39S,135.51E, 80 km SW Borraloola 13.V.1973 (2 exx. ANIC); 1 km N Cahills Cr. (E. Allig. R.) 12.25S,132.58E, 31.X.1972 at light (1 ex. ANIC); NT Naborlek Dam 12.20S,133.19E 2.VI.1973 (1 ex. ANIC); NT Baroalba Cr. Springs 12.47S,132.51E, 28.X.1972 (3 exx. ANIC, 1 ex. MZH); NT 9 km N by Mudginbarry Hs, 12.31S,132.54E, 26.V.1973 (3 exx. ANIC); NT 19 km NE by E Mt Cahill 12.47S,132.51E, 16.XI.1972 (6 exx. ANIC, 1 ex. MZH); NT Jim Jim Cr. 19 km WSW Mt Cahill, 12.57S,132.33E, 17.VI.1973 (1 ex. ANIC); NT 12 km NNW Mt Cahill 12.46S,132.39E, 20.V.1973 (1 ex. ANIC); NT Magelo Cr. 1 km NNW Mudginbarry Hs 12.36S,132.52E, 25.V.1973 (2 exx. ANIC); NT 16 km E by N Mt Cahill 12.50S, 132.51E, 13.VI.1973 (1 ex. ANIC); NT Holmes Jungle 11 km NE by E Darwin 12.24E, 130.56S, 15.V.1973 (7 exx. ANIC, 2 exx. MZH); NT 7 km NW by Cahills Cr. E Allig R. 12.23.S,132.56E, 27.V.1973 (5 exx. ANIC, 1 ex. MZH); same but 9.VI.1973 (2 exx. ANIC); NT Cahills Cr. E Allig. R. 12.26S,132.58E, 29.V.1973 at light (1 ex. ANIC); NT Cooper Cr. 12.17S,133.20E, 1.XI.1972 at light (1 ex. ANIC); NT S. Allig. R. 46 km WSW Mt Cahill 13.03S,132.19E, 20.V.1973 (2 exx. ANIC); NT Mc Arthur R. 14 km S by W C. Crawford 16.47S,135.45E, 25.X.1975 (9 exx. ANIC, 2 exx. MZH); NT Kakada N.P., Up. S Allig. R. 13.35S,132.36E, 4–5.VI.1988 light trap (1 ex. ANIC); NT 1 km N Cahills r. 31.X.1972 (1 ex. ANIC); NT Bessie Spring 16.40S, 135.51E, 8 km ESE C. Crawford 26.X.1975 (3 exx. ANIC); same but 12.IV.1976 at light (4 exx. ANIC); NT Cattle Cr. 16.32S,136.10E, 54 km S by W Borraloola 27.X.1975 (1 ex. MZH); NT Caranbirini Waterhole 16.16.S,136.05E, 33 km SW Borraloola 21.IV.1976 at light (1 ex. ANIC); NT Cooper Cr. 19 km E by S Mt Borraloola 12.06S,133.04E, 5.VI.1976 (2 exx. ANIC); NT Batten Cr. 31 km WSW Borraloola 16.10S,136.03E, 15.IV.1976 at light (3 exx. ANIC); NT 46 km SSW Borraloola 16.28S,136.09E, 23.IV.1976 (1 ex. ANIC); NT Mc Arthur R. 14 km SW at C. Crawford 16.47S,135.45E, 11.IV.1976 (2 exx. ANIC); NT Mc Arthur Riv. 48 km SSW of Borraloola 16.27S,136.06E, 22–24.IV.1976 (4 exx. ANIC, 1 ex. MZH); NT Goose Lagoon 16.10S,136.15E, 11 km SW by S Borraloola

17.IV.1976 at light (5 exx. ANIC, 1 ex. MZH); NT Batten Pt 15.54S, 136.32E, 30 km NE by E Borraloola 18.IV.1976 at light (1 ex. ANIC); NT 22 km WSW Borraloola 16.IV.1976 (8 exx. ANIC, 3 exx. MZH); NT 3 km SSW of Karharine 14.30S, 132.15E, 12.XI.1979 (1 ex. ANIC); NT Howard Springs 27.I.1968, 12.V.1983 (2 exx. ANIC); NT 15 km E by N Mt Cahill (2 exx. ANIC); NT Katharine 9.II.1968 (1 ex. ANIC); Queensland: NQ Mc Ivor R. 25 mi N Cooktown 6.V.1970/*H. ovalis* Shp det. Watts 1974 (54 exx. ANIC); Q Harm R. 73 km NW by W Laura 15.12S, 143.52E, 27.VI.1986 (1 ex. ANIC); NQ Cardstone 27.XII.1965 (2 exx. ANIC); same but 17–23.II.1966 (2 exx. ANIC); Q Strathgordon H'stead, W Musgrave, C. York Pen. 24.XI.1983 (1 ex. ANIC); Q Mt Webb N.P. 28–30.IX.1980 (1 ex. ANIC); Q Repulse Cr. 25 km NE Baukinia Downs 22–23.IV.1981 (2 exx. ANIC); Q Crystal Cr. 23 mi SSE Ingham 9.XII.1968 at light (1 ex. ANIC); Q 3.5 km SW by S Mt Baird 3–5.VI.1981 at light (1 ex. ANIC); Q 21 km W by N Cooktown 17.V.1977 (3 exx. ANIC, 1 ex. MZH); Q 29 km NW by N Cooktown 18.V.1977 (1 ex. ANIC); NQ Iron Range 14.V.1971 (5 exx. ANIC); NQ Mt Lewis, rainforest c. 3000', at light, tin work site 3.XII.1968 (1 ex. ANIC); W. Australia: WA "The Crusher" Calm Site 9/1 1 km S by W Mining Camp Mitchell Plat. 2–6.VI.1988/at light, open for. nr closed for. margin/*H. ovalis* Shp det. Weir 1989 (17 exx. ANIC); WA Mining Camp Mitchell Plat. 9–19.V.1983 (20 exx. ANIC, 7 exx. MZH); WA 4 km S by W Mining Camp Mitchell Pl. 13.V.1983 (9 exx. ANIC, 1 ex. MZH); W A 10 km NW by N Mining Camp Mitchell Plat. 11.V.1983 (1 ex. ANIC); same but 17.V.1983 (2 exx. ANIC); same but 11/17.V.1983 (1 ex. ANIC); WA Drysdale R. 15.02S, 126.55E, 3–8.VIII.1975 (2 exx. ANIC); WA Carson Escarpm. 14.49S, 126.49E, 9–15.VIII.1975 (1 ex. ANIC); WA Calm Site 4/3, 14 km S by E, 14.25S, 126.40E, 3–6.VI. 1988, at light, open forest (5 exx. ANIC); WA Calm Site, 14.25S, 126.38E, 7–11.VI.1988/at light open forest (1 ex. ANIC); Australia (2 exx. BMNH) In all, 270 exx.

Diagnosis: A very distinct species, which is distinguished from all other *Hydrovatus* species by appearance of penis: Shape of its apex is peculiar.

Length of body: 2.00–2.58 mm, breadth: 1.20–1.54 mm. Habitus (Fig. 702).

Head: Pale ferrugineous. Punctuation very fine, rather sparse. In shallow frontal depressions and narrowly at eyes with somewhat denser punctures. Submat, microsculptured (meshes fairly distinct). Head frontally rounded, narrowly margined but margin disappears before reaching eyes (Fig. 703). Antenna slender, not distinctly modified (Fig. 704).

Pronotum: Ferrugineous to pale ferrugineous. Punctuation fine and sparse, densest basally and anteriorly. Submat, microsculptured (meshes distinct). Lateral outline of pronotum somewhat rounded.

Elytra: Ferrugineous to pale ferrugineous, darkest mediobasally but without distinct colour pattern. Rather finely and quite sparsely punctate. Punctures distinctly finer apically, and a little finer laterally. Rows of punctures indistinct or absent. Only lateral row of

punctures discernible, but still indistinct. Slightly mat, microsculptured (meshes generally quite distinct). There are specimens with, to a variable degree, reduced body microsculpture; body sometimes quite shiny. Epipleura pale ferruginous, with a few punctures, finely microsculptured.

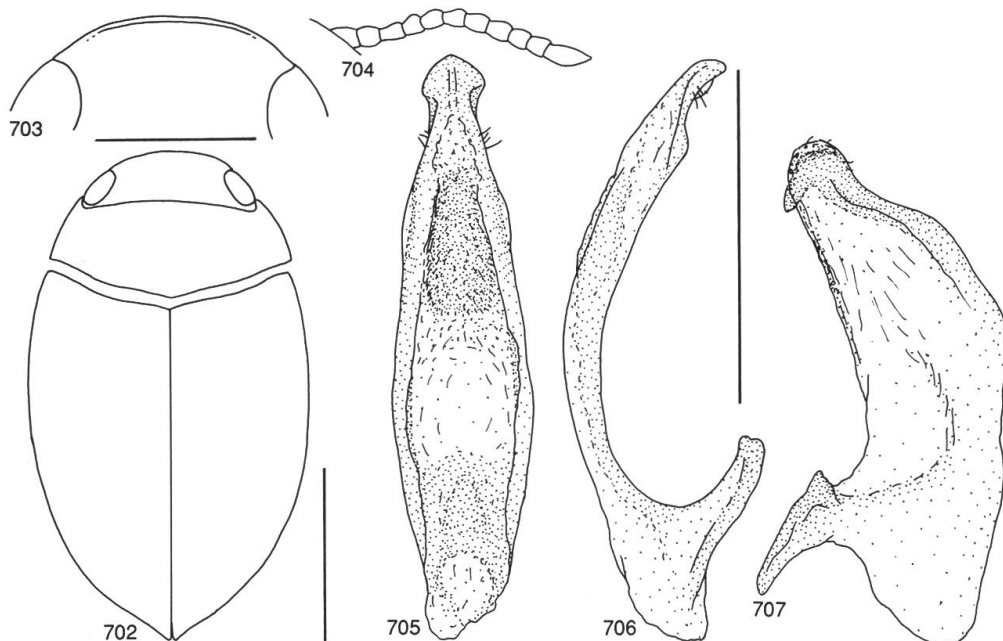
Ventral side: Dark ferruginous to ferruginous. Abdomen somewhat paler, ferruginous to pale ferruginous. Fairly coarsely and quite densely punctate. Abdomen, except basally, almost impunctate. Slightly mat, microsculptured. Metathorax medially and close to suture between metacoxal plates with meshes of microsculpture almost obliterated. Prosternal process laterally narrowly margined, medial surface flat, microsculptured and finely punctate.

Legs: Pale ferruginous. Pro- and mesotarsus rather slender.

Male genitalia: Figs 705–707.

Female: Externally as male.

Distribution: Australia: Northern Territory, Queensland, Western Australia, New South Wales (Fig. 714). According to LAWRENCE & al. (1987) also recorded from Indonesia and Papua New Guinea.



Figs 702–707: *Hydrovatus ovalis*. – 702, habitus. – 703, head, frontal aspect. – 704, antenna. – 705, penis, dorsal aspect. – 706, penis, lateral aspect. – 707, paramere. Horizontal scale 0.5 mm, head and antenna; left scale 1 mm, habitus; right scale 0.4 mm, genitalia.

Biology: Sampled in Australia with light in open forest near closed forest margin and in rainforest at an altitude of 3000 ft.

Synonymy: The holotypes of *H. ovalis* and *H. armstrongi* have been examined and are found to belong to the same species. The valid name of this species is *H. ovalis* (older available name).

Hydrovatus fasciatus Sharp

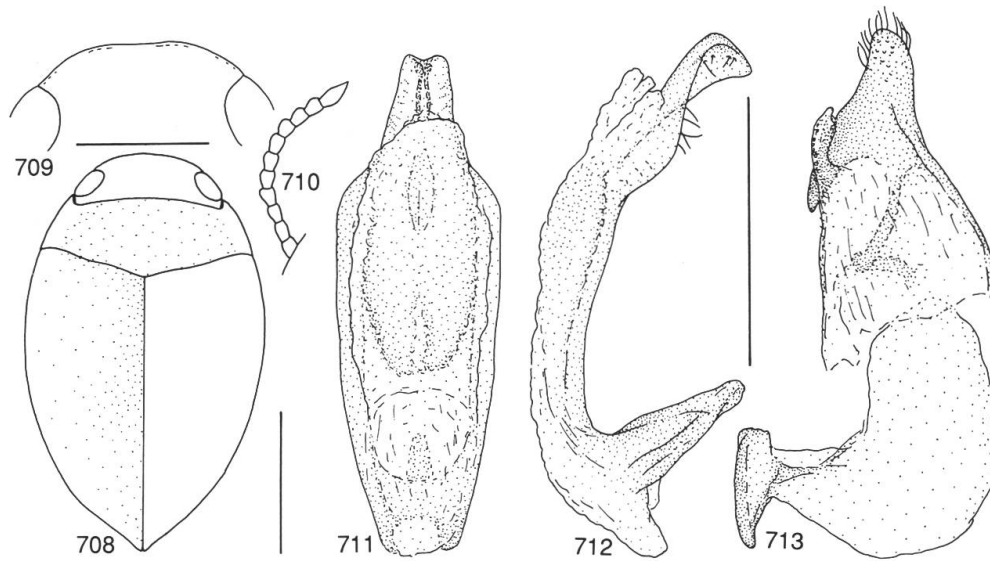
Figs 708–714.

Hydrovatus fasciatus SHARP, 1882a:326 (orig. descr., faun.); BRANDEN, 1885:26 (faun.); ZIMMERMANN, 1920a:33 (faun.); WATTS, 1978:16, 19, 21 (descr., faun.); 1985:23 (faun.); LAWRENCE & al., 1987:332 (faun., biol.).

Type locality: Brisbane, Australia.

Type material studied: Lectotype designated by Watts (1978): *Hydrovatus fasciatus* Wehncke Ind. comp. Type mihi Brisbane D.S./Lectotype/Type 446/Queensland Australia/Sharp Coll. 1905–313/*Hydrovatus fasciatus*/*Hydrovatus fasciatus* Sharp Det. C. Watts, 1979 (BMNH). – Paralectotype: *Hydrovatus fasciatus* Wehncke Ind. typ. mihi D.S. Rockhampton D.S./Paralectotype/Queensland Australia/Sharp Coll. 1905–313/*Hydrovatus fasciatus* Sharp Det. C. Watts, 1979 (1 ex. BMNH).

Additional material studied: Indonesia: Irian Jaya: Paniai Pr. Wanggar-Kali Bumi 30.IX. & 1.X.1990 (10 exx. coll. Balke & Hendrich, 3 exx. MZH); Paniai Pr. Nabire-Kali Bobo 19., 20. & 26.IX.1990 (43 exx. coll. Balke & Hendrich, 8 exx. MZH); Bali: Ubud, ca 300 m, Reisfeld 26.VIII.1990 (10 exx. coll. Balke & Hendrich, 2 exx. MZH); Ambon, Waai 16.XI.1991/in shallow fresh water pool with *Eichhornia crassipes* veg. (1 ex. coll. Vondel); Ambon, Telaga Kodok 3.II.1989 (1 ex. NMW); Ceram 12.II.1989 (8 exx. NMW, 3 exx. MZH). – Philippines: Mindanao Zamboanga del Sur, Zamboanga 29.VII.1959 (1 ex. BBM). – Australia: Queensland: NQ Mc Ivor R. 25 mi. N Qooktown 6.V.1970/*H. fasciatus* Shp det. Watts, 1974 (13 exx. ANIC); NQ C. York Pen. Iron Range 22–28.IV.1966 (2 exx. ANIC); Q 9 km ENE Mt Tozer 5–10.VII.1986 (9 exx. ANIC, 3 exx. MZH); Q 2 km NE by E Tozer 1.VII.1986 (1 ex. ANIC); Q 29 km NW by W Cooktown 18.V.1977 (1 ex. ANIC); Q Ingham 1.V.1964 (1 ex. ANIC); Q Ingham 30.III.1960 (2 exx. ANIC); Q 32 km S Ravenshoe 15.II.1966 (1 ex. ANIC); Q Pt Danger Coolangetta 7.XI.1969 light trap (1 ex. ANIC); Q 3 km NE Mt Webb 30.IV.1981 at light (1 ex. ANIC); Q Mt Webb N.P. 27–30.IV.1981/rainforest litter (1 ex. ANIC); NQ Cardstone 7–8.I.1966 (1 ex. ANIC); NQ Cardstone 10–13.III.1966 (1 ex. ANIC); NQ Cardstone 27.XII.1965 (1 ex. ANIC); Q 6 mi SSE Yeppoon 30.I.1970 (2 exx. ANIC, 1 ex. MZH); N. Territory: Coast. Pl. Res. St. nr Darwin, at light 2.VI.1966 (1 ex. ANIC); NT Darwin IV.1966 (3 exx. ANIC); NT Nourlangie Cr. 8 km N Mt Cahill 16.VI.1973 (6 exx. ANIC, 2 exx. MZH); Nourlangie Cr. 6 km ENE Mt. Cahill 18.XI.1972 (1 ex. ANIC); NT Jim Jim Cr. 19 km WSW Mt Cahill 17.VI.1973 (5 exx. ANIC, 2 exx. MZH); NT Wildman R. Lagoon 24.X.1972 (1 ex. ANIC); NT Cahills Cr. E. Allig. R. 29.V.1973 at light (4 exx. ANIC); NT 9 km N by E Mudginbarry 26.V.1973 (3 exx. ANIC); NT Koongarra 15 km E Mt Cahill 12.VI.1973 (7 exx. ANIC, 3 exx. MZH); NT 7 km NW by N Mt Cahills Cr. E. Allig. R. 9.VI.1973 (4 exx. ANIC, 1 ex. MZH); same but 27.V.1973 (4 exx. ANIC); NT Batten Pt. 18.IV.1976, at light (1 ex. ANIC); NT Bessie Spring 8 km ESE C. Crawford 12.IV.1976 at light (1 ex. ANIC); NT 8 km N by E Mudginbarry Hs 20.VI.1972 (1 ex. ANIC); New South Wales: Valery 10.I. 1967 at light (1 ex. ANIC). In all, 185 exx.



Figs 708–713: *Hydrovatus fasciatus*. – 708, habitus. – 709, head, frontal aspect. – 710, antenna. – 711, penis, dorsal aspect. – 712, penis, lateral aspect. – 713, paramere. Horizontal scale 0.5 mm, head and antenna; left scale 1 mm, habitus; right scale 0.4 mm, genitalia.

Diagnosis: Very close to *H. irianensis*, below. The two species are distinguished by differences in male genitalia: Apical hook of the paramere is only slightly extended in *H. fasciatus*, while distinctly extended in *H. irianensis*; apex of penis (lateral aspect) is quite blunt in *H. fasciatus*, while sharp in *H. irianensis*.

Length of body: 2.12–2.66 mm, breadth: 1.34–1.70 mm. Habitus (Fig. 708).

Head: Pale ferrugineous to ferrugineous, sometimes partly distinctly darkened. Punctuation fine to very fine, sparse, partly indistinct. Punctures irregularly distributed. At eyes and in shallow frontal depressions with slightly denser punctures. Submat, microsculptured (meshes distinct). Head frontally rounded, medially straightened, almost without frontal margination (indistinct fragments of a margin may be discerned) (Fig. 709). Antenna pale ferrugineous, rather slender, not distinctly modified (Fig. 710).

Pronotum: Ferrugineous to dark ferrugineous to dark brown to blackish, laterally with vague pale ferrugineous areas. Punctuation fine, somewhat sparse, laterally finer and discally on each side with a narrow impunctate area. Rather shiny, microsculptured (meshes distinct). Lateral outline of pronotum somewhat rounded.

Elytra: Dark ferrugineous to dark brown to blackish, laterally paler; at epipleura and apically ferrugineous to pale brownish. Elytra

sometimes with quite distinct colour pattern, sometimes colour pattern indistinct or absent. Punctuation fine to rather fine, somewhat sparse to fairly dense. Laterally and apically punctures distinctly finer and sparser. Discal and lateral rows of punctures indistinct,

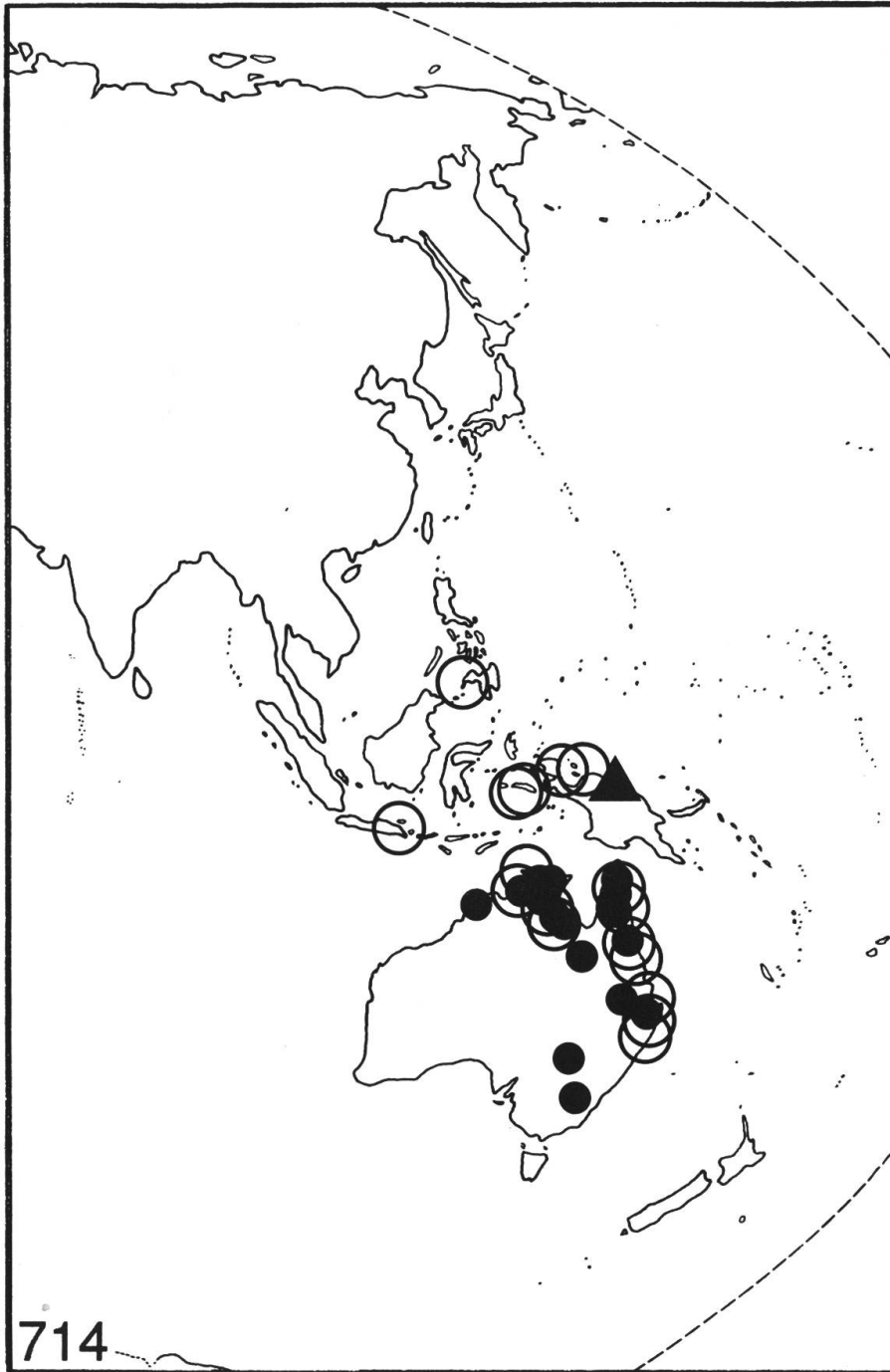


Fig. 714: Distribution of *Hydrovatus ovalis* (dot), *H. fasciatus* (circle) and *H. irianensis* (triangle).

mixed with adjacent punctures, but generally discernible. Dorsolateral row of punctures absent. Rather shiny, microsculptured (meshes weakly developed but visible). Epipleura pale ferruginous, with a few indistinct punctures, microsculpture indistinct.

Ventral side: Pale ferruginous to ferruginous. Coarsely to fairly coarsely and quite densely punctate. Abdomen, except base, almost impunctate. Rather shiny, almost without microsculpture. Abdomen finely reticulated. Prosternal process laterally quite distinctly margined, medial surface almost flat, finely punctate.

Legs: Pale ferruginous to ferruginous. Protarsus slightly enlarged, broader than mesotarsus.

Male genitalia: Figs 711–713.

Female: Externally as male.

Distribution: Indonesia: Irian Jaya, Bali, Ambon, Ceram and Philippines, Australia: Queensland, Northern Territory, New South Wales (Fig. 714). Additional record is New Caledonia (ZIMMERMANN, 1920a).

Biology: In Indonesia, Bali, reported from a rice field and in Australia, Queensland, from rainforest litter. In Indonesia, Ambon, sampled from a shallow fresh water pool with *Eichhornia crassipes* vegetation. Often sampled at light collection.

Hydrovatus irianensis n.sp.

Figs 714–720.

Type locality: Sentani, Irian Jaya, Indonesia.

Type material studied: Holotype, m: New Guinea: Neth. Sentani SW, Cyclops 100 m., VI.15.1959/MV Light trap, Gressitt & Maa (BBM). In all, 1 ex.

Diagnosis: Very close to *H. fasciatus*. For separation of the two species, see diagnosis of *H. fasciatus* above.

Description: only differences from description of *H. fasciatus* recognized.

Length of body: 2.40 mm, breadth: 1.46 mm. Habitus in Fig. 715.

Head: Frontal aspect of head in Fig. 716. Antenna in Fig. 717.

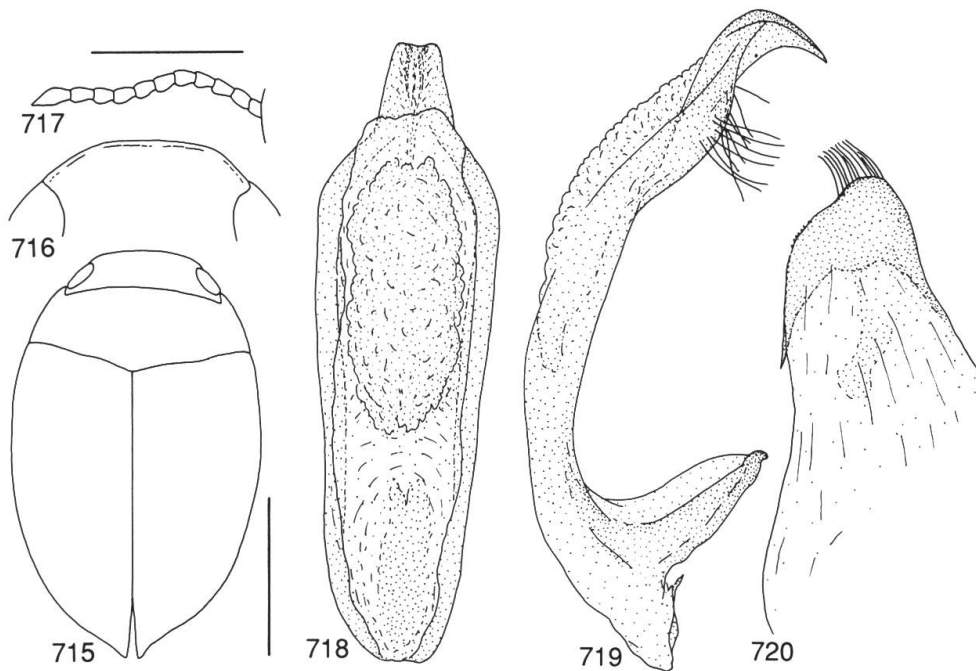
Elytra: Discal row of punctures also practically absent.

Male genitalia: Figs 718–720.

Female: Unknown.

Distribution: Indonesia: Irian Jaya (New Guinea) (Fig. 714).

Biology: Collected with mercury vapour light trap.



Figs 715–720: *Hydrovatus irianensis*. – 715, habitus. – 716, head, frontal aspect. – 717, antenna. – 718, penis, dorsal aspect. – 719, penis, lateral aspect. – 720, apical part of paramere. Horizontal scale 0.5 mm, head and antenna; left scale 1 mm, habitus; right scale 0.4 mm, genitalia.

Hydrovatus reclusus Guignot

Figs 721–727, 734.

Hydrovatus reclusus GUIGNOT, 1955c:181, 183 (orig. descr., faun.); 1956b:213 (disc.); 1956c:319 (disc.); 1961a:232 (faun.).

Type locality: Elisabethville, Zaire.

Type material studied: Holotype, m: Holotypus m/Coll. Mus. Congo Elisabethville (à la lumière) 1.III.52/30.IX.1953 Ch. Seydel/R. Det. 6649/Guignot det. 1954 *Hydrovatus* (*Vathydrus*) *reclusus* n.sp. Type m (MAC).

Additional material studied: Zaire: PNG (2 exx. MAC); Kivu (1 ex. MAC). – Angola: Riv. L. Calundo 105 km est Luso 18.XII.1954 (1 ex. MNHN). The specimen from Angola may belong to an undescribed species exhibiting minor external as well as minor differences in the shape of the male genitalia. When only one specimen is available, this problem remains unsolved. In this case there is too little morphological evidence to describe a new *Hydrovatus* species on the basis of a single specimen. In all, 5 exx.

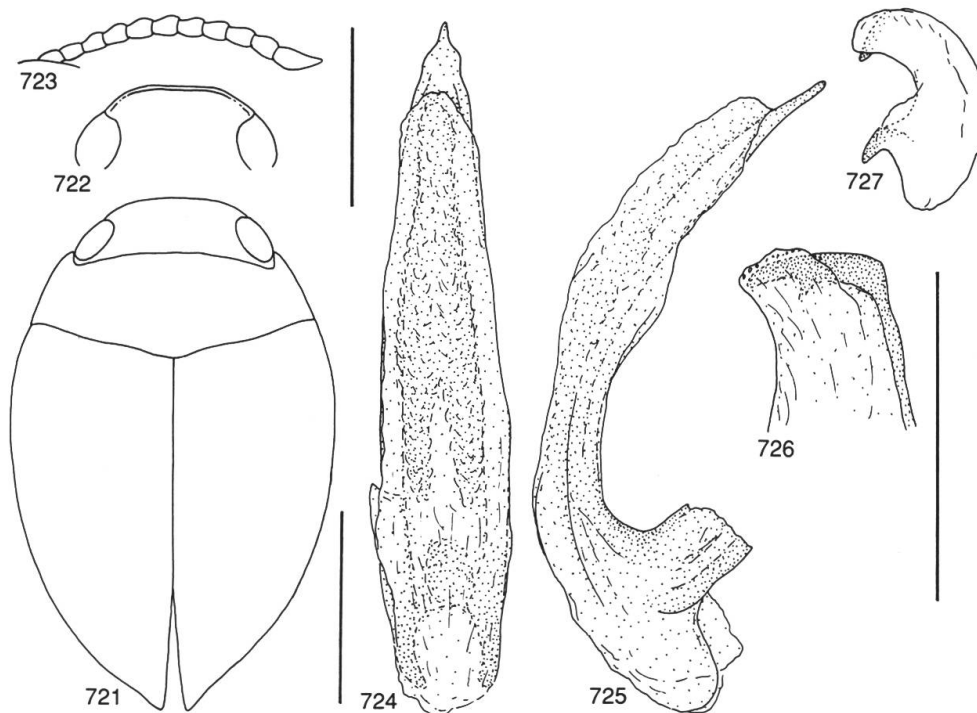
Diagnosis: *H. reclusus* is recognized by the shape of the penis apex: Narrowly pointed and straight (lateral aspect). Also the almost straight apical hook of the paramere is peculiar to the species.

Length of body :2.28–2.64 mm, breadth: 1.56–1.62 mm. Habitus (Fig. 721).

Head: Pale ferrugineous to ferrugineous. Punctuation very fine, sparse and irregularly distributed. Punctures densest narrowly at eyes and in shallow frontal depressions. Rather shiny, although microsculptured (meshes distinct). Head frontally almost straight or slightly concave, narrowly margined (margin broken at small tubercle near eye) (Fig. 722). Antenna pale ferrugineous, slender (Fig. 723).

Pronotum: Dark ferrugineous to ferrugineous, laterally somewhat paler and at almost straight sides of pronotum pale ferrugineous. Finely to rather finely and somewhat sparsely punctate. Discally on each side punctuation finer and distinctly sparser. Shiny, although microsculptured (meshes very fine, mediobasally reduced and hardly visible).

Elytra: Dark ferrugineous to ferrugineous, laterally somewhat paler, without distinct colour pattern. Rather finely and quite sparsely punctate. Apically and laterally punctures distinctly finer and sparser. Only a fine, slightly irregular lateral row of punctures is



Figs 721–727: *Hydrovatus reclusus*. – 721, habitus. – 722, head, frontal aspect. – 723, antenna. – 724, penis, dorsal aspect. – 725, penis, lateral aspect. – 726, apex of paramere. – 727, supplementary illustration of paramere. Left top scale 0.5 mm, antenna; left bottom scale 1 mm, habitus and head; right scale 0.4 mm, genitalia (excl. Fig. 727).

discerned. Shiny, very finely and partly indistinctly microsculptured. Meshes very weakly developed and partly obliterated. Epipleura ferrugineous, very indistinctly and sparsely punctate, shiny, not microsculptured.

Ventral side: Ferruginous to pale ferruginous. Rather coarsely to coarsely and quite densely punctate. Abdomen almost impunctate except basally; with a few distinct punctures. Shiny, almost without microsculpture. On abdomen and posteriorly on metacoxa very fine meshes of microsculpture may be discerned. Prosternal process laterally narrowly but distinctly margined, medial surface somewhat convex and with fine punctures.

Legs: Pale ferruginous to ferruginous. Pro- and mesotarsus somewhat enlarged.

Male genitalia: Figs 724–727.

Female: Externally as male.

Distribution: Zaire, Angola (see above under additional material studied) (Fig. 734).

Biology: Badly known. The species has been sampled at light collection.

Hydrovatus collega Guignot

Figs 728–734.

Hydrovatus collega GUIGNOT, 1955c:182, 184 (orig. descr., faun.); 1959c:137 (disc.).
Hydrovatus rutilus OMER-COOPER, 1963:164 (orig. descr., faun., biol.). **New synonym.**

Type locality: Elisabethville, Zaire.

Type material studied: *H. collega*: Holotype, m: Holotypus m/Coll. Mus. Congo Elisabethville (lumière) XI. 1951–II.1952 Ch. Seydel/R. Det. 6649/Guignot det., 1954
Hydrovatus (Vathydrus) collega n.sp. Type m (MAC). – *H. rutilus*: Holotype, m: ?
collega Guign./S. Rhodesia Stream between Salisbury-Bromley 12.XI.1948 J. O.-C./
Hydrovatus rutilus n.sp./Br. Mus. 1978–308/*Hydrovatus rutilus* J. O.-C. M.E. Bacchus det. 1978 Holotype (BMNH). – Paratype: *Hydrovatus rutilus*/S. Rhodesia stream Rusape 13.X.1948 J. O.-C./Paratype (1 ex. AMS).

Additional material studied: Zaire: Elisabethville 1.III.52/30.IX.1953 (3 exx. MAC; listed as paratypes, but label-data do not coincide with data in original description and accordingly they do belong to real type material); Elisabethville 1953/1955 (1 ex. MAC). – Tanzania: Ukiriguru light trap 29.I.1960 (2 exx. BMNH, 1 ex. MZH). – Zambia: Mwinilunga distr. Ikelenge nr Kalene, Zambezi Rapids/3.V.1967 (1 ex. BMNH, 1 ex. MZH). – Zimbabwe: Marandellas II. 1962 MV light (2 exx. BMNH). In all, 14 exx.

Diagnosis: Quite close to *H. reclusus*, *H. schawalleri* and *H. bapustus*. *H. collega* is particularly distinguished by peculiar details of the male genitalia: Penis apex straight (lateral aspect); penis apex quite broad

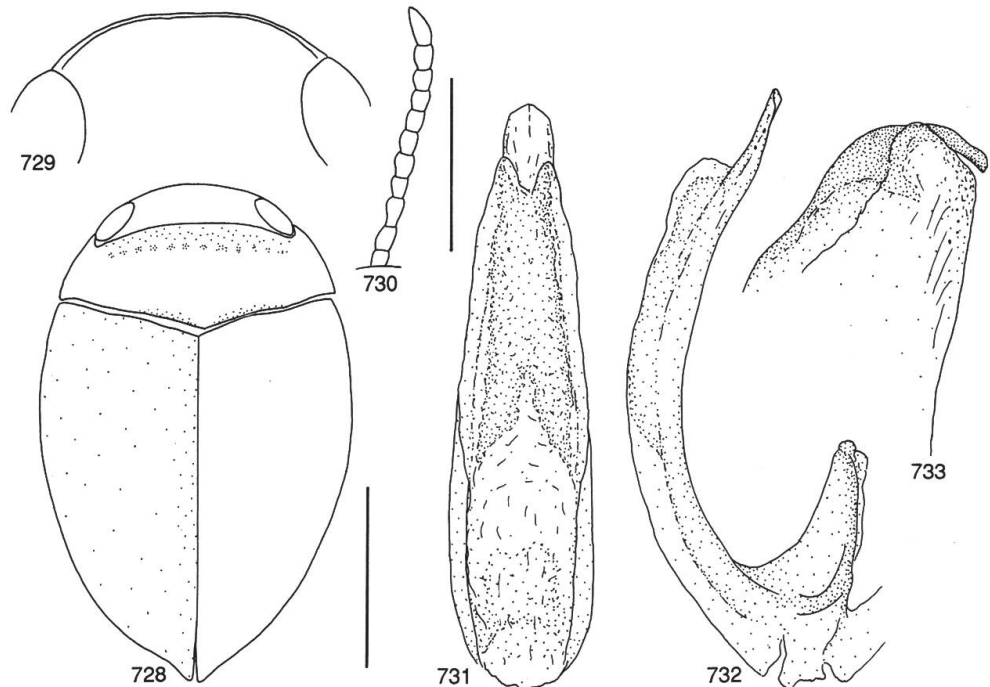
but not distinctly enlarged posteriorly (dorsal aspect); paramere hook with apical outline rounded and hook well developed.

Length of body: 2.42–2.70 mm, breadth: 1.56–1.64 mm. Habitus in Fig. 728.

Head: Ferrugineous to pale ferrugineous. Punctuation very fine, sparse, in frontal shallow depressions and narrowly at eyes with somewhat denser punctures. Rather shiny, microsculptured (meshes distinct). Frontal outline rounded, medially somewhat straightened. From eye to eye narrowly margined (Fig. 729). Antenna pale ferrugineous, rather slender (Fig. 730).

Pronotum: Pale ferrugineous. Anteriorly and posteriorly with very vague, narrow, slightly darkened areas. Punctuation fine, rather sparse and irregularly distributed. Laterally punctures still sparser and finer. Rather shiny, microsculptured. Meshes of microsculpture quite distinct, except mediobasally; almost obliterated and indistinct. Lateral outline of pronotum slightly rounded.

Elytra: Ferrugineous, laterally slightly paler; at epipleura pale ferrugineous. Without distinct colour pattern. Punctuation fine to



Figs 728–733: *Hydrovatus collega*. – 728, habitus. – 729, head, frontal aspect. – 730, antenna. – 731, penis, dorsal aspect. – 732, penis, lateral aspect. – apex of paramere. Left top scale 0.5 mm, head and antenna; left bottom scale 1 mm, habitus; right scale 0.4 mm, genitalia.

very fine, rather sparse and slightly irregularly distributed. Apically and laterally punctures finer, in part almost absent (not to be confused with a few scattered distinct punctures and punctures forming rows). Discal row of punctures anteriorly visible but irregular and indistinct. Dorsolateral row of punctures strongly reduced; only defined by a few punctures. Lateral row of punctures rather indistinct. Rather shiny, indistinctly microsculptured (distinct meshes of microsculpture exhibited only apically). Epipleura pale ferrugineous, almost impunctate and without microsculpture.

Ventral side: Ferrugineous to pale ferrugineous. Metathorax quite coarsely punctate. Metacoxal plates with finer and sparser punctures; punctation partly absent. Abdomen almost impunctate. Shiny,

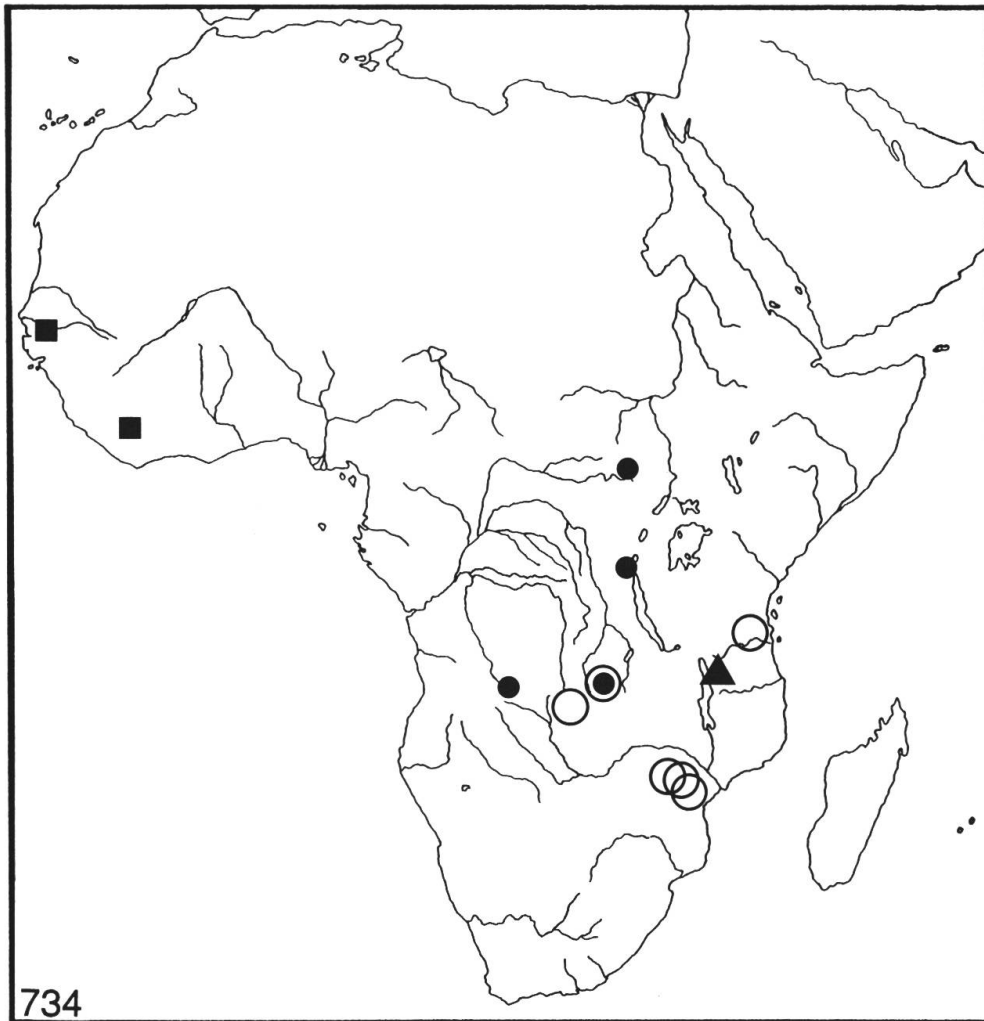


Fig. 734: Distribution of *Hydrovatus reclusus* (dot), *H. collega* (circle), *H. schawalleri* (triangle) and *H. bapetus* (square).

almost without microsculpture. Abdomen very finely and rather indistinctly microsculptured. Prosternal process laterally finely margined, medial surface slightly convex, finely punctate.

Legs: Pale ferruginous to ferruginous. Pro- and mesotarsus slightly enlarged.

Male genitalia: Figs 731–733.

Female: Externally as male.

Distribution: Zaire, Tanzania, Zambia, Zimbabwe (Fig. 734).

Biology: According to OMER-COOPER (1963), under the name *H. rutilus*, collected in a small stream with large-flowered blue water lilies and from a series of muddy pools connected by a trickle of water and water lilies in the pools. In Zaire sampled at light collection.

Synonymy: Holotypes of *H. collega* and *H. rutilus* have been examined. I find very little morphological evidence to justify a separation into two distinct species. Thus the valid name of the species is *H. collega* (older name).

Hydrovatus schawalleri n.sp.

Figs 734–740.

Type locality: Peramiho-Songea, Tanzania.

Type material studied: Holotype, m: Tanganyika Peramiho-Songea Ost-Afrika 1964 D. Stumpf leg. (MNS). – Paratype: Same data as holotype (1 ex. MZH). In all, 2 exx.

Etymology: The new species is named after Dr. Wolfgang Schawaller, Stuttgart, Germany, who kindly has provided me with study material many times.

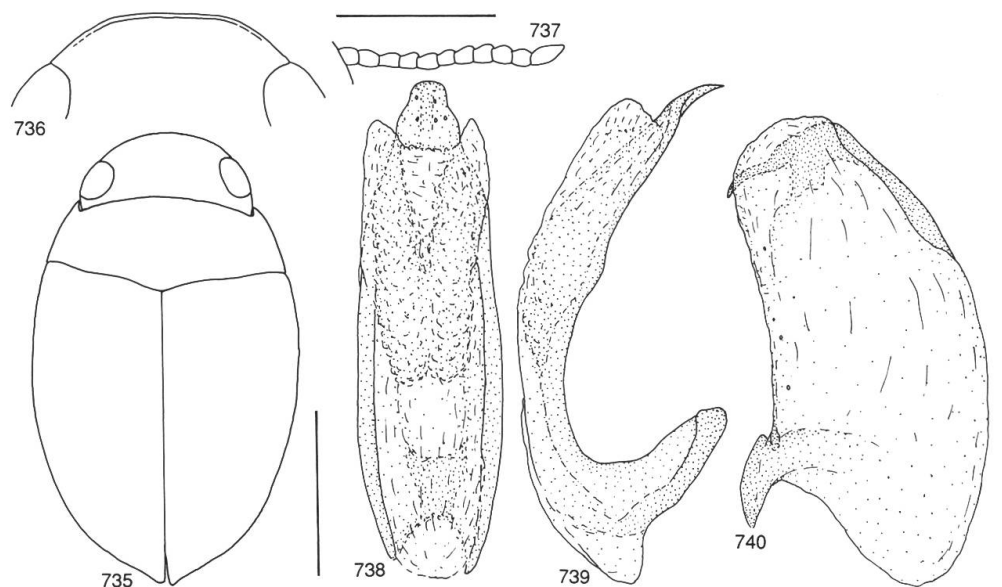
Diagnosis: Closest probably to *H. reclusus* and *H. collega*, from which the new species is distinguished by clearly discernible differences in shape of the penis apex and apical hook of the paramere.

Description: only diagnostically important deviations from description of *H. collega* recognized.

Length of body: 2.48–2.54 mm, breadth: 1.54–1.56 mm. Habitus (Fig. 735).

Head: Dark ferruginous to ferruginous. Frontally finely margined, but margin does not reach eyes (Fig. 736). Antenna slender (Fig. 737).

Pronotum: Dark ferruginous to ferruginous, palest laterally. Punctuation fine to very fine, quite dense to rather sparse. Laterally punctures on broad discal area almost absent. Rather shiny, although microsculptured (meshes partly weakly developed and hardly visible). Sides of pronotum almost evenly rounded.



Figs 735–740: *Hydrovatus schawalleri*. – 735, habitus. – 736, head, frontal aspect. – 737, antenna. – 738, penis, dorsal aspect. – 739, penis, lateral aspect. – 740, paramere. Horizontal scale 0.5 mm, head and antenna; left scale 1 mm, habitus; right scale 0.4 mm, genitalia.

Elytra: Blackish ferrugineous to dark ferrugineous, palest laterally. Without distinct colour pattern. Punctuation fine to very fine, quite sparse and somewhat irregularly distributed. Laterally and apically almost impunctate. All three rows of punctures discernible, although reduced. Discal row basally visible. Dorsolateral and lateral rows indicated by only a few punctures. Rather shiny, although microsculptured (meshes weakly developed, generally discernible).

Ventral side: Blackish ferrugineous to dark ferrugineous.

Male genitalia: Figs 738–740.

Distribution: Tanzania (Fig. 734).

Biology: Unknown.

Hydrovatus bapetus Guignot

Figs 734, 741–746.

Hydrovatus bapetus GUIGNOT, 1954f:282 (orig. descr., faun.); 1954b:14 (faun.); 1958b:2 (disc.); 1959a:134, 138 (descr., faun.); OMER-COOPER, 1963:165 (disc.); BILARDO & PEDERZANI, 1978:102 (faun., det. uncertain).

Type locality: Serengabara, Nimba, Guinea.

Type material studied: Holotype, m: Serengabara/Museum Paris Nimba (Guinée) M. Lamotte II.VI.42/Museum Paris 1960 Coll. F. Guignot/Guignot det., 1952 *Hydrovatus bapetus* Guign. Type m (MNHN). – Paratypes: Principally with same data as holotype (5 exx. MNHN).

Additional material studied: Gambia: 3.5 km S Georgetown, hilltop at Sankuli Kunda, alt. about 30 m, at light 18.30–20.15, 15.XI.1977 UTM 28PEK2593 (1 ex. LUZ). In all, 7 exx.

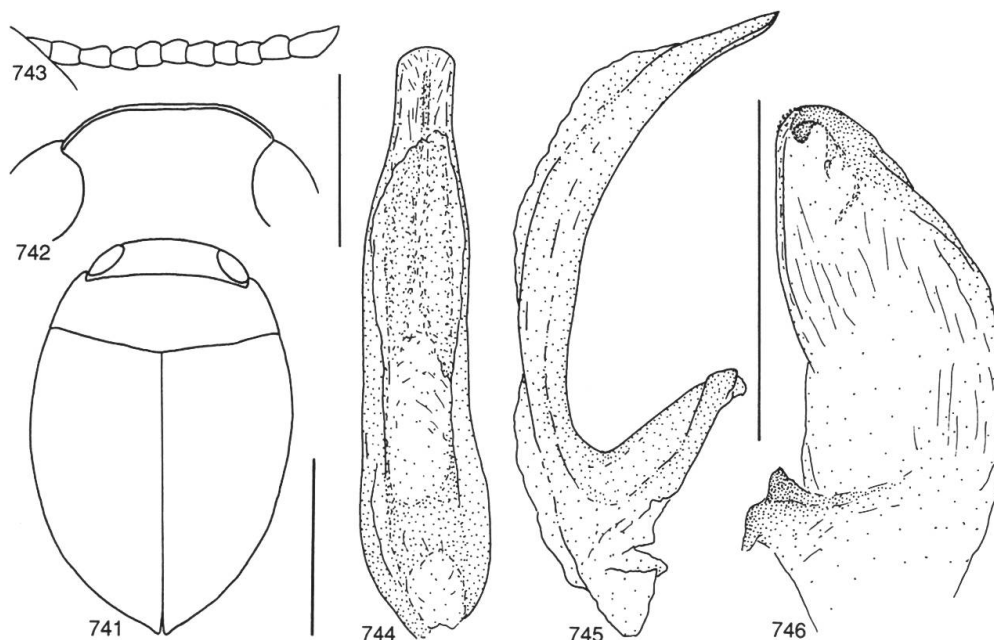
Diagnosis: *H. baptus* is a well-defined species recognized by examination of the shape of the male genitalia: Ventral outline of the penis is almost evenly curved from base to apex (lateral aspect); the apex of the penis is quite broadly obtuse, posteriorly from apex not abruptly enlarged (dorsal aspect); the apical hook of the paramere weakly developed, small. Probably closest to the three preceding species.

Description: only diagnostically important deviations from the description of *H. collega* recognized.

Length of body: 2.06–2.32 mm, breadth: 1.38–1.50 mm. Habitus (Fig. 741).

Head: Dark ferrugineous to ferrugineous. Frontal aspect of head in Fig. 742. Antenna slender (Fig. 743).

Pronotum: Dark ferrugineous to ferrugineous. Punctuation rather fine, quite dense. Discally broadly with somewhat finer and sparser punctures. Rather shiny, microsculptured (meshes discernible, although quite weakly developed). Lateral outline of pronotum almost straight to somewhat rounded.



Figs 741–746: *Hydrovatus baptus*. – 741, habitus. – 742, head, frontal aspect. – 743, antenna. – 744, penis, dorsal aspect. – 745, penis, lateral aspect. – 746, paramere. Left top scale 0.5 mm, head and antenna; left bottom scale 1 mm, habitus; right scale 0.4 mm, genitalia.

Elytra: Blackish ferrugineous to ferrugineous. Palest laterally and darkest frontally at suture and at base. Without distinct colour pattern. Rows of punctures absent or very indistinct. Only lateral row clearly visible, although somewhat irregular and partly indistinct. Shiny, finely microsculptured (meshes discernible but weakly developed).

Ventral side: Punctuation rather fine to fairly coarse, slightly sparse. Abdomen almost impunctate. Medial surface of prosternal process almost flat, with few coarse punctures.

Legs: Pro- and mesotarsus rather slender.

Male genitalia: Figs 744–746.

Distribution: Gambia, Guinea (Fig. 734). An additional non-verified record is Zaire (GUIGNOT, 1954b). GUIGNOT (1959a) gives the Ivory Coast, but this seems to be a mistake; he refers solely to the original description but gives no indication of additional material studied. Finally BILARDO & PEDERZANI (1978) give Gabon, indicating, however, that the determination is uncertain.

Biology: Unsufficiently documented. In Gambia sampled at light collection.

Hydrovatus acuminatus Motschulsky

Figs 747–755.

Hydrovatus acuminatus MOTSCHULSKY, 1859:42 (orig. descr., faun.); 1869:29 (faun.); SHARP, 1882a:326 (descr., faun.); BRANDEN, 1885:25 (faun.); RÉGIMBART, 1888:611 (faun.); SEVERIN, 1890:CXC(faun.); RÉGIMBART, 1895a:339 (descr., faun.); 1899b:235 (descr., faun.); JAKOBSON, 1905:419 (faun.); ZIMMERMANN, 1919:127 (faun.); 1920a:31 (faun.); WINKLER, 1924:218 (faun.); ZIMMERMANN, 1927:19, 22 (descr., faun.); 1930:30, 31 (descr., faun.); MIWA, 1931:16 (faun.); FENG 1932:21 (faun.); KAMIYA, 1932a:12, 19 (faun.); 1932b:4 (disc.); FENG 1933a:330 (disc.); 1933b:92 (descr., faun.); TAKIZAWA, 1933:166, 167 (descr., faun., disc.); TAKIGUCHI, 1934:82 (faun.); WU, 1937:203 (faun.); CSIKI, 1938:126 (faun., biol.); KAMIYA, 1938:9 (descr., faun.); GSCHWENDTNER, 1939:2 (disc.); BERTRAND, 1947:396 (faun.); 1948:10 (by mistake given as *scuminatus*; faun.); GUIGNOT, 1954g:565 (faun.); 1956g:58 (descr., faun.); NAKANE, 1959:61 (descr., faun.); NAKANE & al., 1963:56 (descr., faun.); NAKANE, 1965:14 (faun.); VAZIRANI, 1970 b:103 (descr., faun.); ZAITZEV, 1972:116 (disc.); VAZIRANI 1977a:25 (faun.); HOSSEINIE, 1978:169, 171 (faun., biol.); ZHAO, 1981:110 (faun.); WEWALKA, 1982:116 (faun., biol.); YANO & al., 1983a:105 (faun., biol.); ROCCHI, 1986a:33 (faun.); NAKANE, 1988a:21, 22 (descr., faun.); 1988b:20 (descr., faun.); 1990b:24 (faun.).

Hydrovatus acuminatus furvus GUIGNOT, 1950d:25 (orig. descr., faun.).

Hydrovatus obscurus MOTSCHULSKY, 1859:43 (orig. descr., faun.); 1861:14 (faun.); 1869:29 (faun.); SHARP, 1882a:815 (descr., disc., faun.); BRANDEN, 1885:26 (faun.); RÉGIMBART, 1899b:239 (faun.); ZIMMERMANN, 1920a:34 (faun.). **New synonym.**

- Hydroporus badius* CLARK, 1863:424, 425 (orig. descr.).
- Hydrovatus badius* (CLARK), BRANDEN, 1885:25 (syn.); SEVERIN, 1890:CXC (list.); RÉGIMBART, 1899b:235 (list.); JAKOBSON, 1905:419 (list.); ZIMMERMANN, 1919:127 (list.); 1920a:31 (list.); 1927:22 (list.); 1930:31 (list.); FENG, 1932:21 (list.); TAKIZAWA, 1933:166 (list.); WU, 1937:203 (list.); KAMIYA, 1938:9 (list.); VAZIRANI, 1970b:103 (list.); 1977a:25 (list.); WEWALKA, 1982:116 (list.).
- Hydroporus malaccae* CLARK, 1863:425 (orig. descr., faun.).
- Hydrovatus malaccae* (CLARK), BRANDEN, 1885:25 (syn.); SEVERIN, 1890:CXC (list.); RÉGIMBART, 1899b:235 (list.); JAKOBSON, 1905:419 (list.); ZIMMERMANN, 1919:127 (list.); 1920a:31 (list.); 1927:22 (list.); 1930:31 (list.); FENG, 1932:21 (list.); TAKIZAWA, 1933:166 (list.); WU, 1937:203 (list.); KAMIYA, 1938:9 (list.); VAZIRANI, 1970b:103 (list.); 1977a:25 (list.); WEWALKA, 1982:116 (list.).
- Hydrovatus consanguineus* RÉGIMBART, 1880:212 (orig. descr., faun.); BRANDEN, 1885:26 (faun.); RÉGIMBART, 1899b:235 (syn.); JAKOBSON, 1905:419 (list.); ZIMMERMANN, 1919:127 (list.); 1920a:31 (list.); 1927:22 (list.); 1930:31 (list.); FENG, 1932:21 (list.); TAKIZAWA, 1933:166 (list.); WU, 1937:203 (list.); KAMIYA, 1938:9 (list.); VAZIRANI, 1970b:103 (list.); 1977a:25 (list.); WEWALKA, 1982:116 (list.).
- Hydrovatus sordidus* SHARP, 1882a:327 (orig. descr., faun.); BRANDEN, 1885:27 (faun.); RÉGIMBART, 1886:636 (faun.); 1895b:107 (descr., faun.); SHARP, 1901:3 (faun.); JAKOBSON, 1905:418 (faun.); RÉGIMBART, 1906:246 (disc., faun.); PESCHET, 1917:15, 55 (faun.); ZIMMERMANN, 1919:126 (faun.); 1920a:36 (faun.); WINKLER, 1924:218 (faun.); ZIMMERMANN, 1930:30 (descr., faun.); GUIGNOT, 1945a:297, 298, 299 (descr., faun.); BALFOUR-BROWNE, 1951:183 (faun.); GUIGNOT, 1955f:860 (disc.); 1958a:71 (disc.); 1959a:125, 128 (descr., faun.); 1960:95 (disc.); 1961b:932 (faun.); BRUNEAU DE MIRÉ & LEGROS, 1963:844, 888 (faun.); OMER-COOPER, 1965:95 (disc., faun.); GUÉORGUIEV, 1965a:114 (disc.); 1965b:103, 117 (disc., faun.); OMER-COOPER, 1967:62 (disc.); LEGROS, 1972:459 (faun.); ALFIERI, 1976:32 (faun., biol.); HOSSEINIE, 1978:169 (disc.); ALI, 1978:12 (faun.); BRANCUCCI, 1984:230 (faun.); WEWALKA, 1989:145 (disc., faun., biol.). **New synonym.**
- Hydrovatus humilis* SHARP, 1882a:327 (orig. descr., faun.); BRANDEN, 1885:26 (faun.); RÉGIMBART, 1895b:107 (descr., faun.); 1903:11 (descr., faun., var. of *sordidus*); PESCHET, 1917:15, 55 (faun.); ZIMMERMANN, 1920a:36 (faun.); GSCHWENDTNER, 1943:422 (descr.); GUIGNOT, 1945a:298, 299 (descr., faun.); 1952b:2 (descr., syn. *obscurus* Régimbart and *ferrugineus* Zimmermann); CAPRA, 1952:7 (faun., syn. *sordidus*); GUIGNOT, 1955f:859 (faun.); 1958a:71 (disc., dist. sp.); 1959a:125, 129 (descr., faun.); 1959b:7, 8 (faun.); 1960:95 (faun.); 1961a:235 (faun.); 1961b:930, 931 (faun.); BRUNEAU DE MIRÉ & LEGROS, 1963:844, 888 (faun., biol.); GUÉORGUIEV, 1965a:114 (disc.); OMER-COOPER, 1965:95 (syn. *sordidus*); 1967:62 (disc.); BERTRAND & LEGROS, 1975:678 (faun.); WEWALKA, 1980:723, 730 (faun.); BAMEUL, 1984:91 (faun.); WEWALKA, 1986:277 (faun., biol.); 1989:145 (disc., faun.). **Revised synonymy.**
- Hydrovatus affinis* RÉGIMBART, 1895b:108 (orig. descr., faun.); ZIMMERMANN, 1920a:31 (faun.); PESCHET, 1925:33 (disc., faun.); GSCHWENDTNER, 1930:194 (descr., disc., faun.); BALFOUR-BROWNE, 1939:480 (faun.); GSCHWENDTNER, 1943:422 (descr.); GUIGNOT, 1952b:2 (disc.); 1959a:190, 191 (descr., faun.); OMER-COOPER, 1963:162 (? syn. *ferrugineus* Zimmermann); BILARDO & ROCCHI, 1990:180 (descr.). **New synonym.**

Hydrovatus obscurus RÉGIMBART, 1895b:108 (orig. descr., faun.); ZIMMERMANN, 1919:127 (disc., preocc. name); 1920a:33 (list.); 1920b:225 (list.); OMER-COOPER, 1931:761 (list.); BALFOUR-BROWNE, 1939:480 (list.); GSCHWENDTNER, 1943:421 (disc.); GUIGNOT, 1952b:2 (disc); 1955f:860 (list.); 1959a:129 (list.); 1960:95 (list.); OMER-COOPER, 1963:162 (list.); 1965:95 (list.). **New synonym.**

Hydrovatus ferrugineus ZIMMERMANN, 1919:127 (nom. nov. for *obscurus* Régimbart); 1920a:33 (faun.); 1920b:225 (faun.); GUIGNOT, 1952b:2 (syn. *humilis*); 1955f:860 (disc., list.); OMER-COOPER, 1957:34 (disc.); GUIGNOT, 1959a:129 (list.); 1960:95 (list.); OMER-COOPER, 1963:162, 167 (descr., faun.); 1965:95 (dist. sp., faun.); 1967:62 (disc.); BILARDO & ROCCHI, 1990:180 (syn. *affinis* Régimbart); ROCCHI, 1990:442, 444 (faun.); CURTIS, 1991:186 (faun., biol.). **Revised synonymy.**

Hydrovatus ferrugineus Wehncke, GSCHWENDTNER, 1930:195 (descr., faun., Wehncke incorrectly assigned as author; should be Zimmermann); OMER-COOPER, 1931:761 (disc.); BALFOUR-BROWNE, 1939:480 (disc., faun.); GSCHWENDTNER, 1943:422 (descr.).

Type locality: India.

Type material (partly studied): *H. acuminatus*: Indien (not located). – *H. a. furvus*: Holotype, m: Philippines Manille (not located; should be in coll. Guignot, MNHN). – *H. obscurus* Motschulsky: Lectotype, f: by present designation: *Hydrovatus obscurus* Motsch. Ceylan (ZMM). – Paralectotype: 67 56/*Hydrovatus obscurus* Mots. Ceylon (Type) (1 ex. BMNH). – *H. badius*: Lectotype, m, by present designation: Type/China 2056/67 50/*H. badius* Clark China (BMNH; mounted on top card on same pin as two paralectotypes). – Paralectotypes: Same as lectotype (2 exx. BMNH). – *H. malaccae*: Holotype, m: Type H.T./Mak./*H. malaccae* Clark Malacca (BMNH). – *H. consanguineus*: Holotype, m: *Hydrovatus consanguineus* Régimb. n.sp./Sum. Exp. Boekit Kandang 3/77/Bt. Kg. 3. 77/Museum Leiden *Hydrovatus consanguineus* Rég. det./Cat. No 501/*consanguineus* n.sp. Régimb. (RNHL). – *H. sordidus*: Type 8/Type/Egypt/*Hydrovatus sordidus* Sharp n.sp. (1 ex. BMNH); Hedjaz Millingen (1 ex. BMNH); Mesopotamia Millingen (5 exx. BMNH); Mesopotamia (1 ex. BMNH); Arabia (2 exx. BMNH). – *H. humilis*: Lectotype, m, by present designation: Type/Madagascar/Sharp Coll. 1905–313/*Hydrovatus humilis* n.sp. (BMNH). – *H. obscurus* Régimbart = *H. ferrugineus* Zimmermann: Lectotype, m, by present designation: *Hydrovatus ferrugineus* Wke *obscurus* Wke Addah (Cte d'Or)/Museum Paris Coll. Maurice Régimbart (MNHN; mounted on topcard of pin). – Paralectotypes: Same as lectotype (1 ex. MNHN; mounted on card below lectotype on same pin); principally with same data as lectotype (5 exx. MNHN). Specimen labelled: *H. ferrugineus* Wehncke Addah (C. d'Or)/syntipus/*H. humilis* Shp sensu Guignot = *H. obscurus* Rég. 95 = *H. ferrugineus* Weh. (1 ex. MCG) probably belongs to the type material of *H. obscurus*. My studies indicate that it is not conspecific with the lectotype. Determination of this specimen is unclear because it is a female. – *H. affinis*: Lectotype, m, by present designation: Addah/Type/Museum Paris coll. Maurice Régimbart 1908/*Hydrovatus affinis* Wke (MNHN). – Paralectotypes: Same data as lectotype (5 exx. MNHN).

Additional material studied: Turkey: Anamur 8.V.1969/*H. humilis* Shp det. Wewalka 1985 (1 ex. coll. Rocchi). – Iraq: Al Basrah Al Kabaish 27–28.VI.1980 (14 exx. MZH); Karbala Ain Al Tamar 17.VII.1980 (1 ex. MZH). – Egypt: Meadi 26.V.1930/*H. sordidus* Shp det. Gschwendtner (1 ex. OLL); Meadi 15.IX.1931/*H. sordidus* Shp det. Gschwendtner (1 ex. OLL); Meadi/*H. sordidus* Shp det. Gschwendtner (1 ex.

OLL); Sinai Ayun Musa 1.IV.1989 (1 ex. coll. Balke). – Gambia: Outside Abuko Nat. Res. at waterworks, a t light 19.00–21.50, 22.XI.1977/*H. humilis* Shp det. Nilsson (5 exx. LUZ). – Guinea Bissau: Cacheu, Bula 18.VII.1992 (1 ex. coll. Persson); Oio 2 km E Binar 21.VII.1992 (1 ex. coll. Persson); Bissau 30.V.1927 (1 ex. MNB). – Sudan: Sennar Bl. Nil, lux 21.X.1979 (19 exx. MNB, 6 exx. MZH); Wad Medani, Bl. Nil, lux 14., 18., 29.X.1979 (3 exx. MNB); B. el Abiad (1 ex. MNB). – Ethiopia: Addis Abeba II. 1977/*H. ferrugineus* Zimm. Omer-Cooper 1963 det. Rocchi 1979 (1 ex. coll. Rocchi). – Ghana: Addah/*H. ferrugineus* Zimm. det. Guignot (1 ex. MNHN). – Nigeria: Samaru/light trap 20.X.1969 (1 ex. TMB). – Tanzania: Ukiriguru, light trap 23.I. 1960 (4 exx. BMNH, 1 ex. MZH); Ukiriguru 16.I.1960 (1 ex. BMNH); Ukiriguru 27.I.1960 (1 ex. BMNH) – Malawi: Dally's 18.XII.1946 (3 exx. BMNH, 1 ex. MZH); Livingstonia 21.X.1948 (2 exx. AMS). – Mozambique: Maputo/1.V. 1977 ljust/*H. humilis* Shp det. Brancucci (8 exx. LUZ); Beira II.1940/*H. humilis* Shp det. Guignot 1954 (2 exx. MCG); nr L. Marques 3.XII.1948 (2 exx. AMS). – South Africa: Zululud St Lucia Mission Rock 28.22S–32.35E/18.XII.1975 E–Y 983 at black light (1 ex. TMP). – Madagascar: SO L. Iotry 40 m Morombe VII. 1957/*H. humilis* Shp det. Legros (18 exx. MNHN, 5 exx. MZH); SO Lambomakandro 500 m Tuléar 19.VII. 1957 (1 ex. MNHN); Lambomakandro 500 m Tular VII. 1957/*H. humilis* Shp det. Legros (4 exx. MNHN); SO Lambomakandro 550 m Sakaraha 7.II.1955 (1 ex. MNHN); Sakaraha 7.II.1955/*H. crassicornis* Kolbe det. Legros (1 ex. MNHN); Pr. Morondava et de Tular 1907 (1 ex. MNHN); Ambijaroa Tsaramandroso 12.XII. 1955 (1 ex. AMS); Ankarafantsika (forest res. nr Marovoay) 1.XII.1959 (1 ex. CAS); Madagascar (3 exx. MNHN, 1 ex. MZH). – Seychelles: Seychellen (1 ex. MNB). – Japan: Otsu 5.VII.1881/*H. acuminatus* Motsch. det. Sharp (1 ex. BMNH); Suruga Sasaki (1 ex. BMNH); Takara Jima Tokara Is. 2., 3., 11.VII.1960/*H. acuminatus* Motsch. det. Satô, 1989 (4 exx. MZH); Ruy Kuys Ishigaki I. 15.VI.1907 (1 ex. MNB) Iriomote Inaba 1.VIII.1962 (1 ex. MZH); Okinawa Iriomote Ohara 27. IV.1991 (2 exx. NMW, 1 ex. MZH). – China: Amoy/*H. acuminatus* Motsch. det. Gschwendtner (2 exx. OLL); Kiu Kiang (1 ex. BMNH). Slightly uncertain records are Wuchang (1 ex. ASC); Beijing Yuguan Mt. IX.1956 (2 exx. ASC); Shanghai (1 ex. MZH). – Taiwan: S. Formose Anping 4.X./*H. acuminatus* Motsch. det. Brancucci (1 ex. MNB, 1 ex. coll. Brancucci); Formosa (3 exx. BMNH). – India: Bombay/*bombayanus* Rég. Bombay (Brit. Mus.)(1 ex. MNHN); Sonapur Mahanhandra Riv. 9–15.IX.1984 (1 ex. coll. Brancucci); Hassan 12.V.1980/Mysore (7 exx. coll. Brancucci). – Burma: Mandalay 3.XI.1984/*H. acuminatus* Motsch. det. Rocchi 1985 (1 ex. coll. Rocchi); Mandalay 20.IX. 1984 (1 ex. coll. Brancucci). – Thailand: Nan 27., 28.XII.1927/*H. acuminatus* Motsch. det. Zimmermann (4 exx. BMNH); Khon Kaen 25.V.–26.VI.1980, 23.XI.1980, 21.II.1981 (7 exx. MNB); Chiangmai 300 m MV light 14.XI.1957 (7 exx. BBM, 1 ex. MZH); Chiangmai 11.VI.1965/at light (2 exx. BBM, 1 ex. MZH); Chien-gmai 12.VI.1965 300 m, arboretum (1 ex. BBM); Sai Yok Yai NW Kanchanaburi 3.XII.1990 (4 exx. NMW, 1 ex. MZH); Riv. Kwai Kanchanaburi 1.XII.1990 (3 exx. NMW, 1 ex. ZH); Kanchanaburi am licht 26.XI. 1990 (2 exx. NMW); Kanchanburi 150 m, 3–7.IV.1991 (1 ex. coll. Brancucci); Tap Tan 20 km WNW Uthai Thani 260 km NW Bangkok (9 exx. coll. Brancucci); ca. 220 km NW Bangkok, 110 m, IX.1990 (208 exx. MNB, 12 exx. MZH); Pattaya 14–16.XII.1979 (2 exx. UZI); Chom Thong 24–28.IV.1991 (88 exx. coll. Brancucci, 9 exx. MZH); Umphang 500 m, 26.IV.–6.V.1991, 16.04N, 98,5 3E (40 exx. coll. Brancucci, 2 exx. MZH); Palong 750 m, 19.55N, 99.06E, 26–28.V.1991 (4 exx. coll. Brancucci); Chiang Dao 350 m, 19.22N,

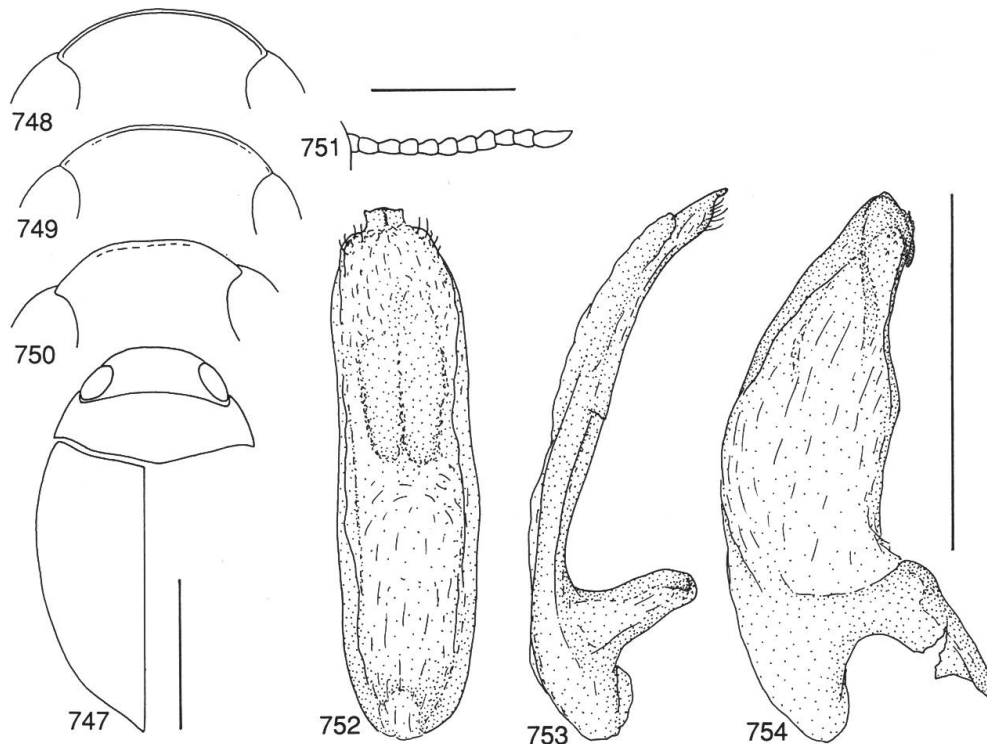
98.57E, 9–14.V.1991 (3 exx. coll. Brancucci); Fang 300 m, 19.55N, 99.12E, 25.V.1991 (3 exx. coll. Brancucci); Lan sang h.p. 500 m, 16.48N, 98.57E, 18–24.IV.1991 (3 exx. coll. Brancucci, 1 ex. MZH). – Malaysia: Ranau 25.I.1959 (3 exx. BBM, 1 ex. MZH); W coast resid. Ranau 500 m 22–25.I.1959 (16 exx. BBM); N Borneo Forest camp 9.8 km SW Tenom 18.XII.1962 (1 ex. BBM); Sarawak VI–IX.1958 (1 ex. BBM). – Vietnam: Travinh VII.1932 (1 ex. BBM); Hanoi 8–13.X.1980 lux (1 ex. MNB); Hanoi 11–19.IX., 4–10.XI., 1–10.XII.1963, 21.V.–11.VI.1986, 30.VI., 4–6.V.1990 (123 exx. coll. Brancucci, 11 exx. MZH); Hanoi (1 ex. coll. Brancucci); Tonkin Hoa-Binh (1 ex. MNHN, 1 ex. ASC); Hoa Binh 4–7.VI.1986 Ha son binh pr. (1 ex. coll. Brancucci); Tujen-Quang VII.1906 (6 exx. coll. Brancucci); Cuc Phuong 1–11.V.1991 (29 exx. coll. Brancucci, 2 exx. MZH); Yen so SE Hanoi 19–23.IV.1966 (5 exx. coll. Brancucci); Mai lam NE Hanoi 12–14.IV.1966 (4 exx. coll. Brancucci); Xuan dinh NE Hanoi 26–29.IV.1966 (7 exx. coll. Brancucci, 1 ex. MZH); Tuong dinh nr Phu ly 24–28.V.1966/lamp (1 ex. coll. Brancucci); Yen Bai, Hoang Lin son distr. V.1990 (7 exx. coll. Brancucci, 1 ex. MZH). – Singapore: Parit Satu 28–29.XI.1960/at light/*H. acuminatus* Motsch. det. J. Balfour-Browne (10 exx. BMNH). – Laos: Vientiane 31.V.–3.VI.1960 light trap (20 exx. BBM, 5 exx. MZH); Vientiane 2–4.VI.1960 (12 exx. BBM, 3 exx. MZH); Luang Prabang 300 m 4–5.VI.1960/light trap (2 exx. BBM); Muong Sing NW L. Prabang 650 m, 6–10.VI.1960/light trap (2 exx. BBM). – Cambodia: Damney Phong 14–16.IV.1961 (1 ex. BBM). – Indonesia: Sumatra: Ft Kock 925 m/*H. acuminatus* Motsch. det. A. Zimmermann (7 exx. BMNH); Ft Koch 920 m, 1924/*H. acuminatus* Motsch. det. Zimmermann (5 exx. MNB, 1 ex. NMW); N Sumatra, lux Dolok-Morongir 1.X.–14.XI.1984 (40 exx. MNB, 6 exx. MZH); Sumatra Manna/*H. acuminatus* Motsch. det. Wewalka 1972 (2 exx. NMW); W Sum. Sicincin 50 km NW Padang 13.II. 1991 (3 exx. NMW); Sumatra-Aceh Umg. Kutacane, Alas riv. 21.II.1991 (2 exx. NMW); N Sum. Tigabinanga, W Kaban jahe 21.II.1991 (1 ex. NMW); Sumatra Toba See, ca 900 m, Samosir 3.II.1990 (7 exx. NMW, 2 exx. MZH); W Sum. Bungus Beach 10 m, 14–23.II.1991 (3 exx. NMW, 1 ex. MZH); S Nias Umg. Telukdalam 8.II. 1990 (6 exx. NMW, 1 ex. MZH); Sumatra (4 exx. BMNH, 1 ex. MNB); Java: Papandajan 10.IV.1909/*H. acuminatus* Motsch. det. J. Balfour-Browne (1 ex. BMNH); Jakarta 28.II.1989 (7 exx. NMW, 2 exx. MZH); Jakarta 1.III.1989 (1 ex. NMW); Buitenzorg, Croisiere du Nirvana 8.IV.1908 (2 exx. coll. Brancucci); Batavia (1 ex. MNB); Depok 14.IV.1909/*H. acuminatus* Motsch. det. J. Balfour-Browne (1 ex. BMNH); Java (1 ex. BMNH, 1 ex. ASC); Java Roban V. 1907 (1 ex. BBM); Bali Ubud 15.II.1988 (3 exx. NMW, 1 ex. MZH); Bali Ubud ca 300 m, Reisfeld 26.VIII.1990 (20 exx. coll. Balke & Hendrich, 7 exx. MZH); Bali I. 21.III.1965 (1 ex. BBM); Bali Candi Dasa 12.II.1988 (2 exx. N MW); Borneo: Kendangan 15.V.1882 (5 exx. MNB); Celebes: Macassar 1874 (5 exx. BMNH); Macassar III.1896 (2 exx. MNB); Macassar (1 ex. BMNH, 1 ex. MNB); Timor Dili 5 m, 25–27.XII.1963 (7 exx. BBM, 2 exx. MZH); Timor/*H. acuminatus* Motsch. det. J. Balfour-Browne (1 ex. BMNH); Lombok Suranadi 3.II.1988 (1 ex. NMW, 1 ex. MZH); Lombok Mataram 10.II.1988 (2 exx. NMW); Lombok (1 ex. BMNH); East Ind. Arch. (1 ex. BMNH). – Philippines: Manila X.1915 (5 exx. MNB); Manila 2.XI.1914 (761 exx. MNB, 12 exx. MZH); Manila lux (586 exx. MNB); Manila (1 ex. BBM); Los Banos (1 ex. BBM); Camarines Sur, vic. Irgin town 1.V.1962 (1 ex. BBM); Luzon (1 ex. MNB); Luzon 17.X. 1913 (10 exx. MNB); Mindanao Sioeon X. 1974 (1 ex. coll. Rocchi); Mindanao Ozamis City 22.X.1959 (12 exx. BBM, 4 exx. MZH); Mindanao Agusan, Esperanza Bagugan Matibog Cr. 7.XI.1959/light trap (2 exx. BM); Mindanao Cotabato, General

Santos 15.VIII.1958/light trap (2 exx. BBM); Mindanao Zamboanga del Norte Manucan 18.X.1959/at kerosene light (1 ex. BBM); 150 m, Palawan Pt Barton 14–18.XII.1990 (6 exx. coll. Brancucci, 1 ex. MZH); 200 m, SW Panay 8 km E Bontol 10–11.XII.1990 (3 exx. coll. Brancucci). – Micronesia: Yap Is. Yap, hill behind Yap town 2.XII.1952, 50 m/light trap (1 ex. BBM); Mariannes (2 exx. coll. Brancucci). – Location unknown: 78485/*H. acuminatus* Motsch. (1 ex. MNB). In all, 2472 exx.

Diagnosis: A variable species, which nevertheless is easily recognized if the male is available for study: Appearance of penis is very peculiar; penis (dorsal aspect) is quite broad and narrows abruptly to a distinct, obtuse apex. No other *Hydrovatus* species has this kind of penis-shape.

Length of body: 2.08–2.72 mm, breadth: 1.30–1.70 mm. Habitus (Fig. 747). Appearance of punctation, microsculpture and frontal part of head variable.

Head: Pale ferruginous to brown. Head sometimes frontally paler than posteriorly. Punctation fine to very fine, rather sparse, often indistinct. At eyes and in frontal shallow depressions with slightly denser punctures. Submat, distinctly microsculptured. Head frontal-



Figs 747–754: *Hydrovatus acuminatus*. – 747, habitus. – 748–750, head, frontal aspect. – 751, antenna. – 752, penis, dorsal aspect. – 753, penis, lateral aspect. – 754, paramere. Horizontal scale 0.5 mm, head and antenna; left scale 1 mm, habitus; right scale 0.5 mm, genitalia.

ly rounded, medially straightened. From eye to eye narrowly and finely margined; sometimes margin strongly reduced (only medially discernible as vague fragments) (Figs 748–750). Antenna pale ferruginous, quite slender, not distinctly modified (Fig. 751).

Pronotum: Pale ferruginous to dark ferruginous to brownish. Laterally often paler than in mid-region. Mediobasally sometimes with a small, vague, darkened area. With fine, discally sparse punctation. Submat, microsculptured (meshes distinct). Lateral outline of pronotum rounded to almost straight.

Elytra: Ferruginous to pale ferruginous to brownish, without distinct colour pattern. Finely to rather finely and rather sparsely punctate. Laterally and apically punctures still finer and sparser. Rows of punctures generally quite indistinct, sometimes hardly visible. Sometimes discal row at least basally clearly discernible. Somewhat irregular lateral row generally clearly discernible. Submat, microsculptured (meshes generally distinct). Epipleura pale ferruginous to brownish, with a few punctures, finely microsculptured.

Ventral side: Ferruginous to pale ferruginous to brownish. Finely to fairly coarsely punctate. Abdomen almost impunctate (basally with fine punctures). Fairly distinctly microsculptured except medially on metathorax; microsculpture almost absent. Metacoxal plates sometimes partly with indistinct reticulation. Prosternal process laterally margined, medial surface almost flat, finely punctate to almost impunctate but with quite distinct reticulation.

Legs: Pale ferruginous to pale brown. Pro- and mesotarsus slightly enlarged.

Male genitalia: Figs 752–754.

Female: Externally approximately as male.

Distribution: Turkey, Iraq, Saudi Arabia, Egypt, Gambia, Guinea Bissau, Sudan, Ethiopia, Ghana, Nigeria, Malawi, Tanzania, Mozambique, South Africa, Madagascar, Seychelles, Japan, China, Taiwan, India, Sri Lanka, Burma, Thailand, Cambodia, Laos, Vietnam, Malaysia, Singapore, Philippines, Micronesia: Yap Island, Mariannes, and Indonesia: Sumatra, Borneo, Java, Lombok, Bali, Celebes, Timor (Fig. 755). There are unverified records as follows: ZIMMERMANN (1920a) gives Syria and (1920b) Namibia, WEWALKA (1989) gives Israel, HOSSEINIE (1978) Iran, BRUNEAU DE MIRÉ & LEGROS (1963) Chad and Zaire, and GUIGNOT (1945a) Kenya, (1955f) Mauritania, and (1959a) Uganda. Finally, OMER-COOPER (1965) adds Senegal, Somalia, Congo, Mauritius, Aldabra and Co-

mores. Note that the species occurs in the text of literature referred to under different names, now regarded as synonyms.

Biology: CURTIS (1991) reports the species from wetlands in calcareous rock regions. CSIKI (1938) reports it from warm springs (39 degrees Celsius). In Iran the species is regarded as preferring calm or stagnant water (HOSSEINIE, 1978). In the Andaman Islands, reported from a brook near a ricefield (WEWALKA, 1982) and in the Near East from springfed pools with vegetation (WEWALKA, 1989). In Sumatra collected at an altitude of 900 m a.s.l. Often sampled at light collection. Also from temporary water bodies. Note that the species occurs in the text of literature referred to under different names, now regarded as synonyms.

Synonymy: *H. acuminatus* is known from different parts of its range under different names which have, in part been synonymized earlier. A few new synonyms are established here (see above) based on studies of the type material of the respective taxon but still many problems remain unsolved, because of a female type in one case and

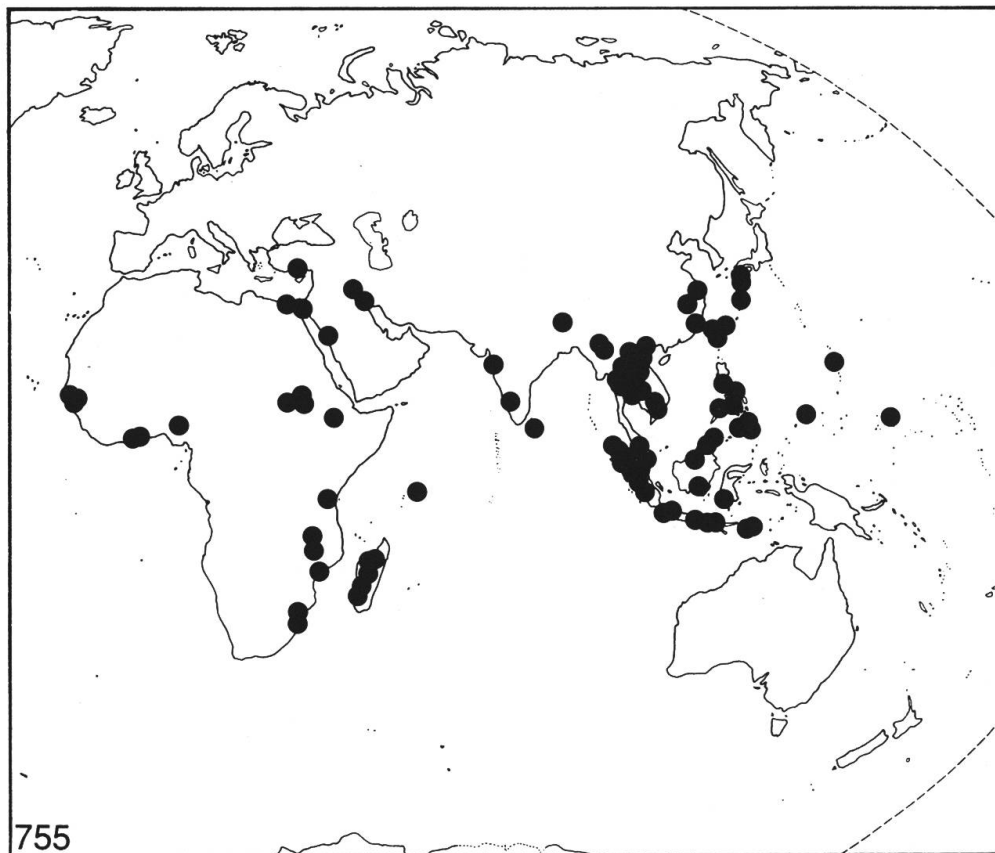


Fig. 755: Distribution of *Hydrovatus acuminatus*.

because the type material of *H. acuminatus* has not been located. The synonymic linkage to the name *H. acuminatus* goes back to earlier works (see above). At the present stage of knowledge I prefer not to distinguish subspecies, although geographical morphes may be distinguished. This species undoubtedly needs further study!

6.5.10. Species group 10 (sp.gr. *parallelipennis*)

Hydrovatus niokolensis Guignot

Figs 756–761, 778.

Hydrovatus niokolensis GUIGNOT, 1956b:214 (orig. descr., faun.); BILARDO & PE-
DERZANI, 1978:108 (disc.); BILARDO & ROCCHI, 1990:181, 192 (descr., faun.).

Type locality: Badi, Niokolo Koba National Parc, Senegal.

Type material studied: Holotype, m: Mission du IFAN au Parc National du Niokolo Koba Badi (Sngal) 15.VIII–25.IX.1955/Type/Museum Paris/F. Guignot det., 1954 *Hydrovatus (Vathydrus) niokolensis* n.sp. Type (MNHN). – Paratypes: Principally same as holotype (1 ex. MNHN, 1 ex. IFAN); Ouassadou 12.VIII.1955/au Parc National du Niokolo Koba (Sengal)/Paratype/Museum Paris 1960 Coll. F. Guignot (2 exx. MNHN); Ouassadou 12.VIII.1955 (1 ex. IFAN). In all, 6 exx.

Diagnosis: A quite distinct species, characterized by a somewhat elongated body, by very fine, sparse, hardly visible elytral punctation, and by the shape of the penis (dorsal aspect): Quite broad, narrows evenly towards an obtuse apex. Probably most closely related to *H. nimbaensis*. The two species are distinguished by difference in body size (*H. niokolensis* is smaller), by difference in shape of the male protarsal claws (thickened in *H. nimbaensis*) and by differences in the shape of the penis.

Length of body: 3.24–3.40 mm, breadth: 1.88–2.02 mm. Habitus (Fig. 756).

Head: Dark ferruginous to ferruginous. Finely and rather sparsely punctate. In rather shallow frontal depressions and narrowly at eyes with slightly coarser punctures. Shiny, very finely microsculptured (meshes discernible but very fine, partly indistinct). Head frontally rounded, medially straightened. Very finely margined (margin medially broken for a short distance) (Fig. 757). Antenna pale ferruginous, rather slender (Fig. 758).

Pronotum: Blackish ferruginous to ferruginous. Laterally palest. Finely, somewhat irregularly and sparsely punctate. At margins with an irregular row of punctures, which at basal margin is somewhat rudimentary and indistinct. Rather shiny, microsculptured (meshes very weakly developed but generally discernible). Lateral outline of pronotum rounded to almost straight.