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13. Apex of penis almost straight (Fig. 1234); penis narrows quite abruptly towards apex (Fig. 1233); elytral punctation fairly dense; outline of paramere apex rounded (Fig. 1235).

H. confertus Sharp (p. 524)

- Apex of penis curved (Fig. 1240); penis narrows quite evenly towards apex (Fig. 1239); elytral punctation sparse: outline of paramere apex somewhat obtuse (Fig. 1241).

H. subtilis Sharp (p. 526).

For description of species, see pages 521.

Species group 15 (sp.gr. *clypealis*)

Length of body: 2.30–2.64 mm, breadth: 1.46–1.66 mm. Body fairly globular, without colour pattern.

Head: Male head frontally slightly extended, medially almost straight, and from eye to eye margined (Fig. 1316). Female head with frontal outline rounded. Male antenna with segments three to ten quite short (Fig. 1317). Palpi simple.

Ventral side: Male provided with stridulatory apparatus, which consists of approximately 15 ridges.

Legs: Male protarsal claws simple.

Male genitalia: Penis with extended narrow apex (Fig. 1320). Paramere apically not distinctly hooked, provided with minute tubercles (Fig. 1323).

One species is recognized in this subgroup and it has a western palearctic distribution (*H. clypealis* Sharp).

A deviating species of *Hydrovatus*, which is provided with a stridulatory apparatus, but which lacks a distinctly hooked paramere. This combination is unique in *Hydrovatus*. Minute tubercles on paramere apex is probably an apomorphous character.

For description of species, see page 551.

6.5. Descriptions of the species

Abbreviations used: m = male specimeu, f = female specimen.

6.5.1. Species group 1 (sp.gr. *pictulus*)

Hydrovatus pictulus Sharp

Figs 21-27, 42.

Hydrovatus pictulus Sharp, 1882a:323 (orig. descr.); BRANDEN, 1885:26 (faun.); SEVERIN, 1892:472 (list.); RÉGIMBART, 1895b:105 (descr., faun.); 1903:11 (faun.); ZIMMERMANN, 1920a:35 (faun., list.); GUIGNOT, 1959a:150, 157 (descr., faun.).

Hydrovatus dilutus KOLBE, 1883:403, 405 (orig. descr., faun.); BRANDEN, 1885:26 (faun.); RÉGIMBART, 1895b:105 (disc.); 1903:11 (list.); ZIMMERMANN, 1920a:35 (list.); GUIGNOT, 1959a:157 (list.).

Hydrovatus scymnoides RÉGIMBART, 1895b:104 (orig. descr.); ZIMMERMANN, 1920a:35 (faun., list.); GUIGNOT, 1942:13 (disc.); 1943:87 (disc.); OMER–COOPER, 1958:57 (faun., biol.); GUIGNOT, 1959a:149, 156 (descr., faun.); 1959c:139 (faun.); 1961a:234 (faun.); OMER–COOPER, 1963:168, 171 (descr., faun.); 1965:97 (descr., faun.). **New synonym.**

Type locality: Madagascar.

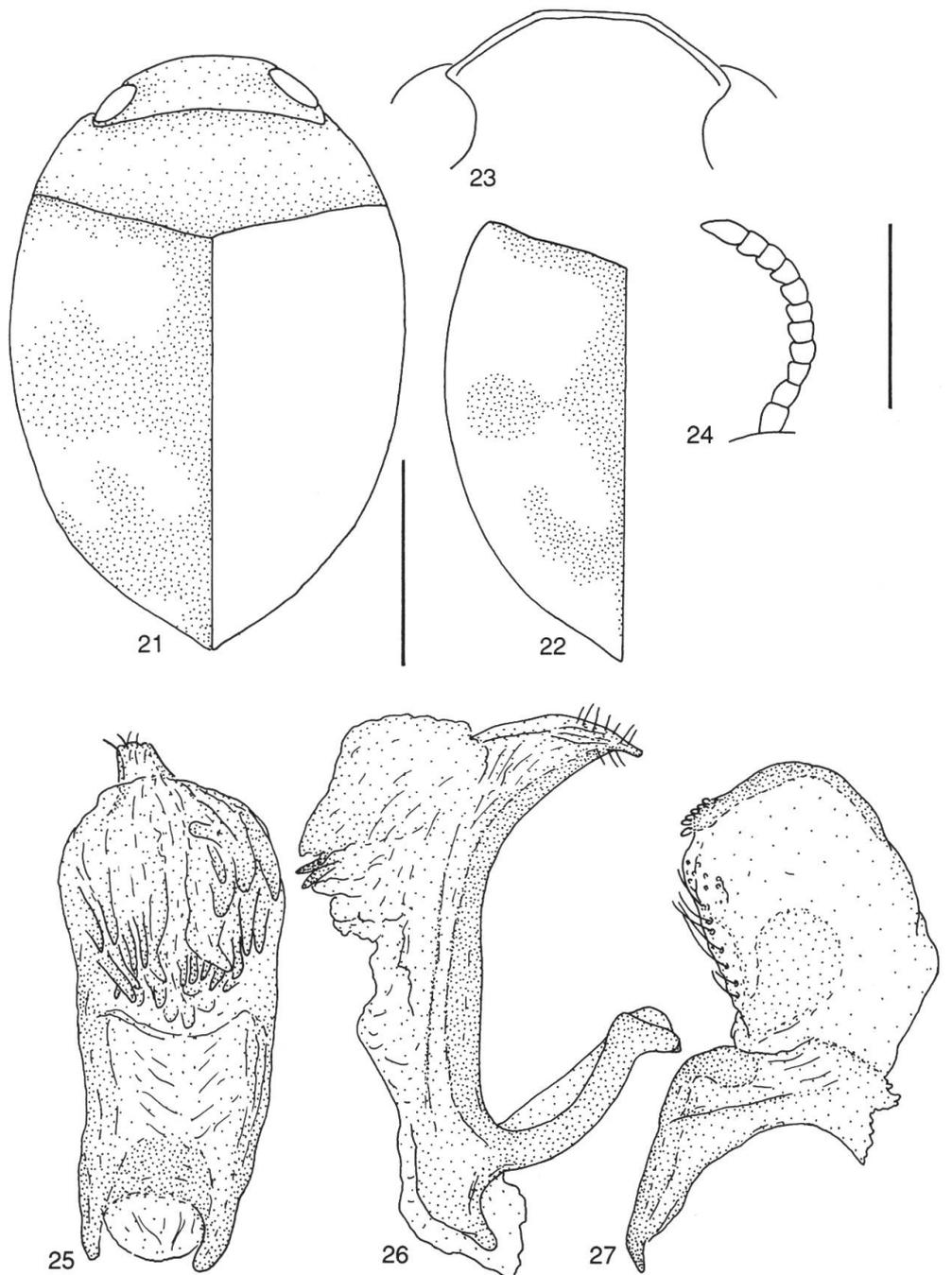
Type material studied: *H. pictulus* Sharp: Lectotype, m, by present designation: *Hydrovatus pictulus* Type Madagascar/Madagascar/Type 4 *Hydrovatus pictulus*/*Hydroporus rotundatus* Javet Madagascar (BMNH). – Paralectotypes: 2879/Madagascar coll. Chevrolat Det. Sharp 82/*Hydrovatus pictulus* Ind. typ. Madagascar D.S./Sharp det. 1882 *Hydrovatus pictulus* Shp/Type/R. Mus. Hist. Nat. Belg. Mouchamps (1 ex. ISN). – *H. dilutus* Kolbe: Lectotype by present designation: 10074/Type/Madagascar Goudot/*Hydrovatus dilutus* Kolbe (MNB). – Paralectotypes: Same data as lectotype (5 ex. MNB). Two of the paralectotypes most probably belong to another *Hydrovatus* species. – *H. scymnoides* Régimbart: Holotype, m: Badumbé/m/Museum Paris coll. Maurice Régimbart 1908/Type/*scymnoides* Rég. (MNHN).

Additional material studied: Zaire: Kasai, Ngombe 16.XI.1921 (3 ex. ZSM, 1 ex. MZH). – Ghana: Ashanti reg. Kwadaso 320 m/mixed light 11.III.1969 (1 ex. TMB). – Kenya: Kibwezi (1 ex. MNB, 1 ex. MZH). – Tanzania: Zanzibar Pemba IX.1955 (2 ex. AMS). – Angola: Hula pr. Humbe 5.VI.1954/very small pool (1 ex. BMNH). – Zimbabwe: Wankie game res. 3.X.1948 (1 ex. AMS); Simukwe, pond 30.VIII.1948/*H. scymnoides* Régb. det. Omer–Cooper (1 ex. AMS); 1 mi. from Lundi, big pool 12.XI.1948 (1 ex. AMS); 26 mi. from Ft. Victoria on Beitbridge rd, pond 13.XI.1948/*H. scymnoides* Régb. det. Omer–Cooper (1 ex. AMS); Mudzi VII.1986 (2 ex. coll. Smith). – Namibia: Kaokoveld Swartbooisdrift 17.19S–13.49E/8.II.1975 EY 640 light collection (18 ex. TMP, 6 ex. MZH). – Botswana: Chobe Distr. Savute Drift Camp 34S, 24.04E, 29.XII.1988 (1 ex. CMNH). – Swaziland: Little Usutu riv. nr Bremer-sdorp 5.XII.1948/*H. scymnoides* Régb. det. Omer–Cooper (2 ex. AMS). – Madagascar: Centre Foret Vakoana Ambalavaroandra 1530 m, Andringitra-Ambalavao 21.–23.I.1958/*H. ? pictulus* Sh. Legros det. (2 ex. MNHN, 1 ex. MZH); Diego Suarez Analamerana 80 m, 50 km SE Diego I.1959 (1 ex. MNHN); Diego Suarez Mont. Francis II.1959 (1 ex. MNHN); D. Suarez (2 ex. MNHN); Betafo VII.1949 (1 ex. MNHN); Centre-Sud 1901 (1 ex. MNHN); Lac Mantasoa 29.VIII.–1.IX.1987 (1 ex. MNS); Env. Antsirabe q. 1600 c.a., 15.VII.1970 (1 ex. coll. Bilardo); Madagascar 1906 (1 ex. MNHN, 1 ex. MZH). In all, 65 exx.

Diagnosis: The species is distinguished from other *Hydrovatus* species by the character-combination of obtuse male head, broad and strongly curved penis, the apex of which is hairy, and peculiar, non-hooked paramere.

Length of body: 2.14–2.86 mm, breadth: 1.54–1.94 mm. Habitus (Figs 21–22). Body with variable colour pattern.

Head: Pale ferruginous to ferruginous. Punctuation fine, somewhat sparse and irregularly distributed. Submat, microsculptured



Figs 21–27: *Hydrovatus pictulus*. – 21–22, habitus. – 23, male head, frontal aspect. – 24, male antenna. – 25, penis, dorsal aspect. – 26, penis, lateral aspect. – 27, paramere. Left scale 1 mm, habitus; right top scale 0.5 mm, head and antenna; right bottom scale 0.5 mm, genitalia.

(meshes distinct). Frontally rounded, medially straight to almost straight, from eye to eye distinctly but quite narrowly margined (Fig. 23). Frontally with two shallow depressions. Anterior part of head

slightly bent downwards. Antenna quite slender, not distinctly modified (Fig. 24).

Pronotum: Blackish to dark ferrugineous, laterally with fairly broad, vague areas. Sometimes dark areas reduced to mediobasal spot. Fairly densely and finely punctate. Discally on each side with narrow, almost impunctate areas. Submat, microsculptured (meshes distinct). Sides of pronotum almost straight to rounded.

Elytra: Blackish to dark ferrugineous, with somewhat vague and variable ferrugineous to pale ferrugineous areas (Figs 21–22). Sometimes colour pattern distinct. Finely to rather finely and quite sparsely punctate. Punctation somewhat irregularly distributed, finest apically and laterally. Discal and lateral rows of punctures indistinct but generally discernible. Dorsolateral row of punctures absent or only indicated by a few scattered punctures. Rather shiny, although microsculptured (meshes mostly discernible). Epipleura pale ferrugineous to ferrugineous, finely and towards metacoxal plates quite densely punctate, rather shiny although finely microsculptured.

Ventral side: Ferrugineous to pale ferrugineous. Fairly coarsely to rather finely punctate. Abdomen finely punctate except basally (with quite coarse punctures). Shiny, not microsculptured, except metacoxal plates posteriorly and on abdomen, which are finely microsculptured. Prosternal process laterally finely margined, medial surface almost flat, finely and quite densely punctate. Stridulatory apparatus absent.

Legs: Pale ferrugineous to ferrugineous. Pro- and mesotarsi somewhat enlarged.

Male genitalia: Figs 25–27.

Female: Frontal aspect of head rounded.

Distribution: Mali, Ghana, Zaire, Kenya, Tanzania, Angola, Zimbabwe, Namibia, Botswana, Swaziland, Madagascar (Fig. 42). The junior synonym *H. scymnoides* was in its original description recorded from Senegal. This record today refers to Mali. OMER–COOPER (1958) reports the species also from Malawi and (1963) from South Africa and finally (1965) also from Congo. Additionally GUIGNOT (1959a) gives Sudan.

Biology: In Angola sampled in a very small swampy pool. The species has been collected at altitude of 1530 m a.s.l. In Ghana and Namibia sampled at light collection (e.g. mixed light). The species was also sampled from a swiftly running river with pools among rocks (OMER–COOPER 1958).

Synonymy: Lectotypes and holotype of *H. pictulus*, *H. dilutus* and *H. scymnoides* have been examined and found to belong to the same variable species. *H. pictulus*, being oldest, is the valid name of this species.

Hydrovatus crassulus Sharp

Figs 28–35, 42.

Hydrovatus crassulus, SHARP 1882a:330 (orig. descr.); BRANDEN, 1885:26 (faun.); ZIMMERMANN, 1920a:32 (faun.); 1921:191 (descr.); 1925:2 (faun.); BRUCH, 1927:541 (faun.); BLACKWELDER, 1944:75 (faun.); YOUNG, 1963:188, 189 (descr., disc., faun.).

Type locality: Santa Rita, Brazil.

Type material: Lectotype, f, by present designation: *Hydrovatus crassulus* Type D.S. (Type) Type 17/S. America Brazil/Sharp Coll. 1905–313/Santa Rita/*Hydrovatus crassulus* Brazil (BMNH). – Paralectotype: 310/Cotype/S. America Brazil/Sharp Coll. 1905–313 (1 ex. BMNH).

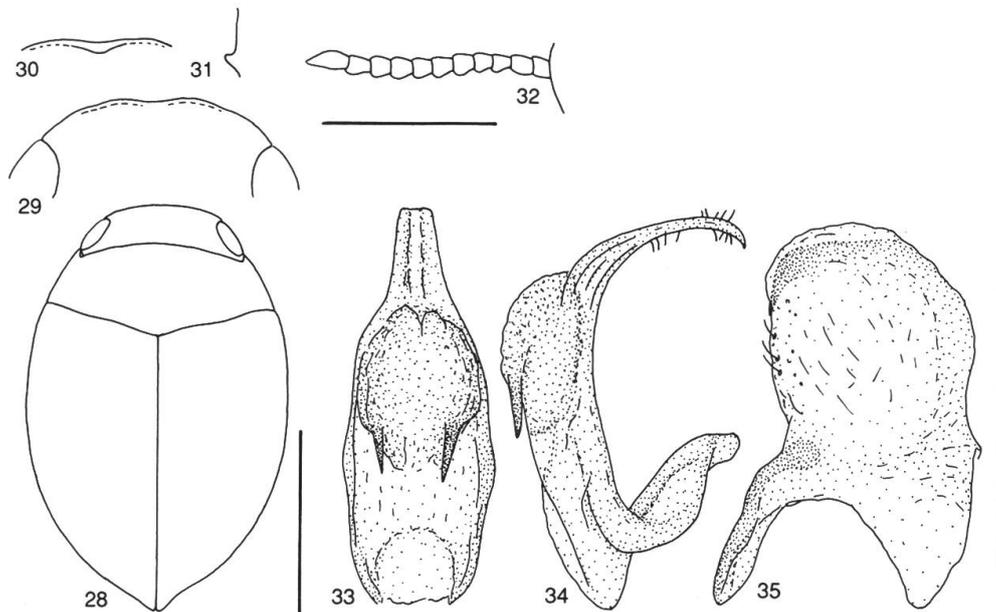
Additional material studied: Venezuela: Calabozo/15.VII.1961 (2 exx. MZH, only females, determination uncertain). – Brazil: Matto Grosso Cuiaba 10.V.1972/*H. crassulus* Shp det. Young (2 exx. MZH); Matto Grosso Corumba/*H. crassulus* Shp det. Young (2 exx. BMNH); Corumba (4 exx. MNB). – Argentina: Concordia Pr. Etre Rios (1 ex. CAS). In all, 13 exx.

Diagnosis: Undoubtedly very close to *H. hintoni* n. sp. The two species can be distinguished by examination of external characters. Male head frontally strongly thickened, medially forming a minute hook (*H. hintoni* male without hook). Frontal aspect of female head medially slightly curved inwards (not curved inwards in *H. hintoni*). There are also useful characters in male genitalia: Penis apically with few hairs (*H. hintoni* penis densely haired) and laterobasally without curved lobes (*H. hintoni* with curved lobes).

Length of body: 2.04–2.20 mm, breadth: 1.36–1.50 mm. Body quite globular (Fig. 28).

Head: Pale ferruginous. Punctuation very fine, indistinct and partly absent. At eyes and in shallow frontal depressions with denser punctuation. Slightly mat, finely microsculptured (meshes distinct). Frontal aspect of head medially thickened and somewhat upwards curved (Figs 30–31). Antenna pale ferruginous, rather slender, not distinctly modified (Fig. 32).

Pronotum: Ferruginous, laterally with broad but vague pale ferruginous areas. Punctuation fine to very fine, sparse. At pronotal margins with denser punctuation. Rather shiny to slightly mat, finely microsculptured (meshes generally discernible). Sides of pronotum slightly rounded.



Figs 28–35: *Hydrovatus crassulus*. – 28, habitus. – 29, female head. – 30, male head, foremargin, dorsal aspect. – 31, male head, foremargin, lateral aspect. – 32, female antenna. – 33, penis, dorsal aspect. – 34, penis, lateral aspect. – 35, paramere. Vertical scale 0.5 mm, head and antenna; left scale 1 mm, habitus; right scale 0.3 mm.

Elytra: Dark ferrugineous to ferrugineous, laterally paler but without distinct colour pattern. Punctuation rather fine to fairly coarse, fairly dense, apically and close to epipleura punctures distinctly finer. Distinct rows of punctures absent. Rather shiny, finely microsculptured (meshes generally discernible). Epipleura pale ferrugineous, quite distinctly punctate but microsculpture indistinct.

Ventral side: Ferrugineous to pale ferrugineous. Rather finely to fairly coarsely and densely punctate. Abdomen, except basally, almost impunctate. Shiny, almost without microsculpture, abdomen partly submat, finely reticulated. Prosternal process laterally rather finely margined, medial area almost flat and with distinct punctures.

Legs: Pale ferrugineous to ferrugineous to brownish. Pro- and mesotarsi slightly broadened.

Male genitalia: Figs 33–35.

Female: Frontal aspect of head not curved upwards, instead medially slightly concave (Fig. 29).

Distribution: Venezuela (?), Brazil, Argentina (Fig. 42). Zimmermann, (1920a) also gives Ecuador.

Biology: Unknown.

Hydrovatus hintoni n.sp.

Figs 36–42.

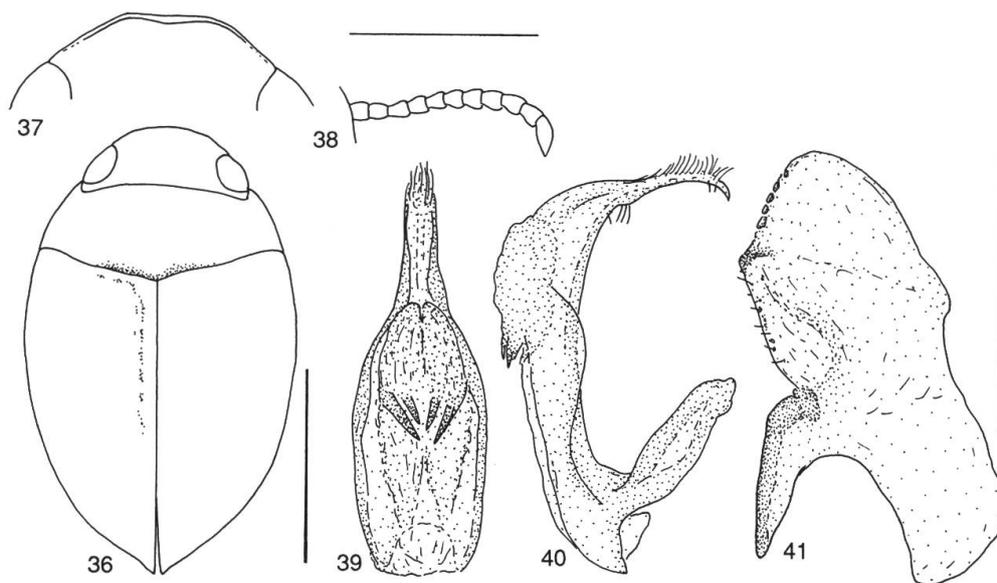
Type locality: Tejupilco, Temascaltepec, Mexico.

Type material studied: Holotype, m: Tejupilco Mex. Temascaltepec VI.1933/Type/H.E. Hinton, R.L. Usinger Collectors/*Hydrovatus hintoni* sp.n. Type! J. Balfour—Browne det. 1944 (BMNH). – Paratypes: Principally with same date as holotype (1 ex. BMNH, 1 ex. MZH); as holotype but 15.VI.1933 (1 ex. BMNH); Tepic Nayarit Mex. IX–21 to 24–53 B. Malkin (13 exx. CAS, 6 exx. MZH); Mex. Nayarit Acajoneta VIII–15–60/P.H. Arnaud, Jr., E.S. Ross, D.C. Rentz (1 ex. CAS); Mexico Chiapas 3 miles SE of Comitán 23 June 1965 D.E. Breedlove Cal. Acad. Sci. Coll. (1 ex. CAS); 20 mi W Jiquilpan, Jal. Mex. XI–30–48/H.B. Leech Collector/*Hydrovatus* n.sp. det. F.N. Young (1 ex. CAS). In all, 26 exx.

Etymology: The manuscript-name *H. hintoni*, proposed by J. Balfour-Browne, is here adopted.

Diagnosis: See above under the diagnosis of *H. crassulus*, only differences from description of *H. crassulus* are noted.

Length of body: 1.80–2.18 mm, breadth: 1.08–1.36 mm. Habitus (Fig. 36).



Figs 36–41: *Hydrovatus hintoni*. – 36, habitus. – 37, male head, frontal aspect. – 38, male antenna. – 39, penis, dorsal aspect. – 40, penis, lateral aspect. – 41, paramere. Vertical scale 0.5 mm, head and antenna; left scale 1 mm, habitus; right scale 0.3 mm, genitalia.

Head: Frontal aspect of head rounded, medially almost straight, narrowly margined. Margin close to eyes indistinct, medially thickened (Fig. 37). Antenna (Fig. 38).

Pronotum: Pale ferrugineous to pale brown, basally in middle with small vague darkened area. Rather shiny, very finely microsculptured (meshes discernible although very weakly developed).

Elytra: Pale ferrugineous to pale brown, without distinct colour pattern. Punctuation fine to rather fine, sparse, slightly irregularly distributed. Discal row of punctures frontally clearly discernible. Dorsolateral and lateral rows of punctures indistinct, sometimes almost absent. Epipleura pale brown, with a few fine punctures, indistinctly microsculptured.

Ventral side: Prosternal process laterally fairly broadly, although weakly margined. Medial surface of process almost flat, with indistinct punctures.

Male genitalia: Figs 39–41.

Female: Externally approximately as male but foremargin of head medially less thickened.

Distribution: Mexico (Fig. 42).

Biology: Unknown.

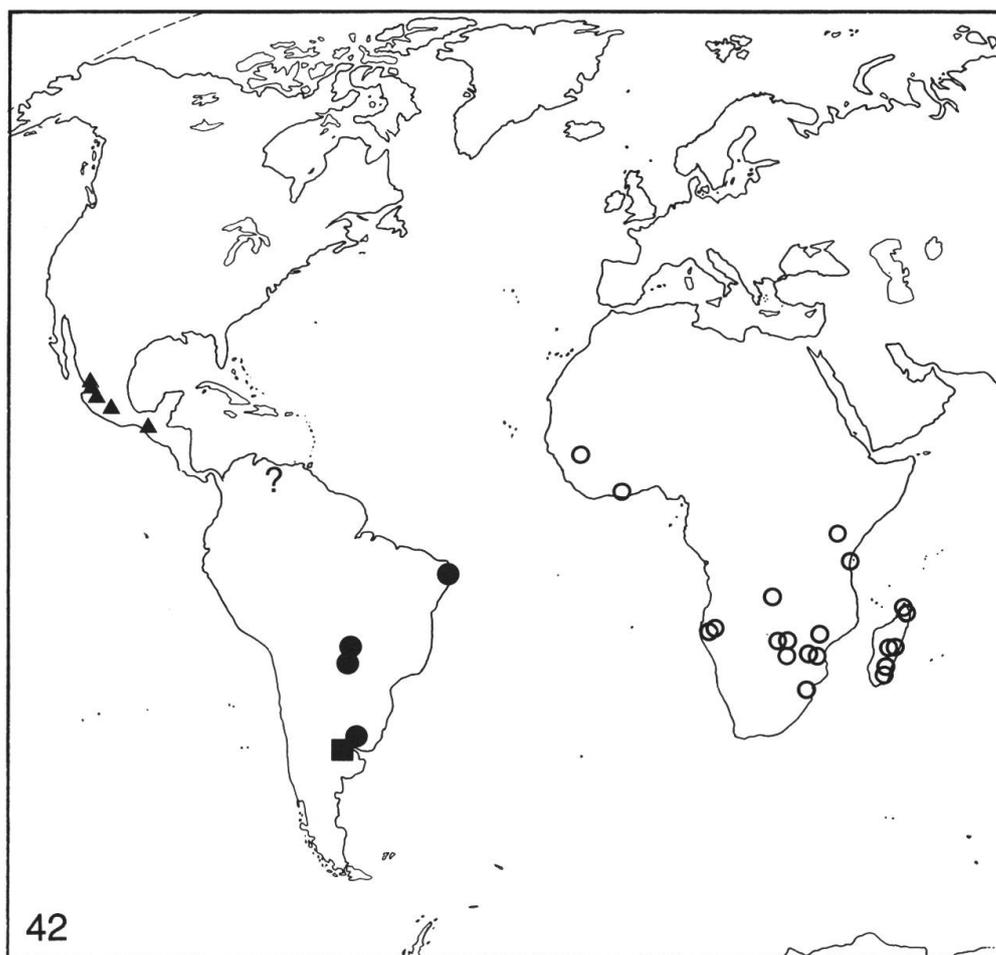


Fig. 42: Distribution of *Hydrovatus pictulus* (circle), *H. crassulus* (dot and ?), *H. hintoni* (triangle) and *H. turbinatus* (square).