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Revision of the *nigrita*-group of *Hydroporus* CLAIRVILLE, 1806 (Insecta: Coleoptera: Dytiscidae)

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Abstract

The six species assigned to the *nigrita*-group of *Hydroporus* CLAIRVILLE, 1806 are revised. *Hydroporus sabaudus* FAUVEL is established as a valid name for the species which has been treated as *H. nivalis* HEER. *Hydroporus nivalis* is found to be a senior synonym of *H. foveolatus* HEER but for matters of stability a proposal for precedence of the name *Hydroporus foveolatus* over the name *Hydroporus nivalis* has been submitted to the Commission of Zoological Nomenclature. *Hydroporus sabaudus sierranevadensis* ssp.n. is described from the Sierra Nevada, Southern Spain. *Hydroporus tibetanus* ZAITZEV, erroneously attributed to the *nigrita*-group till now, is transferred to the *acutangulus-polaris* species complex. Descriptions, distributional data, and some bionomical notes are presented.

The great variability of the main characters of the species is discussed. A key to all species of the *nigrita*-group is presented which will allow the separation of most specimens. The body outlines and aedeagi of the studied species are figured to show the variability of body shape, coloration, and shape of median lobe. Lectotypes are designated for the following nominal species: *Hydroporus nigrita* (F., 1792), *H. trivialis* STEPHENS, 1828, *H. glabellus* THOMSON, 1867, *H. subalpinus* THOMSON, 1871, *H. monilicornis* J.SAHLBERG, 1875, *H. bisbiguttatus* J.SAHLBERG, 1921, *H. sabaudus* FAUVEL, 1865, *H. alticola* SHARP, 1882, *H. nivalis* var. *scholzii* KOLBE, 1899, *H. kozlovskii* ZAITZEV, 1927, *H. nivalis* HEER, 1839, *H. foveolatus* HEER, 1839, and *H. tibetanus* ZAITZEV, 1953.

Key words: Insecta, Coleoptera, Dytiscidae, Hydroporinae, *Hydroporus*, *nigrita*-group, new synonymy, new subspecies, key to species, taxonomy, lectotypes, first records, distribution.

Zusammenfassung

Die sechs Arten der *nigrita* Gruppe der Gattung *Hydroporus* CLAIRVILLE, 1806 werden revidiert. *Hydroporus sabaudus* FAUVEL wird als valider Name für die Art, die bisher als *H. nivalis* HEER bezeichnet wurde, festgesetzt. *Hydroporus nivalis* ist ein älteres Synonym von *H. foveolatus* HEER, aber die Unterdrückung des Namens *Hydroporus nivalis* zugunsten von *Hydroporus foveolatus* wurde aus Gründen der Stabilität bei der Nomenklaturkommission beantragt. *Hydroporus sabaudus sierranevadensis* ssp.n. wird aus der Sierra Nevada (Südspanien) beschrieben. *Hydroporus tibetanus* ZAITZEV, der bis dato irrtümlich der *nigrita* Gruppe zugeordnet wurde, wird in den *acutangulus-polaris* Komplex transferiert. Die Studie enthält Beschreibungen und Verbreitungsdaten der Arten sowie Angaben zu deren Lebensweise.

Die enorme Variabilität der wesentlichen Artmerkmale wird diskutiert. Ein Bestimmungsschlüssel erlaubt die Zuordnung von nicht zu stark abweichenden Exemplare zu den jeweiligen Arten. Habitus- und Aedeaguszeichnungen der untersuchten Arten sollen die Variabilität in Körperform, Färbung und Gestalt der Genitalien anschaulich machen. Lectotypen werden für folgende Arten designiert: *Hydroporus nigrita* (F., 1792), *H. trivialis* STEPHENS, 1828, *H. glabellus* THOMSON, 1867, *H. subalpinus* THOMSON, 1871, *H. monilicornis* J.SAHLBERG, 1875, *H. bisbiguttatus* J.SAHLBERG, 1921, *H. sabaudus* FAUVEL, 1865, *H. alticola* SHARP, 1882, *H. nivalis* var. *scholzii* KOLBE, 1899, *H. kozlovskii* ZAITZEV, 1927, *H. nivalis* HEER, 1839, *H. foveolatus* HEER, 1839 und *H. tibetanus* ZAITZEV, 1953.

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Introduction

Hydroporus CLAIRVILLE, 1806, is Holarctic and one of the largest genera of Dytiscidae including species with difficult taxonomy. Many species-groups of this genus are still in need of detailed study. The *Hydroporus nigrita*-group is a poorly defined group of species that are restricted to the Palearctic region. The study of a large amount of specimens and in particular the study of types revealed several taxonomic and nomenclatorial problems which initiated the present work.

Historical review

The *nigrita*-group was treated in different ways. SHARP (1882) did not distinguish this species-group, including almost all *Hydroporus* species (according to present understanding) in his group 4, and indicated that his new species *H. teres* and *H. alticola* were similar to *H. nigrita* (F.) and *H. nivalis* HEER respectively. ZIMMERMANN (1931) included *H. acutangulus* THOMSON, *H. brevis* SAHLBERG, *H. discretus* FAIRMAIRE & BRISOUT, *H. foveolatus* HEER, *H. nigrita*, and *H. nivalis* in the *nigrita*-group and put it together with the *memnonius*-group into his Section V. According to ZIMMERMANN (1931: 3, 42), the members of the *nigrita*-group are characterized as follows: pronotum with lateral bead relatively broad, metacoxal processes with posterior margins conjointly straight truncate, pronotum relatively narrow, at base not broader than elytra, elytra and pronotum concolorous black, body sides rounded, pronotum with lateral margins rounded and converging anteriorly. He did not include *H. teres* in any of his species-groups but wrote that the species might be identical with *H. antidotus* SHARP (a synonym of *H. pubescens* (GYLLENHAL)). GUIGNOT (1931 – 1933, 1947) included *H. nigrita*, *H. nivalis, H. tessellatus* (DRAPIEZ), *H. rufifrons* (O.F. MÜLLER) (as *H. rufifrons* (DUFTSCHMID)) and excluded *H. discretus* and *H. foveolatus* putting these two species into the *planus*-group. ZAITZEV (1953) pointed out that *H. tibetanus* ZAITZEV, *H. kozlovskii* ZAITZEV, *H. nivalis*, and *H. watanabei* TAKIZAWA were similar to *H. nigrita.* Later (NILSSON & NAKANE 1993) *H. watanabei* was established as a synonym of *H. morio* AUBÉ. GUÉORGUIEV (1966, 1987) described *H. thracicus* from Bulgaria and commented on its assignment to the *nigrita*-group. FRANCISCOLO (1979) followed GUIGNOT (1947) and defined the *nigrita*-group by the following characters (l.c. p. 324, 327): elytron with evident microreticulation, pronotum with lateral bead broad, and lateral margins of pronotum and elytra rounded. BRANCUCCI (1981) described *H. martensi* from India, Kashmir, and proposed it to belong to the *nigrita*-group. To define the *nigrita*-group NILSSON & HOLMEN (1995) used the following characters: pronotum with lateral bead broad, elytra with lateral margin weakly ascending to humeral angle, metacoxal processes with posterior margins conjointly truncate, male antenna slightly dilated. They included in the group only *H. nigrita* since their work was dealing with the North European fauna and excluded *H. acutangulus*, *H. brevis*, and *H. rufifrons* (O.F. MÜLLER). Despite the observation that FRANCISCOLO (1979) had included *H. tessellatus* in the *nigrita*-group, this species was considered to belong to the separate *tessellatus*-group (ZIMMERMANN 1931, BALKE & FERY 1993). Eventually seven species were considered by NILSSON (2001) to belong to the *nigrita*-group. They are *H. nigrita* (F.), *H. nivalis* HEER, *H. teres* SHARP, *H. kozlovskii* ZAITZEV, *H. tibetanus* ZAITZEV, *H. thracicus* GUÉORGUIEV, and *H. martensi* BRANCUCCI.

Type studies carried out in the course of this work showed that *H. nivalis* is a senior synonym of *H. foveolatus*, therefore the species hitherto known under the name *H. nivalis* should be known as *H. sabaudus* FAUVEL. In addition, *H. tibetanus* is shown not to belong to the *nigrita*-group but to the *acutangulus-polaris* complex of species of the *planus*-group. Thus, according to analysis of the literature and my own studies, the following species should be recognized to belong to the *nigrita*-group: *H. nigrita*, *H. sabaudus*, *H. kozlovskii*, *H. thracicus*, *H. teres*, and *H. martensi.* The latter two share all characters of the species-group except one (dilated antennomeres), therefore I include them in the *nigrita*-group. These species are, however, known only from the holotypes (females), and additional material is required to clarify their taxonomic status and position.

Abbreviations, acknowledgements and methods

About 1800 specimens from the following museums and private collections have been studied:

CAK	coll. A. Komarek, Mödling
CGW	coll. G. Wewalka, Vienna
CHF	coll. H. Fery, Berlin
CHS	author's private collection
CHSch	coll. H. Schmid, Vienna
CJH	coll. J. Hájek, Prague
CJK	coll. J. Kodada, Bratislava
CJŠ	coll. J. Šťastný, Liberec
CSK	coll. S.M. Khnzorian in coll. M. Kalashian, Erevan
CKE	coll. Ö. Köksal - Erman, Erzurum
CRC	coll. R. Carr, Maidstone
CSR	coll. S. Ryndevich, Baranovichi
CWS	coll. W. Sondermann, Marburg
ETH	Eidgenössische Technische Hochschule Zürich (S. Bieri)
HNHM	Hungarian Natural History Museum, Budapest (G. Szél)
ISNB	Institut Royal des Sciences Naturelles de Belgique, Bruxelles (D. Drugmand)
MHNG	Muséum d'Histoire Naturelle, Genève (G. Cuccodoro)
MNB	Museum für Naturkunde, Humboldt-Universität, Berlin (M. Uhlig, B. Jaeger, J. Frisch)
MNS	Staatliches Museum für Naturkunde, Stuttgart (W. Schawaller)
NHML	The Natural History Museum, London (M. Brendell, S. Shute)
NHMP	The Natural History Museum, Prague (J. Jelinek)
NMW	Naturhistorisches Museum Wien, Vienna (M.A. Jäch)
NMNHS	National Museum of Natural History, Sofia (B. Guéorguiev)
SINM	Smithsonian Institution, National Museum of Natural History, Washington (W. Steiner)
SMF	Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt/Main (D. Kovac, A. Vesmanis)
SNM	Slovak National Museum, Bratislava (R. Csefalvay)
TLF	Tiroler Landesmuseum Ferdinandeum, Innsbruck (M. Kahlen)
UWMP	Uniwersytet Wrocławski, Museum Przyrodnicze, Wrocław (M. Wanat)
ZMH	Zoological Museum, Helsinki (O. Biström)
ZMLU	Zoological Museum of Lund University, Lund (R. Danielsson)
ZMUC	Zoological Museum, University of Copenhagen, Copenhagen (O. Martin)
ZISP	Zoological Institute, Russian Academy of Sciences, St.-Petersburg (A.G. Kirejtshuk)

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The following abbreviations are used in the text: **hw** (handwriting), **TL** (total body length), **TL-H** (total body length without head), **MWE** (maximum elytral width), **PL** (pronotal length from anterolateral angles to posterolateral angles), **MWP** (maximum width of pronotum), **x** (mean value).

The measurements were taken with an eyepiece micrometer, and the drawings were made with the aid of a camera lucida attached to an Olympus stereoscopic microscope. For drawing, the genitalia and the last abdominal sterna were mounted on glass slides with DMHF (temporary preparations). For the measurements a representative number of the specimens from almost each country within the distribution area has been selected; altogether 62 specimens of *H. nigrita*, 89 specimens of *H. sabaudus sabaudus*, 26 specimens of *H. thracicus*, and 34 specimens of *H. kozlovskii* were measured. The minimum and maximum values are given, and for *H. sabaudus sierranevadensis* (16 exs.) the mean values were calculated. Label text is cited using quotation marks separating different labels and slashes to separate different lines on one label. Comments in square brackets are those of the author.

Characters which are common for the whole *nigrita*-group are included in the description of the species-group and are not repeated in the descriptions of the species.

All lectotype designations in the present work are made in order to support the stability of the nomenclature.

Description of the *Hydroporus nigrita*-group

Beetles of medium size (TL = 2.8 – 4.0 mm), with oval or broad oval habitus.

Head dorsally and ventrally mostly black; genae usually not darker than gula; pronotum black, sometimes with reddish or brownish lateral bead; elytron varies from pale brown to black, often with yellow maculae at its base, epipleuron black, shoulder angle reddish or yellowish; ventral surface of body black; antennae and legs reddish to black, paler basally.

Head, pronotum, and elytron with distinct punctation and microreticulation between punctures; head usually with punctation finer and sparser anteriorly and coarser and denser posteriorly; pronotum with punctation finer and sparser on disc than on sides, often with shallow, punctate impressions at posterolateral angles; punctation of elytron not dense (spaces between punctures wider than punctures), denser and more regular than on disc of pronotum but less coarse than on sides of pronotum; epipleuron of elytron

with sparse, weakly impressed punctation; metasternum, metacoxa, and abdominal sterna 1 – 2 with very large punctures, their medial part with very fine and sparse punctation, being denser on metacoxal processes, punctures with hairs; abdominal sterna 3 – 6 with fine, relatively dense punctation; microreticulation of ventral surface fine, absent medially, and more evident on abdominal sterna 3 – 6.

Pronotum not broader than base of elytra, with almost straight or rounded lateral margins, its lateral bead complete and broad (in lateral aspect broader than lateral elytral bead); lateral margin of pronotum in lateral aspect not reflexed upwards on anterolateral angle, epipleuron not visible; posterolateral angle almost right-angled, not rounded or produced and acute; basal margin more or less sinuate on each side of basomedial prolongation. Lateral margin of elytron moderately ascending towards shoulder; epipleuron visible the entire length of the elytron in lateral aspect.

Prosternum with declivity of prosternal process hardly developed: base of prosternum anterior to procoxae almost in one plane with process; prosternal process prolonged anteriorly to base of prosternum as a broad, slightly convex file with transverse grooves; process lancet-shaped, with more or less evident prominence basally, convex and shiny medially, between procoxae with distinct setae, being denser on prominence; process broadest posterioly of procoxa; apex of process shortly rounded.

Metacoxal lines distinctly diverging anteriorly; posterior margins of metacoxal processes conjointly truncate. Protibia not modified, its anterior surface with two rows of punctures; protarsal claws not modified. Antennomeres 5 – 8 dilated, especially in males, in most species.

Median lobe of aedeagus with broadly pointed apex (with small incision) in dorsal aspect and sinuate in lateral aspect.

Thus the following characters are proposed for definition of the *nigrita*-group:

- oval or broad oval habitus;
- pronotum with posterolateral angles almost right-angled, not rounded or produced and acute;
- frequently concolorous black or dark brown dorsal surface of body, sometimes with 2 – 3 paler spots at base of elytron;
- dorsal and ventral surfaces of body with rather strong microreticulation;
- pronotum with lateral bead complete and broad;
- lateral margin of elytron moderately ascending towards shoulder angle;
- posterior margins of metacoxal processes conjointly truncate;
- anterior surface of protibia with two rows of punctures;
- antennomeres evidently dilated in most species;
- median lobe of aedeagus relatively narrow, with broadly pointed apex in dorsal aspect and sinuate in lateral aspect.

The *Hydroporus tessellatus*-group is the closest to the *nigrita*-group. The species of this group can be distinguished from those of the *nigrita*-group by the following characters:

- well developed yellow pattern on elytron, sometimes occupying more than half of elytral surface, therefore elytron paler, yellowish;

- concolorous yellow epipleuron and legs, yellow antenna with brownish apical antennomeres;
- evidently finer microreticulation of dorsal surface of head, pronotum, and elytron;
- median lobe of aedeagus distinctly broader, with broadly rounded apex in dorsal aspect and evenly arcuate in lateral aspect.

Key to species of the *Hydroporus nigrita*-group

Since the species studied demonstrate a great variability of many characters I have tried to reflect that as much as possible in this key. However, it is possible that the key will not be helpful in identification of some "abnormal" specimens. In that case the descriptions of the species (especially paragraphs "Variability") and the habitus and genitalia drawings will be useful, as well as comparative material.

1 Antennomeres not dilated, more or less equal in width (for females, males are unknow). Antenna concolorous reddish brown or with antennomeres 5 – 11 slightly darker apically. Body oval 2

\- Antennomeres evidently dilated, especially antennomeres 5 – 8 (bead-like), more conspicuous in males. Antenna not concolorous, either with antennomeres 1 – 4 yellow to reddish brown and antennomeres 5 – 11 brown to black or with antennomeres brown to black, some of them (especially antennomeres 1 – 4) reddish brown basally. Body oval to broad oval 3

2 Dorsal surface of body not concolorous: head and pronotum black, elytron reddish brown. Dorsal surface of head with even punctation; disc of pronotum with very fine and sparse punctation. Body size smaller: TL = 3.4 mm (Fig. 22). Pronotum more transverse: MWP/PL = 2.7. Distribution: Syria, Jordan ..... ***H. teres***

\- Dorsal surface of body concolorous black. Dorsal surface of head with different punctation: coarser and denser on small central-posterior area and finer and sparser anteriorly; disc of pronotum with coarse, dense punctation. Body size larger: TL = 3.9 mm (Fig. 23). Pronotum less transverse: MWP/PL = 2.3. Distribution: India (Kashmir) ..... ***H. martensi***

3 Elytron brown to black, normally with very evident yellow basal spots that can be strongly developed to hook-like or denticulate basal macula. Pronotum with black lateral bead. Pronotum and elytron with finer microreticulation and denser and stronger yellowish hairs. Distribution: southeastern Europe, Turkey, Caucasus, and Iran (Fig. 74) 4

\- Elytron brown to black, paler basally and laterally, without evident yellow basal spots, rarely with spots but not well developed. Pronotum with black or reddish lateral bead. Pronotum and elytron with distinctly stronger microreticulation and less dense pubescence. Distribution: Europe, Middle Asia, and Siberia (Figs. 73, 74) 5

4 Elytron normally black, with two evident yellow basal spots, frequently joined to hook-like macula (Figs. 19 – 21). Antennomere 1 yellowish or reddish, antennomeres 2 – 4 dark brown to black, only basally paler, antennomeres 5 – 11 dark brown to black. Median lobe larger, with apical half in lateral aspect almost straight, its apex shortly but distinctly curved in lateral aspect and usually more rounded in dorsal aspect (Figs. 59 – 66). Abdominal sternum 6 with punctation coarser and denser on its apical part (Fig. 29). Body size larger: TL = 3.3 – 4.0 mm ..... ***H. kozlovskii***

- Elytron brown to black, with three evident yellow basal spots, sometimes joined to denticulate macula (Figs. 8 – 12). Antennomeres 1 – 4 yellowish, antennomeres 5 – 11 dark brown to black. Median lobe smaller, with apical half in lateral aspect more or less evenly curved, its apex only slightly or indistinctly curved in lateral aspect and usually more pointed in dorsal aspect (Figs. 51 – 58). Abdominal sternum 6 with punctation sparser, finer, and more even on apical part (Fig. 28). Body size smaller: TL = 3.1 – 3.8 mm ..... ***H. thracicus***

5 Body size smaller: TL = 2.8 – 3.4 mm. Antennomeres 1 – 4 yellow to reddish brown, sometimes all antennomeres yellowish or reddish. Pronotum brownish black to black, with lateral bead reddish, at least partly (rarely completely black). Head and pronotum with punctation finer and sparser; punctate impressions on posterolateral angles of pronotum weak; punctural rows on elytron weak, normally inconspicuous, rarely distinct; abdominal sternum 6 with sparse (frequently very fine), even punctation (Figs. 24 – 26). Median lobe smaller and shorter, with apex not curved (Figs. 30 – 42). Pronotum not flattened posterolaterally, elytron not flattened at base and not vaulted behind. Distribution: Europe, Middle Asia, and Siberia (Fig. 73) ..... ***H. nigrita***

- Body size larger: TL = 3.0 – 4.0 mm. Antenna brown to black, sometimes with antennomere 1 reddish to reddish brown and antennomeres 2 – 4 reddish to reddish brown basally. Pronotum black, with lateral bead black. Head and pronotum with punctation coarser and denser; punctate impressions on posterolateral angles of pronotum stronger; punctural rows on elytron well developed; abdominal sternum 6 with punctation not even, coarser and denser, especially apically (Fig. 27). Median lobe larger, with curved apex. Pronotum slightly flattened posterolaterally, elytron often flattened at base and vaulted behind. Distribution: Central European mountains (Fig. 74) **6**

6 Median lobe slender, with less curved apex (Figs. 43 – 49). Head with punctation coarser and denser; disc of pronotum with coarser, relatively denser punctation; microreticulation of elytron and pronotum stronger. Body size smaller: TL = 3.0 – 3.7 mm ..... ***H. sabaudus sabaudus***

- Median lobe evidently larger (thicker), usually with more strongly curved apex (Fig. 50). Head with punctation sparser; disc of pronotum with punctation finer; microreticulation of elytron and especially pronotum much finer. Body size larger: TL = 3.5 – 4.0 mm. Subspecies from Sierra Nevada, southern Spain ..... ***H. sabaudus sierranevadensis* ssp.n.**

Descriptions of the species

Hydroporus nigrita (FABRICIUS, 1792)

Dytiscus nigrita FABRICIUS, 1792: 201 (orig. descr.); STEPHENS 1828: 59 (n. comb.); SHARP 1882: 459 (descr., faun.); ZIMMERMANN 1931: 48 (descr., faun.); GUIGNOT 1947: 98 (descr., faun.); ZAITZEV 1953: 169 (descr., faun.); NILSSON & HOLMEN 1995: 45 (descr., faun.); NILSSON 2001: 163 (cat.); NILSSON 2003: 63 (cat., faun.).

Hydroporus trivialis STEPHENS, 1828: 59 (orig. descr.); GEMMINGER & HAROLD 1868: 437 (syn.).

Hydroporus glabellus THOMSON, 1867: 80 (orig. descr.); J. SAHLBERG 1875: 150 (syn.).

Hydroporus subalpinus THOMSON, 1871: 365 (orig. descr.); HEYDEN 1891: 62 (syn.).

Hydroporus monilicornis J.SAHLBERG, 1875: 154 (orig. descr.); SEIDLITZ 1887: 74 (syn.)

Hydroporus obovatus J.SAHLBERG, 1880: 52 (orig. descr.); ZIMMERMANN 1931: 48 (syn.).
Hydroporus convexior SEIDLITZ, 1887: 67 (orig. descr.); HEYDEN 1891: 62 (syn).
Hydroporus bisbiguttatus J.SAHLBERG, 1921: 1 (orig. descr.); HELLÉN 1929: 38 (syn.).
Hydroporus nigrita ab. *strandi* MARCU, 1936: 634 (orig. descr., Bukovina, Romania).
? *Dytiscus exilis* GMELIN, 1790: 1956 (orig. descr.); NILSSON 2001: 163 (syn.)
? *Dytiscus pusillus* O.F. MÜLLER, 1776: 73 (orig. descr.).

Type material: *Hydroporus nigrita*: **Lectotype** (present designation): ♂ – specimen without original labels, standing after a label "nigrita" [hw Fabricius], "Lectotype / Dytiscus / nigrita F. / des. H. Shaverdo 2002" [red] (ZMUC). **Note:** The designation of a lectotype is necessary because the syntype series is composed of two different species: *H. nigrita* and *H. striola* (GYLLENHAL). **Paralectotype**: ♂ – specimen without original labels, standing after the label "nigrita" [hw Fabricius] that is the same as above; I have attached labels "Paralectotype / Dytiscus / nigrita F. / des. H. Shaverdo 2002" [red], "Hydroporus / striola (Gyll.) / Shaverdo H. det. 2001" (ZMUC). **Type locality:** Germany (FABRICIUS, 1792: 201).

Hydroporus trivialis: **Lectotype** (present designation): ♂ – "BRITISH ISLES / J.Stephens Coll. / BM 1853 - 46", "SYNTYPE / Hydroporus / trivialis Steph.", "Lectotype / Hydroporus / trivialis Stephens / des. H. Shaverdo 2002" [red] (NHML). **Notes:** The designation of a lectotype is necessary because the syntype series is composed of two different species: *H. nigrita* and *H. pubescens* (GYLLENHAL). The lectotype lacks the left mesotarsomere 5. **Paralectotypes**: *Hydroporus nigrita*: 2 exs. – "BRITISH ISLES / J.Stephens Coll. / BM 1853 - 46", "SYNTYPE / Hydroporus / trivialis Steph.", "Paralectotype / Hydroporus / trivialis Stephens / des. H. Shaverdo 2002" [red] (NHML). *Hydroporus pubescens*: 1 ♂ – "BRITISH ISLES / J.Stephens Coll. / BM 1853 - 46", "SYNTYPE / Hydroporus / trivialis Steph.", "Paralectotype / Hydroporus / trivialis Stephens / des. H. Shaverdo 2002" [red], "Hydroporus / pubescens (Gyll.) / Shaverdo H. det. 2002" (NHML). **Type locality:** near London and in Yorkshire (STEPHENS, 1829: 59).

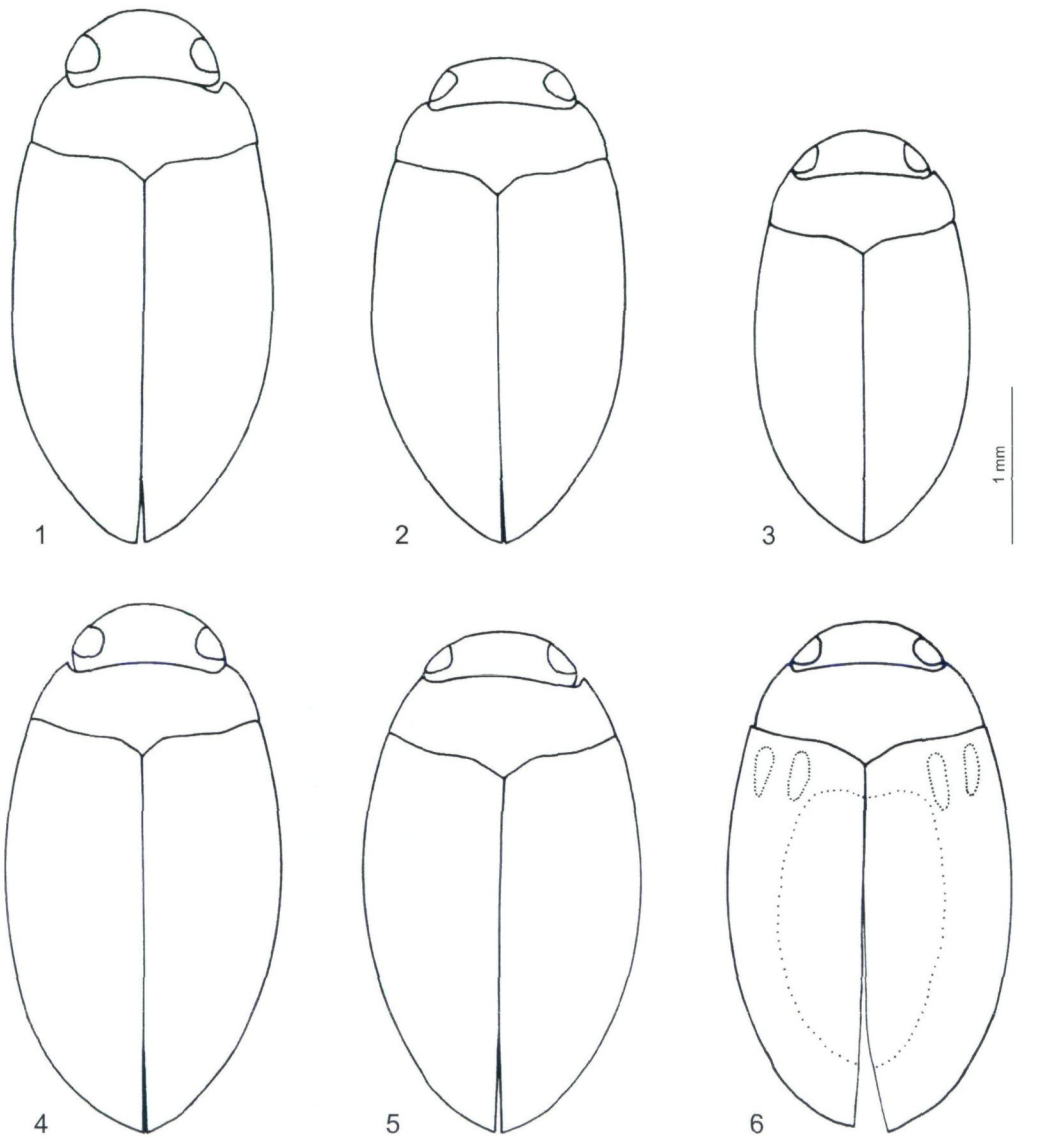
Hydroporus glabellus: **Lectotype** (present designation): ♂ – "Ö." [= Öland Island; small label glued on bigger], "Lectotype / Hydroporus / glabellus Thomson / des. H. Shaverdo 2002" (ZMLU). **Note:** The lectotype lacks the left metatarsomere 5. **Paralectotypes**: 25 exs.: 4 exs. – the same label as the lectotype (ZMLU). 4 exs. – "Ö." [= Öland Island; small label] (ZMLU). 1 ex. – "Ö" [small label], "glabelus" [sic! hw, big rectangular label with red line on its perimeter, label folded in two half] (ZMLU). 4 exs. – "Rshm" [= Rossjöholm in Skåne province; hw with pencil, small label] (ZMLU). 1 ex. – "Båst" [= Båstad in Skåne; hw, small label] (ZMLU). 1 ex. – "Ry" [= Rossjöholm; hw, small label] (ZMLU). 1 ex. – "G." [= Gotland Island; small label] (ZMLU). 1 ex. – "Lund" [small label] (ZMLU). 1 ex. – "Lund / 4/53" [hw, small label] (ZMLU). 7 exs. – "L-d" [small label] (ZMLU). Respective red labels have been attached to the paralectotypes. **Type locality:** Öland Island, Sweden.

Hydroporus subalpinus: **Lectotype** (present designation): ♂ – "Åre" [hw, small label glued on bigger], "1+5" [hw with pencil, small label glued on bigger], "Lectotype / Hydroporus / subalpinus Thomson / des. H. Shaverdo 2002" (ZMLU). **Paralectotypes**: 18 exs.: 2 ♂♂, 2 ♀♀ – same label data as lectotype (ZMLU). 5 exs. – "Åre" [hw, small label], "subalpinus" [hw, big rectangular label with red line on its perimeter, lable folded in two half] (ZMLU). 4 ♀♀, 5 exs. – "Åre" [hw, small label glued on bigger] (ZMLU). Respective red labels have been attached to the paralectotypes. **Type locality:** Skalstugan, Åre parish, Jämtland province, Sweden. **Note:** According to the original description (THOMSON, 1871: 365) the type locality is Skalstugan in Jämtland but there are no specimens in Thomson's collection with label text "Skalstugan" but with "Åre", an area in Jämtland province not far from Skalstugan.

Hydroporus monilicornis: **Lectotype** (present designation): a golden colored, square small (3 mm) label, "Kantalaks" [= Kandalaksha], "Reg. subalp.", "J. Sahlbg.", "Spec. typ.", "252.", "289" [small, blue], "Helsingf. / monilicornis" [hw Sahlberg], a red colored, square small (4 mm) label, "Mus. Zool. H:fors / Spec. typ. No 69. / Hydroporus monilicornis J. Sbg." [partly hw], "Lectotype / Hydroporus / monilicornis J.Sahlberg / des. H. Shaverdo 2002" [red] (ZMH). **Notes:** According to the original description (SAHLBERG, 1875: 154) the species was described from two syntypes: one from Kantalaks and the other from Imanda. The latter has not been found in ZMH collection. **Type locality:** Kandalaksha, Russia (Kolskiy peninsula).

Hydroporus obovatus: The syntypes have not been found in ZMH collection. They probably could be in the collection of Naturhistoriska Riksmuseet, Stockholm (B. Viklund) which cannot be checked at present since the collection is in progress of rearrangement.

Hydroporus convexior: The syntypes have been found neither in MNB nor in the Zoologische Staatssammlung in Munich (M. Baehr). Perhaps, they are lost.



Figs. 1 – 6: Habitus and outline of elytral color pattern of *Hydroporus nigrita*: 1) Pirin Mts. (Bulgaria); 2) Reydarvatn (Iceland); 3) Åre (Sweden) – paralectotype of *H. subalpinus*; 4) Orihuela del Tremedal, Prov. Teruel (Spain); 5) Hoverla, Carpathians (Ukraine); 6) Haapajärvi (Finland) – lectotype of *H. bisbiguttatus*.

Hydroporus bisbiguttatus: **Lectotype** (present designation): "?Haapaj. [= Haapajärvi] / Helenius" [hw Sahlberg], "Hydroporus / sp. ? Mir unbe / kannt." [hw Sahlberg], "H. basiguttatus [sic!] / J.Sahlb. sp. Typ. / J.Sahlb.det." [partly hw Sahlberg], "Mus. Zool. H:fors / Spec. typ. No 1140 / Hydroporus bis- / biguttatus J.Sbg." [partly hw], "Hydroporus / basiguttatus / nov. sp." [hw], "nigrita / ab. F. / Hellén det." [partly hw], "Hydroporus / nigrita F / det. A. Zimmermann" [partly hw Zimmermann], "Lectotype / Hydroporus / bis-

biguttatus J.Sahlberg / des. H. Shaverdo 2002" [red] (ZMH). **Note:** The lectotype has a label with the name of *H. basiguttatus* (see label data) which obviously was written by Sahlberg, but in the original description he named his species *H. bisbiguttatus*. **Type locality:** Haapajärvi, Oulun province (Pohjanmaa), Finland.

Additional material examined:

Iceland: 13 ♂♂, 2 ♀♀, 20 exs. – "Island / Reydarvatn / 7.8.1948" (NHMP). 1 ex. – "Hydroporus / nigrita Gyll. / Islandia." [hw], "Islandia" [hw] (ZISP). 4 exs. – "-ICELAND- / Laxarda / July 17, 1941 / Wm. F. Palsson" (SINM). 1 ex. – "Island / Biskupsbrekka [? Biskupstungur] / 6.7.1918" (CHS).

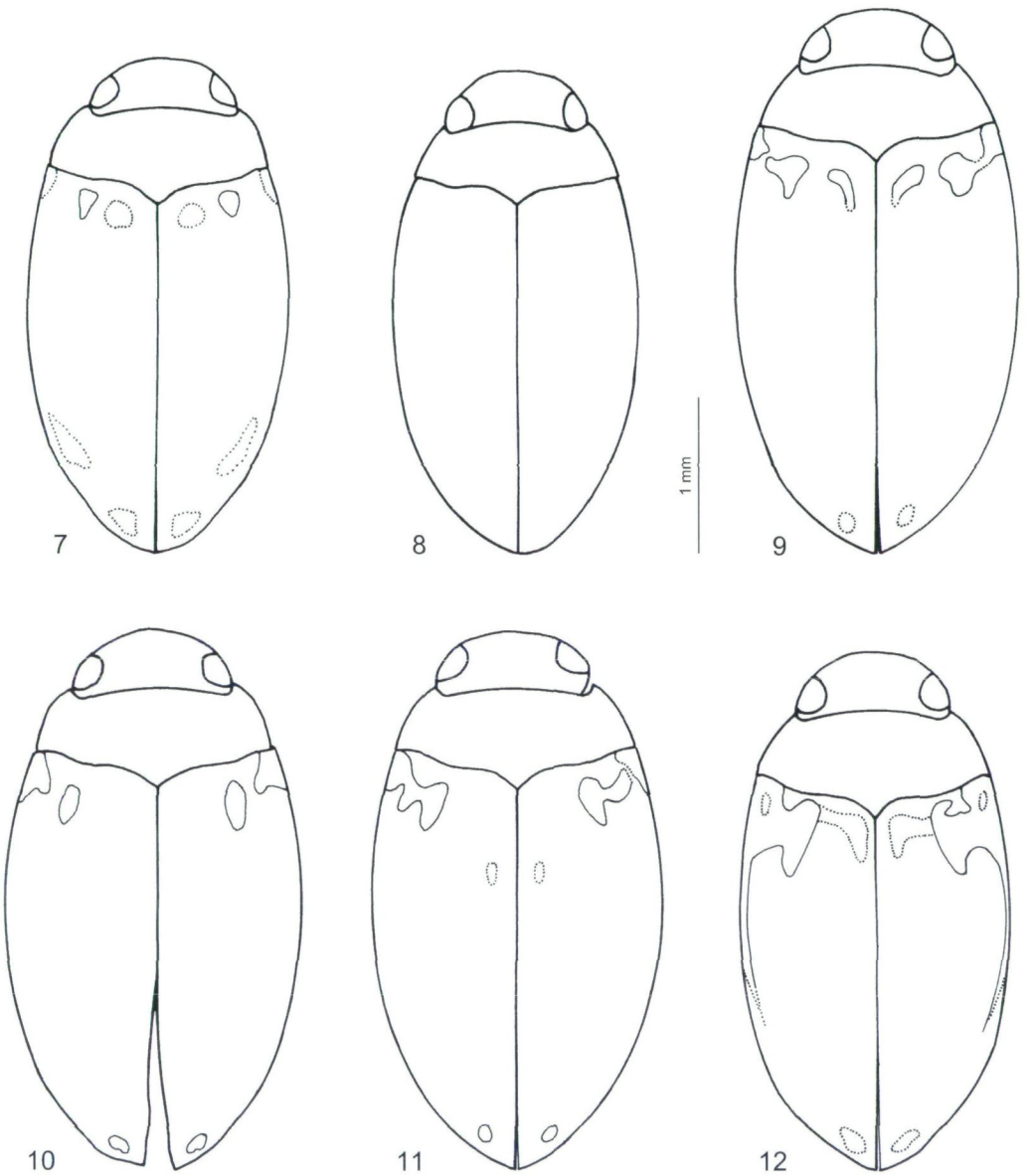
Great Britain: See the type material of *H. trivialis*.

Norway: 4 exs. – "Norwegen / Tromsö" [hw] (NMW). 3 exs. – "J.Schneider / Tromsö" (NMW). 1 ex. – "Tromsö / J.S.Schneider", "21/5/95" (NHMP). 1 ex. – "Norwegen / Tromsö 21.5.1895" (NHMP). 1 ex. – "Tromsö", "J.Sahlb." (ZISP). 2 exs. – "Tjomo", "Hellies. 91 / Norvegia" (NMW). 1 ex. – "Bodö" [hw], "J. Sahlb.", "H. subalpinus / Thoms." [hw] (ZISP). 1 ex. – "Syd Varanger", "B. Poppius", "subalpinus / Thoms." [hw] (ZISP). 2 exs. – "Vestfjord / dal.", "Hellies. 91 / Norvegia" (NMW). 2 ♀♀, 7 exs. – "Mjøsvand. [Mjös Vand]" (NMW). 1 ♀ – "Norvegia", " Mjøsvand." (HNHM). 1 ♀ – "Norvegia / Mjøsvand." (HNHM). 3 exs. – "Norvegia / Gausto. M. [Gausta]" [hw], "H. subalpinus / Thoms." [hw] (NMW). 4 exs. – "Gausto." (NMW). 1 ex. – "Norwegen / Jnnsö" [hw], "Hydroporus / subalpinus" [hw] (ZISP). 1 ♂ – " Jnnsö" [hw], "J.Sahlb." (HNHM).

Sweden: 1 ex. – "Hydroporus / glabellus Th. Suac. Staudgr [Staudinger] [hw] (ZISP). 1 ♂ – "Jämtl." [hw], "J.Sahlb.", "subalpinus / Thoms / Jähntland" (HNHM).

Finland: 1 ex. – "Hydroporus / subalpinus Thoms. / Ruovesi (J. Sahlberg)" [hw], "Fennia / 3090" [hw], "3090 / subalpinus / Thoms." [hw] (ZISP). 1 ex. – "Walkj.", "J.Sahlb.", "Fenn. mer." (NMW). 1 ex. – "Inari", "Fennia" [hw], "Krogerus", "subalpinus Th. / Det. Obenberger" (NHMP). 1 ex. – "Peldoivi" [= Peäldoaivi], "B. Poppius" (ZMH).

Russia: 1 ex. – "20.VIII.1917", "Sordavala [Sortavala]", "G.Stenius" (NMW). 2 exs. – "bass. [basin] oze. [lake] Vud'yavr / Khibin. g. [guberniya – province] Kol'sk. [Kola Peninsula] / V. Rudol'f 12.VI.31" (ZISP). 1 ex. – "Kola" (ZMH). 1 ex. – "Petrosaw." [= Petrozavodsk], "Envald", "89" (ZMH). 1 ex. – "Kontschosero" [NW Petrozavodsk], "J. Sahlbg.", "682" [hw] (ZMH). 1 ex. – "Hydroporus memnonius" [hw], "Krinka / Kanins. p-ov [Kanin Peninsula] / Ural'sk. eks. [expedition] V.48" (ZISP). 2 exs. – "st. [station] Levashovo, Finlyandsk. zh. d. [Findlyandskaya railway] / Yakobson 15.V.93", "Hydroporus / nivalis Heer / det. A. Jakowlew" [hw] (ZISP). 1 ex. – "SPB [St.-Petersburg] g. Shlissel'burgsk u. [uezd – district] / Derevnya [village] Gory / 19.V.907 A. Vlasov" (ZISP). 1 ex. – "Der. Didelevo / Lenin. [St.-Petersburg] g. Volkh. u. [Volkhov Dist.] / 24.IV.1925 I. Gudim" (ZISP). 1 ex. – "Gatchina [near St.-Petersburg] / Barovskyi 24.VIII.04" (ZISP). 1 ♀ – "Petrovskyi prud [pond]. Lakhta [St.-Petersburg] / A. Martynov 15.VII.922" [hw] (ZISP). 1 ex. – "Ostrovki na Neve [small islands on Neva River] / Shlissel'b. u. / G. Yakobson 28.VI.06" (ZISP). 1 ex. – "Pargolovo [near St.-Petersburg] / 5.VI.95" [hw] (ZISP). 3 exs. – "Vel'sk, Volog. gub. [Vologda prov., Arkhangel'skaya Oblast'] / 14.IV.903 puddles near stream / D. V. Pomerantsev" (ZISP). 1 ex. – "Vel'sk, Volog. gub. / 18.IV.903 stagnant water / D. V. Pomerantsev" (ZISP). 1 ex. – "Vel'sk, Volog. gub. / 30.V.903 clay pit / D. V. Pomerantsev" (ZISP). 1 ex. – "okr. [near] Tot'my, b / Volog. g. 10.IV.95 / V. Borovskyi" [hw] (ZISP). 1 ex. – "Valdaysk. u. / Zaitzev 17.VI.05" (ZISP). 2 exs. – "Novogorodsk. g. [Novgorog prov.] Valdaysk. u. / 29.VIII.07 / F. Zaiztev" (ZISP). 3 exs. – "Bologoe [Kalininskaya Oblast'] / Novg. g. / 1.VII.02" (ZISP). 1 ex. – "Bologoe Nov. g. / 4.VII.06 / F. Zaiztev" [hw] (ZISP). 4 exs. – "r. [river] Tigoda / Novgor. u. 12.IV.04 / A. Semenov" (ZISP). 1 ex. – "2.V.95 Berdits. [Berditsyno] / kanavy za rekoy [ditches beyond river]" [hw], "Yarosl. u. [Yaroslavl' dist.] / k. A. Yakovleva" (ZISP). 1 ex. – "20.V.95 Berdits. / prudok za rekoy [small pond beyond river] / M. Miklash." [hw] (ZISP). 1 ex. – "26.V.97 Berdits. / prudok za rekoy [small pond beyond river]" [hw] (ZISP). The same label data except 13.VII.95 – 1 ex.; 28.VII.95 – 1 ex.; 29.VII.95 – 1 ♂ (ZISP). 1 ex. – "15.V.97 Berdits. / chesnakh. ruchey [stream]" [hw] (ZISP). 3 exs. – "1.V.06 Berdits. / Chesnakhinsk. ruchey [stream] / Yakovlev" [hw] (ZISP). 7 exs. – "16.V.95 [and] 18.V.95 Chesnakh. ruchey [stream]" [hw] (ZISP). 1 ♀ – "A. Yakowlew / Yaroslaw", "nivalis Heer / alticola Sharp" [hw], "k. A. Yakovleva" (ZISP). 1 ex. – "Boblovo, Klin.u. [Klin dist.] / Mosk. u. (pond) / D. Smirnov 19.IV.06" (ZISP). 1 ex. – "Boblovo, Klin.u. / Mosk. g. 10.V.06 / D. Smirnov" (ZISP). 1 ex. – "Skhodnya" [Moscow prov.; hw] (ZISP). 1 ex. – "S. Lazarevsk. [Lazarevskoe vill.] Urzh. u. [Urzhumsk dist.] [Kirovsk prov.] / L. Krulikovskyi" [hw] (ZISP). 4 exs. – "Romanovka, bliz [near] Yamburga [Yamalo-Nenetskiy Okrug] / Barovskiy 24.VIII.04"



Figs. 7 – 12: Habitus and outline of elytral color pattern of 7) *Hydroporus nigrita*: Kolochava vill., Carpathians (Ukraine). 8 – 12) *H. thracicus*: 8) Ankavan (Armenia); 9) Bazarchay (Armenia); 10) Samokov (Bulgaria); 11) Sarykamysh (Turkey); 12) Erzurum (Turkey).

(ZISP). 1 ex. – "g. Tomsk / 3.V.908 / V. Khvorov" (ZISP). 2 exs. – "Yurty, Kansk. u. / Enis. g. [Eniseysk prov.] 14 [and] 18.VI.912 / Mishin Verkhovsk." (ZISP). 1 ex. – "Pror Il'in. prsk / r. Kyzas Kuzn. o. / Sushk Redik 9.VI.12" [Khakassiya, Krasnoyarskiy Kray], "Hydroporus / discretus Fairm. / Zaitzev det." [hw] (ZISP). **Note:** all labels of the specimens from ZISP are in Cyrillic script.

Kazakhstan: 7 ♂♂, 8 ♀♀, 91 exs. – "KASACHSTAN: S-Altaj / 20.6.1994 / Serebrijanka / leg. Dolin (0)" (NMW). 6 exs. – "KASACHSTAN: S-Altaj / Ustj Kamenogorsk / Sewernoje env. / 26.-30. 6. / leg. Dolin (26) 1995" (NMW).

Belarus: 1 ♂ – "Vitebsk prov., Lepel distr. / Domzheritsy vill., sphagnum bog / 16.07.1994, leg. Shaverdo H." [Cyrillic] (CHS). 1 ♂ – "22.V.1997 / BGBZ / near Domzheritsy vill. / temporal water body / leg. Shaverdo" [Cyrillic] (CHS). 1 ♀ – "14.VI.1997 / BGBZ / near Domzheritsy vill. / temporal water body / leg. Shaverdo" [hw, Cyrillic] (CHS). 3 ♂♂ – "RB Vitebsk distr. / near Shupy vill. / 12.07.1998 / Shaverdo H. leg." [Cyrillic], "puddles on the road / bottom – clay" [Cyrillic] (CHS). 1 ♂ – "Mn [Minsk prov.] Krupki distr. / near Obchuga vill. / puddles in forest / Shaverdo H. leg." [hw, Cyrillic] (CHS). 1 ♂ – "Bodzentin / Kletskago uezd. [Kletsk distr.] / Yakobson 30.V.[18]95" (ZISP).

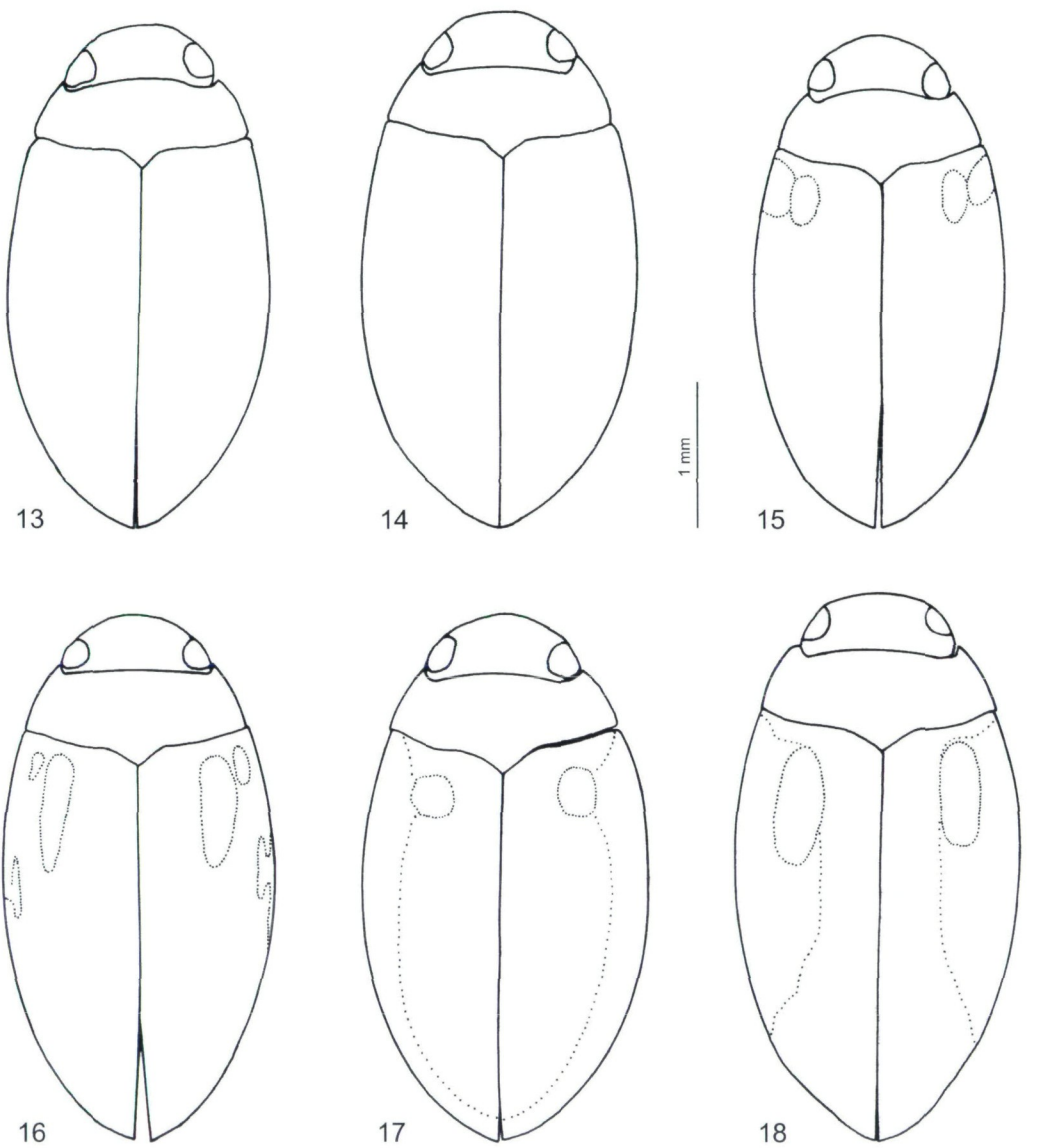
Ukraine: 4 ♂♂, 4 ♀♀ – "22.VII.96 / Zakarpat'e [Zakarpatskaya prov.] / polonina Gerishaska / H=1500 m / bog / leg. Shaverdo H." [hw, Cyrillic] (CHS). 3 ♂♂, 3 ♀♀ – "27.7.96 / Zakarpat'e / near Kolochava vill. / puddles caused by streams / leg. Shaverdo H." [hw, Cyrillic] (CHS). 5 ♀♀ – "1.08.96 / Zakarpat'e / near Kolochava vill. / puddles caused by streams / leg. Shaverdo H." [hw, Cyrillic] (CHS). 1 ♂, 2 ♀♀ – "28.7.96 / Zakarpat'e / near Kolochava vill. / boggy stream / Shaverdo leg." [hw, Cyrilic] (CHS). 1 ♂ – "23.VII.96 / Zakarpat'e / near Chernaya Tisa vill. / bog / Shaverdo leg." [hw, Cyrillic] (CHS). 2 ♂♂, 6 ♀♀ – "2.9.1990 Karpaty / near Yaremcha / near Pogor' Mt. / puddle on stream / Dzhus M. [hw, Cyrillic] (CSR). 1 ♀ – "30.7.1992 Karpaty / near Yaremcha / foot of Pogor' Mt. / Ryndevich S.K." [hw, Cyrillic], "l0068 / temporal water body / s 31 / gl 0,2 m" [hw, Cyrillic] (CSR). 2 ♀♀ – "Hoverla Carp / or 26.VI.36. / Hlisnikowski", "Hydrophorus [sic!] / nigrita F", "det. Hlisnikowski / 4.1938" (NHMP). 1 ♂, 1 ♀ – "Hoverla Carp / or / Hlisnikowski", "Hydroporus / nigrita F. / det. Hlisnikovský 1952" (NHMP).

Poland: 1 ex. – "Schlesien / Riesengebirge / Weiße Wiese"(NHMP). 2 exs. – "Riesen-Kamm / Weisse Wiese" (NHMP). 2 exs. – "glabellus Thoms. / Riesengebirg. / Gerhardt." [hw] (NMW). 1 ex. – "Hydrop. / glabellus" [hw], "glabellus Th. / Riesengebirg. / v. Bodemeyer." [hw] (NMW). 1 ex. – "Riesengeb." [hw] (NMW). 2 exs. – "Kam. Ellgoth (Sil.) / Alfr. Hetschko" (NHMP, NMW). 1 ex. – "Silesia / Zabrzeg" (NHMP). 1 ex. – "Jaroslau Galiz. / G. Kuchta" (NMW). 1 ex. – "glabellus Sh. / Silesia / Gerhardt" [hw] (NMW). 1 ex. – "brevis Shlb. / Silesia / Rottenberg" [hw], "nigrita" [hw] (NMW). 1 ♂, 2 ♀♀ – "Pommern / Coeslin / Lüllwitz." (HNHM).

Germany: 1 ex. – "Hamburg / N. Deutschland" (NMW). 1 ex. – "Timmendorf / 18/.4.1897" (NMW). 2 ♂♂, 2 ♀♀ – "Hückeswagen / Eigen leg." (HNHM). 4 exs. – "Marienheide / 14.5.31 / P.Eigen" (NMW). 1 ex. – "Nenndorf 1910 / Deister 19.6" [hw] (NHMP). 3 exs. – "Bad Nenndorf / 19.6.1910" [hw] (NHMP). 1 ex. – "Leipzig / Linke", "Im Tausch v. / Neo-biolog. / Inst. Berlin / 1918 / Fleischmann" (TLF). 1 ex. – "Germania / Thüringen / Jena / 12.5.29" (NHMP). 1 ex. – "Thüringen / Thal, 32 / Coll. Hennings" (NMW). 1 ex. – "Thür. W. / Beerberg" [hw], "Hydroporus / discretus" [hw], "Hydroporus / nigrita F. / Wewalka 83" [hw] (NMW). 1 ex. – "Thüringen / Wald / Beerberg" [hw], "Hydroporus / discretus" [hw], "Hydroporus / nigrita (F.) / Shaverdo H. det. 2001" (NMW). 1 ♂, 2 ♀♀ – "Rheinland / 3086 – 4" [hw] (ZISP). 12 exs. – "Erlangen / Dr. Rosenhauer." (NMW). 1 ex. –"Bayralpen 1921 / Valepp 24.5" [hw] (NHMP). 2 exs. – "Bayern / Isarthal [wetland of Izera River, near Munich] 15.5.1921" (NHMP). 1 ex. – "Südby. Erding / Moor 10.5.65 / leg. Heiss" (TLF). 1 ♂, 2 ♀♀ – "3.06.2000 Germany / Baden-Württemberg, / south. Schwarzwald / Feldberg", "ca. 1300-1450 m, / puddles / leg. Shaverdo H." (CHS). 1 ex. – "Neuendorf-Deister / 19.6.1910 v.Sydow" [hw] (NHMP). 1 ex. – "nigrita / Hassia [Hessen] / Scriba"; 1 ♂ – "Germania / Merke" [hw] (NMW).

The Netherlands: 2 exs. – "5.6.74 Nähe / Eindhoven / Netherlands / Lache" [hw], "Fery leg." [under side] (CHF).

Czech Republic: 3 exs. – "Krkonoše / 3 (4).VII.1933" (NHMP). 2 ♂♂, 2 ♀♀, 5 exs. – "Krkonoše / Dr. Obenberger" (NHMP). 1 ♂ – "Krkonoše / 10.7.1919" (NHMP). 16 exs. – "20.9. Bohemia 1951 / Krkonoše-Obři Bouda / Coll. Hlisnikovský 19" (NHMP). 1 ex. – "Doupov Hory / Boh. V.20 / Heyrovský" (NHMP). 2 exs. – "Doupov / Bohemia / Dr. Klička" (NHMP). 3 exs. – "Čelakovice" (NHMP). 1 ex. – "Radotin [south-western Prague] / Machulka" [hw] (NHMP). 1 ex. – "Šarka [western Prague] / Machulka" [hw] (NHMP). 3 exs. – "Jirina [forest near Prague, wetland of Lava River] / 10.5.1904" (NHMP). 1 ex. – "Městečko [40 km W Prague] / Jos. Černý" (NHMP). 1 ex. – "Městečko [40 km W Prague] / VII 1910" (NHMP). 1 ex. – "Kralup [Kralupy nad Vltavou] / Bohemia / Hajek / 4.1933" (NHMP). 1 ex. – "Rokycany" [hw] (NHMP). 1 ex. – "Srní [Srny Wald] / Bohemia / Heyrovský" (NHMP). 2 exs. – "Bohemia Centr. / Slabce / 17.7.1943" (NHMP). 1 ex. – "Bohemia / Carlsbad / J.Kafka", "Reitter / determinirt." (NHMP). 1 ex. – "Karlsbad /



Figs. 13 – 18: Habitus and outline of elytral color pattern of *Hydroporus sabaudus*: 13) Krkonoše, Sudet Mts. (Czech Republic); 14) Terme di Valdieri (Italy); 15) Bg. St.-Pierre, Valais (Switzerland); 16) Briançon (France); 17, 18) Laguna Aguas Verdes, Veleta, Sierra Nevada (Spain) – paratypes of *H. sabaudus sierranevadensis*.

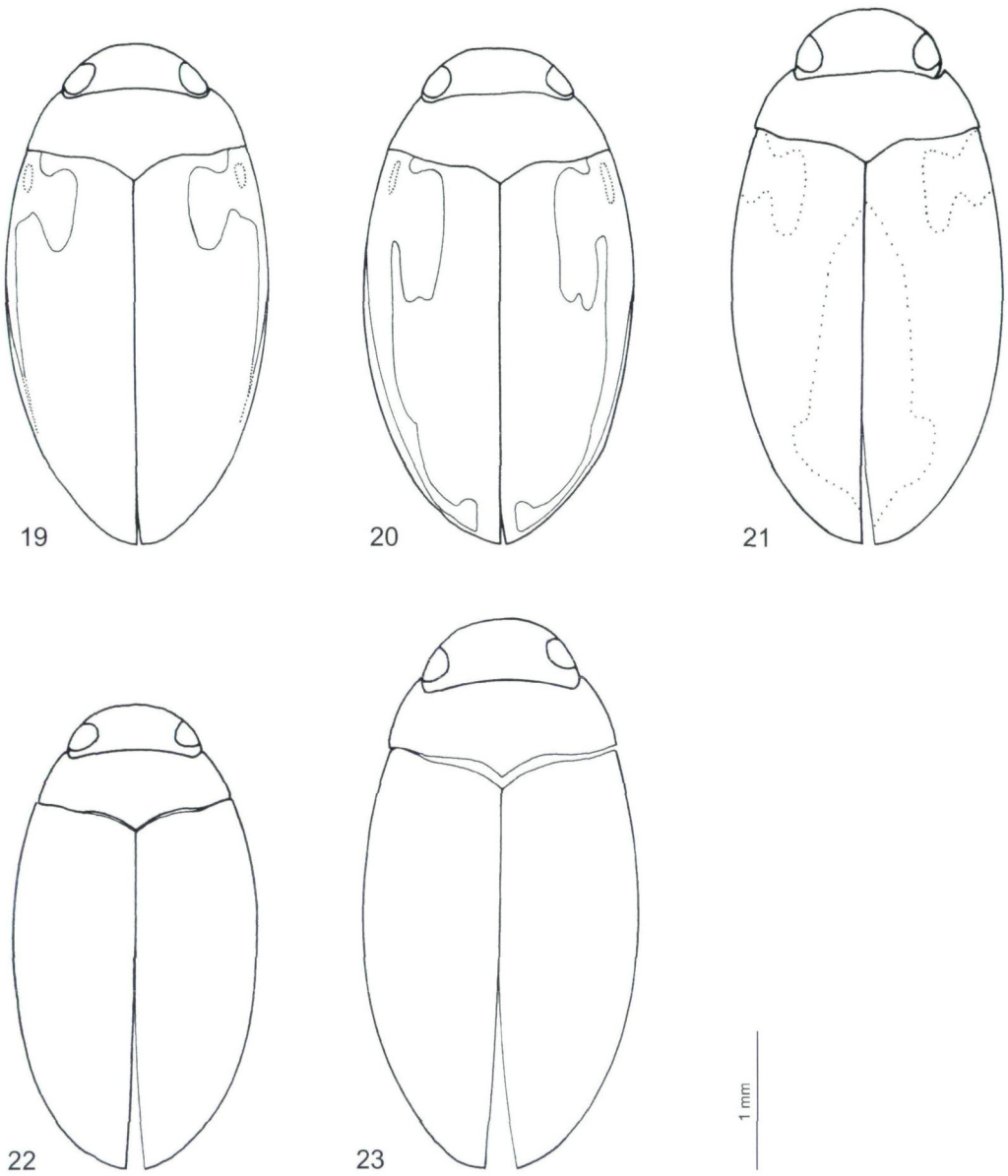
Röhmeu" (NHMP). 1 ex. – "Bohemia / Erzgebirge / Platten" [upper side, hw], "9.X.1937" [underside, hw] (NHMP). 1 ex. – "Rožınitál [near Plzeň] / 6.VIII.16" (NHMP). 1 ex. – "Plzeň 4 / Brožík Col." (NHMP). 6 exs. – "Příbram / Coll. Sípek" (NHMP). 1 ex. – "Písek, Bohemia / 31.III.1928 / Coll. V.Sukdol" (NHMP). 2 exs. – "Písek" [hw] (NHMP). 1 ex. – "Písek / 1918" [hw] (NHMP). 2 exs. – "Písek / 1906" [hw] (NHMP). 1 ex – "Rb. Hadi / IX.1926" [hw], "Blatná / Boh. Mer." (NHMP). 3 exs. – "Bohemia / Rakovnik. Rataj"

(NHMP). 1 ex. – "Šumava / 30.VII.1934" (NHMP). 1 ex. – "Špičák / 1927" (NHMP). 1 ex. – "Veseli / 31.3.1895" (NHMP). 5 exs. – "Joh. Tuschl / Budweis [Ceské Budějovice]" (NHMP). 3 exs. – "C.Budějovice / Obenberger 1914" (NHMP). 1 ♂ – "Boehmer-Wald / Kubani / VII.34, Ing. Prock." (NMW). 1 ex. – "Hydroporus / nigrita" [hw], "S. Böhmerwald / Tanzer." (NHMP). 1 ex. – "Hydroporus / Kraatzi" [hw], "Kub. Urwald / 1.6.1934", "S. Böhmerwald / Tanzer." (NHMP). 4 exs. – "Bohemia / Prachatitz" (NMW). 1 ex. – "Boh. Schöninger / Natterer", "3.5.12" (NMW). 1 ex. – "Rybná [Sudet Mts.] / 16.VII.12 (NHMP). 1 ex. – "Silesia / Umg. Teschen / W. Prock" (NMW). 3 exs. – "Silesia / Teschen / Th. V. Wanka" (NMW). 7 exs. – "Silesia / Teschen / Th. V. Wanka" (NHMP). 4 exs. – " Silesia / Hnojnik / Th. V. Wanka" (NHMP). 3 exs. – "Friedek Umg.[near Teschen] / 10.6.1928 / Jos. Hlisnikovský" (NHMP). 2 exs. – "Hurky / 5.56. Boh." [hw] (NHMP). 1 ex. – "Mähr. / Trübau [Moravská Trebová, border between Bohemia and Moravia]" [hw] (NHMP). 3 exs. – "IV.08 / Kamenice n. l. [SE Bohemia]" (NHMP). 1 ex. – "Bohemia", "nivalis" [hw], "Hydroporus / nigrita /F./ / I. Táborský det. 85" (NHMP). 2 exs. – "Bohemia / Šatava / lgt. Ing. Machulka" (NHMP). 2 exs. – "Tis u Bl. / Bohemia / Heyrovský" (NHMP). 1 ex. – "Hlinsko / Bo., Schmidl" (NMW). 1 ex. – "Beskid / Dr. Graf" (NHMP). 11 exs. – "Beskydy / Dr. Jureček" (NHMP). 3 exs. – "Besciden / Reitter" (NHMP). 7 exs. – "Hutě Pod-Smrkem / Beskides: 7 1950 (1951) / leg. Hlisnikovsky" (NHMP). 8 exs. – "Beskidy Moravia VII.51 / Radhošt-Morské Oko / Coll. Hlisnikovsky 19" (NHMP). 1 ex. – "Moravia / Střelice / Dr. Fleischer" (NHMP). 2 exs. – "Moravia / Uranovice / Fleischer" (NHMP). 1 ex. – "Moravia / Reichenau / B. Vallazza" (NHMP).

Slovakia: 2 exs. – "28.7.1985 Mr.Roháče / Zverovka / J.Horák leg. Slov b" (NMW). 1 ex. – "Slovakei: 8.7.1995 / Tatransky Lieskovac / Tatransky Strba (1) / 900 m, Jäch & Diaz" (NMW). 3 ♂♂, 5 exs. – "Galizien / Tatra / Stobiecki / 26/7/901" (NMW). 5 exs. – "Slovakia or. / Bardejov / O.Kavan leg." (NHMP). 1 ex. – "Slovakia-N. / Tatry-Kr. Hora / Roubal." [hw] (NHMP). 1 ex. – "Vys. Tatry / 15/7.1925 / Sundol" [hw] (NHMP). 1 ex. – "Jezersko" [hw], "Hydroporus / nigrita /F./ I. Táboraký det. 15" (NHMP).

Romania (first record): 2 exs. – "Deubel / Siebbg." (NMW). 1 ex. – "Transsilvania / Dr. J. Fleischer" (NHMP).

Bulgaria: 2 ♂♂, 2 ♀♀ – "Sofia / Vitoša pl.", "nigrita" [hw] (NMW). 1 ♂, 2 ♀♀ – "VITOSCHA / V.35", "SOFIA UMG. / BULGARIEN", "HOCHALPIN" (NMW). 1 ♀ – "VITOSCHA / V.35", "SOFIA UMG. / BULGARIEN", "HOCHALPIN", "Hydroporus / nivalis Heer / Fery det." (NMW). 1 ♂ – "VITOSCHA / V.35", "SOFIA UMG. / BULGARIEN", "HOCHALPIN", "Hydroporus / nivalis Heer / Fery det." (CHF). 1 ♂, 3 exs. – "Vitoša plan. / Bulg. 21.V.39 / Hlisnikowski", "HYDROPORUS NIGRITA / v. SUBALPINUS THOMS. / det. Hlisnikovský 1952" (NHMP). 1 ex. – "Bulgaria: Sofia / Vitoša pl. 30.V. / 08, Rambousek" (NHMP). 1 ♂ – "Bulgaria: Rila: / Čamkorija. VII. / 08, Rambousek" (NHMP). 3 ♂♂ – "Bulgaria: Rila: / Musalla. [Mus Allah] VII. / 08, Rambousek" (NHMP). 1 ♂ – "Bulgaria: Rila: / Musalla. VI. / 08, Rambousek" (CGW). 1 ♂ – "Bulgaria: Rila: / Musalla. VII. / 08, Rambousek", "Hydroporus / nivalis Heer / det. Wewalka 80" (NHMP). 1 ♂ – "Bulgaria: Rila: / Musalla. VII. / 08, Rambousek", "Hydroporus / nigrita F. / det. Wewalka 80" (NHMP). 1 ♂, 1 ex. – "Bulgaria: Rila: / Musalla. VII. / 08, Rambousek", "Hydroporus / nigrita F. / Hrbáček det.", "H. nigrita / řádky teček na kvovkách? [puncture rows on elytra]" (NHMP). 2 exs. – "Bulgaria: Rila / Musalla, VIII. / Rambousek, 08" (NHMP). 7 ♂♂, 7 ♀♀ – "BULG. Rila lacs / Mussala, 9.23 / Dr. Rambousek" (NHMP). 1 ex. – "Bulg. Rila pl. / Musalla 8. alp. / 09, Rambousek" (NHMP). 1 ♂ – "Rila, Bulg. / Exp. Mařan et Táborský lgt.", "Hydroporus / nivalis Heer / I. Táborský det.1978" (NHMP). 6 ♂♂, 6 ♀♀, 4 exs. – "Rila, Bulg." (NHMP, CGW). 4 ♂♂ – "Rila, Bulg.", "Hydroporus / nivalis Heer / det. Wewalka 80" (NHMP). 1 ex. – "Rhilo Dagh / Bulgaria 5.1905" (NHMP). 1 ex. – "Bulgaria mer. occ. / Rila mts. 2350 m / Popovokapski ez. lakes / J. Hájek leg. 10.7.1998 (CJH). 1 ex. – "Bulgarien. / Bulg. Samokov. / 20.6.1901", "HYDROPORUS NIV. / A. SCHOLZI KOLBE / det. Hlisnikovský 1952", "Hydroporus / nigrita (F.) / ab. bisbiguttatus / I. Táborský det.1985" (NHMP). 1 ♀ – "El-Tepe, / Pirin plan.", "Bulgaria / B.Kouřil.", "Hydroporus / nivalis H. / B.Kouřil det.", "Hydroporus / nivalis / 1945 Erbáček / det." (NHMP). 2 ♀♀ – "El-Tepe, / Pirin plan.", "Bulgaria / B.Kouřil.", "Hydroporus / nivalis H. / B.Kouřil det." (NHMP). 15 ♂♂, 9 ♀♀ – "El-Tepe, / Pirin plan.", "Bulgaria / B.Kouřil." (NHMP). 1 ♂ – "BULGARIEN, Pirin / Prevala 2200-2500 m / 13-14.VII.1968. / leg.S. Horvatovich", "Hydroporus / nivalis Heer / Fery det." (CHF). 5 ♀♀ – "BULGARIEN, Pirin / Prevala 2200-2500 m / 13-14.VII.1968. / leg.S.Horvatovich", "Hydroporus / nivalis Heer / Fery det." (HNHM). 1 ♂ – "Bulgaria mer. occ. / Pirin mts. 2400m / Čairski ezera lakes env. / J. Hájek leg. 3.7.1998" (CJH). 4 exs. – "Bulg. oc. lgt. D. Boukal / Pirin, Vichren env. / 7.8.1989 2000 m" (CJŠ). 6 ♂♂, 4 ♀♀, 1 ex. – "Demir-Kapu / Rhodope", "nigrita" [hw] (NMW). 1 ♂ – "Demir-Kapu / Rhodope", "nigrita" [hw], "Hydroporus / thracicus Gueor. / det. Wewalka 99" (NMW).

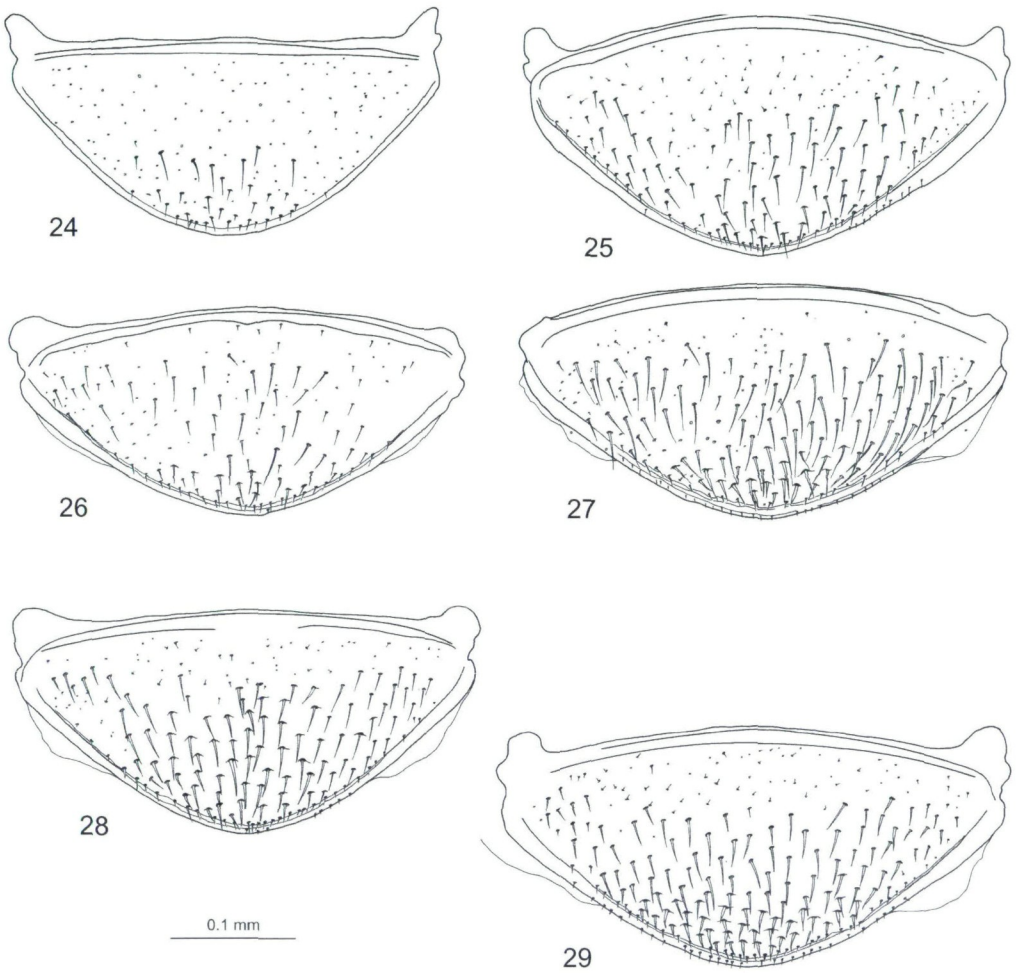


Figs. 19 – 23: Habitus and outline of elytral color pattern of 19 – 21) *Hydroporus kozlovskii*: 19) Erzurum (Turkey); 20) Shesh Pir, Fars (Iran); 21) Pirin Mts. (Bulgaria). 22) *H. teres*, holotype. 23) *H. martensi*, holotype.

Slovenia: 1 ♂ – "Jug. Slovenja / w. Škotia Loka / soriška Plan. / leg. Jäch 23.6.84" [hw] (NMW). 4 exs. – "Krain / Laibach [Ljubljana] 5.1905" (NHMP). 1 ex. – "Zg. Jezero [Zgornje Jezero] / Loukg / 29.8.08" [hw], "Hydroporus / nigrita /F./ I. Táboraký det. 1985" (NHMP). 3 ♀♀ – "SLOWENIEN:Golte-Plateau / 6 km N Mozirje 1400 m / 10.IX.1995 / leg.D.Grimm", "Hydroporus / nivalis Heer / Fery det." (MNS, CHF). 4 exs. – "Carn. Savin. Alp / Velika pl. [Velika Polana] 14.8. / 07, Rambousek" (NHMP).

Croatia: 1 ex. – "Croatia" [hw] (NMW).

Austria: 1 ♀ – "1.VI.1952 A. i. / Wechsel/Aspang" (MHNG). 1 ♂, 1 ♀ – "Austria infer. / Wechsel / R. Hicker" [upper side], "5/7 15" [under side, hw] (NMW). 2 exs. – "6.7.80 / Lunz, Länd" (NMW). 1 ex. – "A.I. Lunz / 6.26" (NMW). 1 ♂, 2 exs. – "Neulengbach / Austria inf. / Steinbichler" (NMW). 4 exs. – "A. Inf. 900-1400 m / Annaberg Umg. / Prock 6.-7.49" (NMW). 2 exs. – "Aust.inf / Windhag" [hw] (NMW). 1 ex. – "A-Edlitz, Umg. / 2.6.74 / leg. Legorsky" (NMW). 8 exs. – "1.8.80 NÖ / Neuhauser / Moor" (NMW). 1 ex. – "Austria inf. / Klosterneubg. / leg. Jäch 3.5.83" [hw] (NMW). 2 exs. – "Ybbsitz / Pinker 10 IX 16" [upper side, hw], "Prollingtal" [under side, hw] (NMW). 1 ex. – "Waidhofen a. Ybbs / VII.1941, lng. Preck" (NMW). 48 exs. – "Austria / NÖ: Bez. Scheibbs / leg. M.A.Jäch", "29.8.1980 / Dürrnsteingipfel" (NMW). 1 ex. – "Austria / NÖ: Bez. Scheibbs / leg. Ressl", "1.8.1990 Gaming / Neuhaus am / Hollerbach Ressl", "Hydroporus nigrita / Det. M. Jäch 91", "Hydroporus / nigrita (F.) / Fery det. 2003" (NMW). 1 ♂ – "A. NÖ Bez. Scheibbs (2) / Oberer See, Radspur / leg. R. Zirbs 1.6.2000" (CAK). 1 ex. – "Austria inf. / Pressbaum / F. Blühweiss" [upper side], "16./4.10" [under side, hw] (NHMP). 1 ex. – "A.N.Waidh./T. 249 / Reinberg-Dobersbg. / Schwarzbeichbach / leg. Komarek 25.4.99" (CAK). 1 ♂ – "A.N. Bez. Waidh./T. 301 / Schwarzbeichbach 600 m / leg. Komarek 10.7.99" (CAK). 1 ex. – "Gr. Helbe b. / Karlstift / Waldviertel" (NMW). 1 ♀, 1 ex. – "Schnee A." [hw] (NMW). 4 ♂♂, 3 exs. – "Umg. Linz OÖ / H. Priesner" (NMW). 1 ex. – "Scharfling / 7.9.71 / Otto Wagner" (CGW). 1 ex. – "Gastein / Salzburg" (NMW). 1 ♀, 2 exs. – "Zell a/See / Pinker 29 VIII 08" [upper side, hw], "Schwalben / wand" [under side, hw] (NMW). 2 ♂♂, 2 ♀♀, 2 exs. – "A.S. Obertauern / 7 1967 / leg. Wewalka" (CGW, NMW). 1 ♂ – "Carinthia / Sameralm / R. Hicker" [upper side], "28/7 25" [under side, hw] (NMW). 4 exs. – "Schladm. Tauern / Untertal-Preintaierh. / leg. H. Franz" (NMW). 1 ex. – "Schladm. Tauern / Kl. Wridstelie [?] / leg. H. Franz" (NMW). 3 exs. – "Hochschwab / Steiermark", "1.18.1919 / 1500 m. Seehöhe", "J.Mariani / Hirtenberg, N.Ö." (NMW). 3 exs. – "Hochschwabgeb." (NMW). 2 exs. – "Gr. Löckenmoos / b. Gosau, A.s. / leg. H. Franz" (NMW). 1 ex. – "Umg. Admont, Styr. / leg. H. Franz" (NMW). 1 ex. – "Admont Umg. / leg. H. Franz" (NMW). 1 ex. – "Gesäuse subalp. / leg. H. Franz" (NMW). 1 ex. – "Raxalpe / lg. H. Franz" (NMW). 1 ♀ – "Styr. bor. / Hochthor / Dr. Stolz 8.07" (NMW). 1 ex. – "Styria / H. Priesner", "Hesshütte" (NMW). 1 ex. – "discretus / Styria. / Kahz." [hw] (NMW). 2 ♂♂, 1 ex. – "St., Hochhelde / Moosbrugger" (NMW). 1 ex. – "Bründl b. Graz / Styr. 5.6.30" (NMW). 1 ex. – "Ma Trost b.Gr. / Styr. 19.8.30" (NMW). 1 ♂ – "Stmk. 23.7.83 / Mayregg ~ 1800 m / Gipfeltümpel/Sattm." [hw] (NMW). 1 ♂ – "Steiermark / Johnsbach / Pfarralm / leg. Jäch" [hw] (NMW). 3 exs. – "Schüttkogel / Moosbrugger" (NMW). 1 ex. – "Neuberg / i. Steierm." [hw] (NMW). 1 ex. – "Wechselgeb / Gglb. 1889" (NMW). 5 exs. – "A-STMK: Bez.Murau / 4 km SW Turrach, Quelle / 16.6.2001, 1455 m / leg. B. Raunig (4)" (NMW). 1 ♀ – "Austria / Styria" [upper side, hw], "Schreittes" [under side, hw], "Hydropor / nivalis" [hw] (ZISP). 1 ♂, 2 ♀♀ – "Radegund" [hw] (HNHM). 1 ♂, 2 exs. – "A – STMK: Bez. Liezen / 13.5 km S Schladming / 13°42'52"E, 47°16'44"N / 1960 m, 2.8.2000 / leg. Komarek (6)" (CAK). 1 ♂, 2 exs. – "Obir [18]95" [hw] (CGW). 1 ex. – "Obir [18]95 / Strauss" [hw] (CGW). 1 ex. – "G. Strauss / Obir" (CGW). 1 ex. – "Turracher / See [1]894" [hw] (CGW). 1 ex. – "A-KTN: Bez. Hermagor / Gail, Nampolacher Altarm / 3.6.2001, 590 m / leg. B. Raunig (2)" (NMW). 1 ♀ – "Wolaya-See, Car. / 3-11.VIII.1949 / leg. F.Schubert" (NMW). 1 ex. – "Speikkofel Car. / St. Lorenzen 26. / 6.68, V. Sudberg" (NMW). 1 ex. – "Ganglbauer / Krumpendf." (NMW). 5 exs. – "Gurktaler Alp. / 24.-30.6.58 / R. Budberg" (NMW). 1 ex. – "Koralpe, 6.7.56 / Weffgruben. / R.v.Budberg leg." (NMW). 1 ex. – "Koralpe, Cr. / Col. Matcha" (NHMP). 2 exs. – "Carinthia", "Mus. Pragense / Coll. Kracík" (NHMP). 1 ♂, 1 ♀ – "A. K. Bez. Wolfsbg. / Prebl 367 / leg. R. Zirbs Juli 1999" (CAK). 4 ♀♀ – "17.6.73 Galtür / Tirol, 1600 m / Schmelzwasser / lache" [upper side, hw], "FERY leg." [under side] (CHF). 9 ♂♂, 5 ♀♀ – "25.7.84 Austria / Paznauntal / Galtür, 1900 m / Rinnsal / Fery leg." [hw] (CHF). 6 exs. – "Arlberg-Tir. / leg. Kahlen" [hw], "St.Christoph / 21.7.63" [hw] (TLF). 2 exs. – "Tir. Hall-Umg. / leg. Kahlen", "Judenstein / 3.8.68" (TLF). 3 exs. – "Ötztaler Alpen / Tir. leg. Kahlen", "Obergurgl 29.6.72 / Zirbenwald / im Moor" (TLF). 1 ex. – "Außerfern Tir. / leg. Kahlen", "Krecketmoos / b. Reutte 3.8.70" (TLF). 1 ♀ – "Ausfern, Tirol / leg. Dr. Kofler", "Elmen / 11.8.41" [hw] (TLF). 1 ex. – "Forchach, Tirol / leg. Dr. Kofler" (TLF). 1 ex. – "Gramais, Ti sept / Lechtal, leg. Knabl" (TLF). 2 ♀♀ – "Südtirol / Pragsertal / leg. Kahlen", "Plätzwiesen / Knollkopf / 29.6.75" (TLF). 2 exs. – "Südtirol / Kleinfanes / leg. Kahlen", "Sumpf beim / Rif. La Varella / 5.9.72" (TLF). 1 ex. – "Südtirol / Ritten 14.8.90 / leg. Kahlen", "Moore Kleebach- / Einzugsgebiet 1750 m / Sickerquelle" (TLF). 1 ex. – "NTi-Karwendel / Rißtal 5.10.93 / leg. Kahlen", "Talboden unter / Krenzbrücke 980 m / Seggenstein" (TLF). 2 exs. – "NTi Außerfern / Vils Zirmen / leg. Kahlen", "825 m 23.5.91 / Altwasser" (TLF). 1 ♀ – "Nordtirol / E.Heiss", "Arnberger Hütte / 2150 m 27.8.61", "Hydroporus / nivalis / det. H. Schaeflein" (TLF). 1 ex. – "Nordtirol / leg. E.Heiss", "Gschwaudt- / kopf 3.6.68" (TLF).



Figs. 24 – 29: Last abdominal sternum of 24 – 26) *Hydroporus nigrita*: 24) Reydarvatn (Iceland); 25) Pirin Mts. (Bulgaria); 26) Paznauntal, Galtür (Austria). 27) *H. sabaudus*: Paznauntal, Galtür (Austria). 28) *H. thracicus*: Gyullidus (Armenia). 29) *H. kozlovskii*: Turkey.

1 ex. – "Nordtirol / leg. Kahlen", "Bradenberg- / Kaiserhaus 710 m / 12.4.69" (TLF). 1 ex. – "Nordtirol / leg. Kahlen", "Wildmoos bei / Seefeld, Lottensee / 27.6.70" (TLF). 1 ex. – "Nordtirol / leg. Kahlen", "Seefeld Umg. / Wildmoosalm / 4.8.68" (TLF). 1 ♀ – "Reutte 14" [hw] (TLF). 3 exs. – "Reutte IV 13" [hw] (TLF). 6 exs. – "Kölnerhütte / Ti. m. 2300 m" (NMW). 1 ex. – "Kölnerhütte / Süd. Tirol / 2000-2300 m" (NMW). 1 ex. – "Innsbruck / Patscherkofel / Isshütte / 25.VIII.15 Wörndle" [hw] (NMW). 2 exs. – "Rinnerberg / 28.5.1911" [hw], "Innsbruck / A. Wörndle" (NMW). 2 exs. – "Seis, Ti. Schuster" (NHMP).

Italy: 1 ♀ – "Südtir. Bozen / Umg.- Kahlen", "Sarnetschlucht / 8.5.71 Talferbett / in Lehmtümpel" (TLF). 9 exs. – "Ober-Bozen / Süd-Tirol" (NMW). 1 ex. – "Bozen" [hw] (NMW). 11 exs. – "Rolle [Rolle Pass, Southern Tirol] 7 X 08" (TLF). 2 exs. – "Rolle-Pass / Ti. m. Schmidl" (CGW). 1 ex. – "Trafoi / Tirolis mer." (CGW). 1 ex. – "V.d. Leno / 25 VIII 09" (TLF). 6 exs. – "Hohe Gaissel / Dolomiten / Holdhaus" (NMW).

Switzerland: 2 exs. – "Bugnion / Suisse. 1892" (NMW). 1 ex. – "Bernina-Pass / Lago Bianco / Schweiz" (NMW). 1 ex. – "Lago Bianco / Bernina-Pass / Schweiz" [hw] (NMW). 3 exs. – "Bugnion / 1892", "foret

d'Aletsch / 2000 m" (NMW). 14 exs. – "Lenzerheide / Graubünden / Schweiz" (NMW). 1 ♂ – "Suisse-Gr. / For. di Livigno / 2350 8/74 / Cl. Besuchet" (MHNG). 1 ♀ – "Schweiz" [hw], "k. Artobolevskogo" [Cyrillic] (ZISP). 1 ex. – "Schweiz" [hw], "Hydroporus nivalis Heer / nigrita Fb. Str." [hw], "k. Artobolevskogo" [Cyrillic] (ZISP). Also see label data of a paralectotype of *Hydroporus nivalis*, which belongs to *H. nigrita*.

France: 2 exs. – "7.8.80 Briançon / Lac des Cordes / ca. 2500 m / Tümpel" [upper side, hw], "FERY leg." [under side] (CHF). 4 ♂♂, 2 ♀♀ – "13.8.80 Le Bourget / Briançon / ca. 2200 m / Teich", [upper side, hw], "FERY leg." [under side] (CHF). 7 ♂♂, 3 ♀♀ – "2.8.84 France / Pyren. or., Prades / Et. Nohèdes / 2000 m / Fery leg." [hw] (CHF). 1 ♂ – "Gallia / coll. Ehmann", "Gall" [hw], "coll. / DR. R. Streda", "Hydroporus nigrita." [hw], "F. Guignot det., 1956 / Hydroporus / nigrita / F."(HNHM). 3 exs. – "Gallia / bor.", "Collectio Kaufmann" (NMW). 1 ex. – "Auvergne / France Centr." [hw] (ZISP). 1 ex. – "St. Barbant / Mesmin. [?]" [hw] (ZISP). 4 exs. – "Vogesen / Hohneck 18.6.1898." (NHMP).

Spain: 1 ♀ – "Puerto Pajares / Asturien / A. KRICHELDORFF" (ZISP). 1 ♂, 5 exs. – "6.7.92 España / Prov. León, Noceda / NE Ponferrada / Bach / Fery leg." (CHF). 1 ♀ – "27.6.93 España / Prov. León, Noceda / NE Ponferrada / Bach / Fery leg." (CHF). 5 exs. – "5.8.89 España / Prov. Zamora, südl. / P. Sanabria, Calabor / Bach / Fery leg." (CHF). 19 exs. – "22.5.90 España / Prov. Burgos, SO Arlanzon / Pineda de la Sierra / Bach, Wiese / Fery leg." (CHF). 2 ♂♂, 3 exs. – "16.7.95 (E) Logrono / S. de Demanda / 20 km SSW Escaray / Rinnsal 1950 m / Fery leg." (CHF). 1 ♂, 1 ♀ – "Sierra de Guadarrama / Hispania / B. Uvarov. VIII.1926." [hw] (ZISP). 1 ♂ – "Hispan. / Gredos" [hw], "Hydropor. / nigritus" [sic!] (ZISP). 1 ♂ – "20.2.90 España / Prov. Teruel, S. d. Albarracin / Orihuela del Tremedal / Wassergrab. ca. 1600 m / Fery leg." (CHF). 5 exs. – "19.5.90 España / Prov. Teruel, S. d. Albarracin / Orihuela del Tremedal / Tümpel ca. 1700 m / Fery leg." (CHF). 6 exs. – "21.7.89 España / Prov. Teruel, S. d. Albarracin / Orihuela del Tremedal / Tümpel ca. 1600 m / Fery leg." (CHF). 22 exs. – "9.7.87 España / Prov. Teruel, S. d. Albarracin / Orihuela del Tremedal / Tümpel ca. 1500 m / Fery leg." (CHF). 3 ♂♂, 180 exs. – "19.5.90 España / Prov. Teruel, S. d. Albarracin / Orihuela del Tremedal / Palomas ca. 1600 m / Fery leg." (CHF). 36 exs. – "19.5.90 España / Prov. Teruel, S. d. Albarracin / Orihuela del Tremedal / Graben ca. 1600 m / Fery leg." (CHF). 1 ♂ – "Hispania", "Hydrop. morio / Heer. / Coll. Reitter" (HNHM). 1 ♂ – "Hispania", "alticola / Hisp.", "Hydrop. morio / Heer. / Coll. Reitter" (HNHM).

Portugal: 3 exs. – "27.3.86 Portugal / Sierra Estrela / Penhas Douradas / Lache, 1000 m / Fery leg." [hw] (CHF). 1 ♂ – "12.6.90 Portugal / Sierra Estrela / Umg. Torre / Lache, ca. 1900 m / Fery leg." [hw] (CHF). 2 ♀♀ – "14.8.85 Portugal / Sierra Estrela / Penhas Douradas / Bach, 1150 m / Fery leg." [hw] (CHF).

Doubtful or inexact localities: 1 ex. – "Alpen / H. Priesner", "Kasberg" (NMW). 1 ex. – "Rätzer. 91 / Trübseealp" (NMW). 1 ex. – "Alp. / Dr. Graf", "Coll. Wingelmüller", "morio Heer / (nivalis Heer)" (NMW). 2 exs. – "Tromsee" (NMW); 1 ex. – "atriceps Crotch / Lapponia / Leonhard" [hw] (NMW). 1 ex. – "Lapponia", "Leonhard", "atriceps / Crotch" [hw] (NMW). 1 ♂, 3 ♀♀ – "Azuga" (HNHM). 1 ex. – "Alpes" (NHMP). 1 ex. – "Nova ves / 19 11/III.06" [hw] (NHMP).

Description: TL = 2.8 – 3.4 mm, MWE = 1.5 – 1.8 mm; habitus variable from oval to broadly oval (Figs. 1 – 5), MWE/TL-H = 0.6; pronotum convex, not flattened posterolaterally, with sides almost straight or rounded, sometimes broadened to anterolateral angles, MWP/PL = 2.2 – 2.7; elytron not flattened at base and not vaulted behind, elytral sides rounded or subparallel in anterior half.

Head pale brown to black, with reddish (rarely yellowish) transverse band on vertex, and reddish brown to brown anterior margin, ventrally black, with mouth parts yellowish to reddish brown, darker apically and with reddish brown to black gula; antenna with yellow to reddish brown antennomeres 1 – 4 and antennomeres 5 – 11 reddish brown to brownish black, at least in their distal half, in some specimens all antennomeres yellowish or reddish, with apical ones darker; pronotum brownish black to black, with lateral bead reddish, in some Spanish and Bulgarian specimens completely black; elytron yellowish brown to black, if dark, frequently reddish to brown laterally and basally and darker on disc near suture (Fig. 6), rarely (Figs. 6, 7) elytron with indistinct basal red-

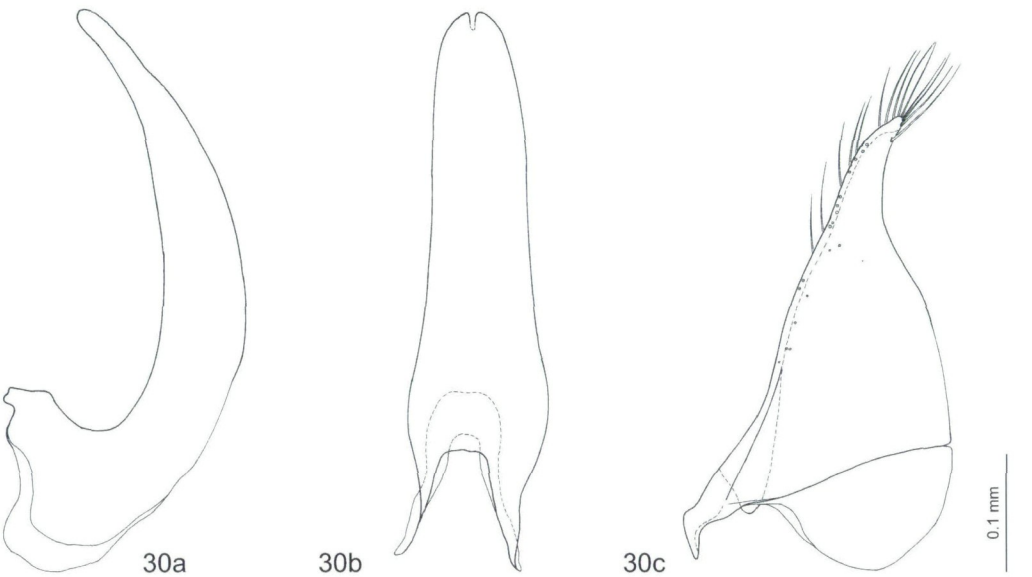


Fig. 30: *Hydroporus nigrita*. Lectotype: a) median lobe of aedeagus, lateral aspect; b) median lobe of aedeagus, dorsal aspect; c) paramere, external aspect.

dish spots; epipleuron reddish brown to black, usually paler at shoulder angle; ventral surface of body black, with brownish posterior margins of metacoxal processes, sometimes with brownish abdominal sternum 1 and reddish to brown lateral spots on abdominal sterna 3 – 5; legs reddish brown to brown with darker femora and in some specimens darker (to brownish black) apical part of tibiae and tarsomeres.

Head with sparse punctation, punctures small, slightly impressed; disc of pronotum with small (in some specimens very fine) and sparse punctation (spaces between punctures 3 – 6 times size of punctures), punctate impressions on posterolateral angles weak; elytron with punctation relatively dense (spaces between punctures 1 – 2 times size of punctures) and strongly impressed; puncture rows on elytron typically weak, in most specimens inconspicuous, but in some (from Spain and Bulgaria) quite distinct; abdominal sternum 6 with sparse (frequently very fine), even punctation (Figs. 24 – 26), punctation especially fine and sparse on sternum base; pronotum and elytron with strong microreticulation, in some specimens finer; pronotum, elytron, and ventral side of body (especially base of prosternum, prosternal process, and metacoxal processes) with fine, sparse, whitish hairs.

♂♂: Aedeagus with median lobe small, short, its apex not curved (Fig. 30 a, b), paramere as in Fig. 30 c.

♀♀: Without conspicuous external differences to males. Gonocoxosternum and gonocoxa as in Fig. 67.

Variability: The species shows a great variability in body size and shape, in coloration of elytron (Figs. 1 – 7), lateral bead of pronotum, legs, and in shape of median lobe

(Figs. 31 – 42), less in punctation and microreticulation. Spanish specimens from one population (Teruel province, S. d. Albarracin, Orihuela del Tremedal) have the pronotum with reddish or completely black lateral bead. Bulgarian specimens from Pirin and Rila Mts. are characterized by larger (TL = 3.1 – 3.3 mm) body (Fig. 1), black lateral bead of pronotum, and conspicuous punctural rows on elytra in most specimens. Although these beetles look similar to those of *H. sabaudus* they can be distinguished from them by finer and sparser punctate head, disc of pronotum, and especially abdominal sternum 6 (Fig. 25), as well as by evidently more convex pronotum, yellowish or reddish anntenomeres 1 – 4, and different shape of median lobe (Fig. 39). The shape of the median lobe of the aedeagus is very variable even among beetles of one population (Figs. 31, 32, 37, 38, 40, 41) but evidently differs from that of *H. sabaudus*. I do not consider these Bulgarian beetles to belong to different subspecies of *H. nigrita* since most Icelandic and some Scandinavian specimens I studied also show elongate shape of body (Figs. 2, 3), with subparallel elytral sides. Also I have studied a few beetles from Pirin and Rila Mts. of smaller size (TL = 2.7 – 3.0 mm) and with more rounded elytral sides whereas the specimens from Vitoša Planina, Sofia are of the usual *nigrita* appearance. Additionally, some specimens (but not all of them) from Rhodope Mts. are similar to *H. thracicus*, they have brown elytra with reddish or yellowish basal part and finer microreticulation but they differ from *H. thracicus* by smaller and narrower shape of body, reddish lateral bead of pronotum, less conspicuous (in some of them inconspicuous) punctural rows on elytra, and sparser and finer punctate abdominal sternum 6.

Habitat: The species inhabits a great variety of small water-bodies, both stagnant and flowing, usually with a mineral or peaty substrate. It is frequently collected in small streams, roadside ditches and cold springs (NILSSON & HOLMEN 1995). FRANCISCOLO (1979) reported that the species might occur in salt water.

Distribution: The species is widespread in Europe, except for the extreme south, in the east confined to East Siberia, Kazakhstan (Fig. 73), and Turkmenistan (NILSSON & HOLMEN 1995, NILSSON 2003). The species is more common in lower areas but may be found at elevations up to 2500 m.

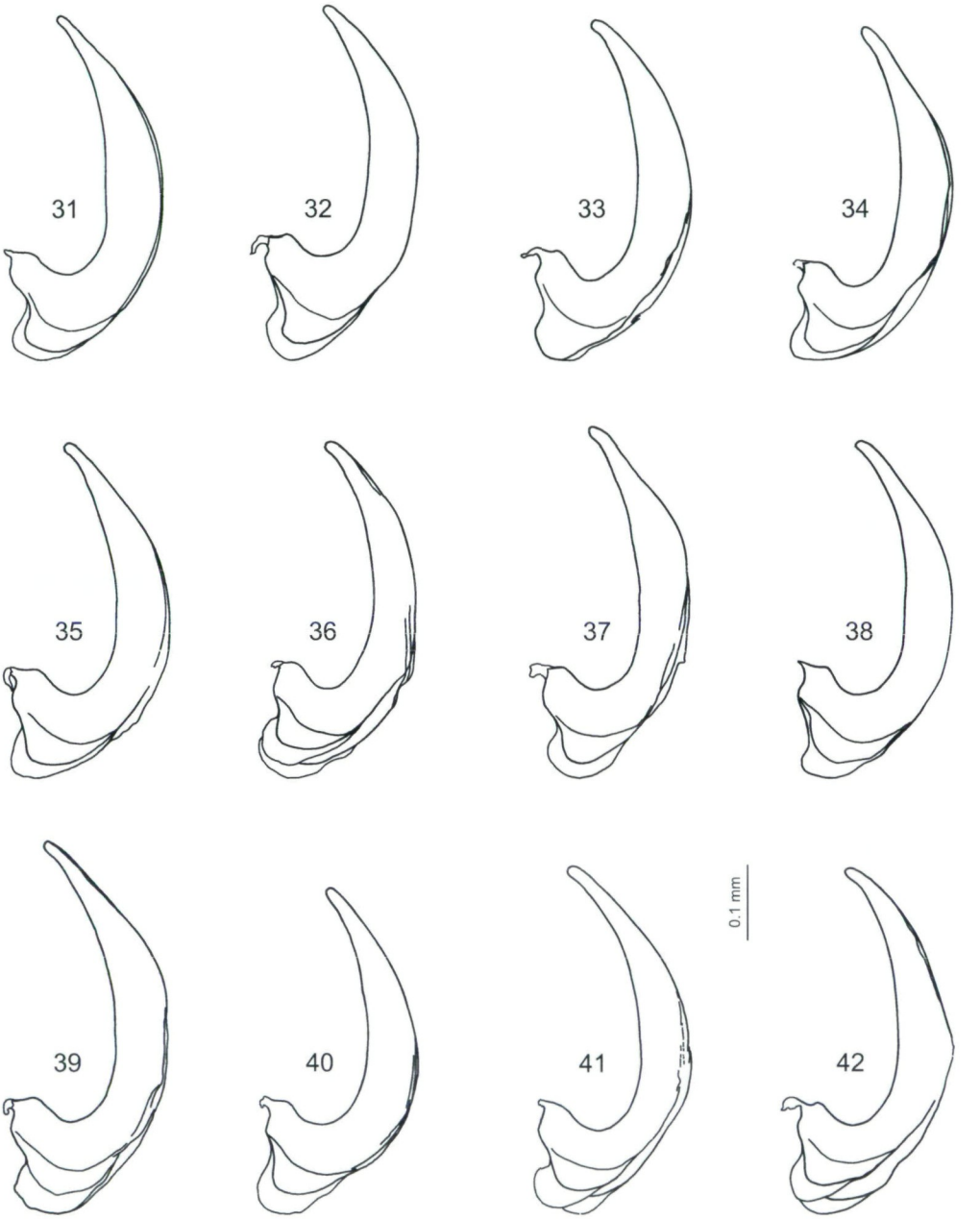
Hydroporus sabaudus sabaudus FAUVEL, 1865

Hydroporus sabaudus FAUVEL, 1865: 276 (orig. descr.); GEMMINGER & HAROLD 1868: 440 (cat.); SEIDLITZ 1887: 74 (syn. with *H. nigrita*); GANGLBAUER 1892: 475 (syn. with *H. nivalis*); ZIMMERMANN 1920: 95 (cat., as ab. of *H. nivalis*); ZIMMERMANN 1931: 48 (descr., faun., as ab. of *H. nivalis*); GUIGNOT 1947: 99 (descr., faun., as ab. of *H. nivalis*); ZAITZEV 1953: 170 (descr., faun., as *H. nivalis*); FRANCISCOLO 1979: 365 (descr., faun., as *H. nivalis*); NILSSON 2001: 163 (cat., as syn. of *H. nivalis*); NILSSON 2003: 63 (cat., faun., as syn. of *H. nivalis*).

Hydroporus alticola SHARP, 1882: 468 (orig. descr.); GANGLBAUER 1892: 475 (syn. with *H. nivalis*).

Hydroporus nivalis HEER var. *Scholzi* KOLBE, 1899: 24 (orig. descr.); ZIMMERMANN 1920: 95 (cat., as ab. of *H. nivalis*).

Type material: *Hydroporus sabaudus*: **Lectotype** (present designation): ♂ – "Coll. R. I. Sc. N. B. / France [printed on a new lable] La Saulcette / Savoie avril [on old glued lable, hw Fauvel] / coll. A. Fauvel [printed on narrow glued lable]", "Coll. et det. A. Fauvel [printed on a new lable] / Hydroporus [on a new lable, hw] / Sabaudus / Fvl. type [on old glued lable, hw Fauvel]", "TYPE" [red], "Lectotype / Hydroporus / sabaudus Fauvel / des. H.Shaverdo 2002" [red] (ISNB). **Notes:** The designation of a lectotype is necessary



Figs. 31 – 42: Median lobe of aedeagus, lateral aspect, of *Hydroporus nigrita*: 31, 32) Reydarvatn (Iceland); 33) Bodzentin', Kletsk Distr. (Belarus); 34) Shupy, Vitebsk Distr. (Belarus); 35) Oberer See, Lower Austria (Austria); 36) Soriška Plan. (Slovenia); 37, 38) Demur-Kapu, Rhodope Mts. (Bulgaria); 39) Pirin Mts. (Bulgaria); 40, 41) Prades Et. Nohèdes, Pyrenees (France); 42) Gredos (Spain).

to ensure stability if additional syntypes were found and some of them turned out to belong to different species. The lectotype lacks the left antennomeres 6 – 11, all left legs, the right mid leg, and right metatarsus. **Type locality:** La Saulcette, Savoie, France.

Hydroporus alticola: **Lectotype** (present designation): "Type" [circle with red margin], "Albertville, / Savoy.", "Albertville" [under side, hw], "Type 367 / H. alticola / n.sp. / Europe" [hw Sharp], "Syntype" [circle with blue margin], "Lectotype / Hydroporus / alticola Sharp / des. H. Shaverdo 2002" (NHML). **Note:** The designation of a lectotype is necessary because the syntype series is composed of two different species: *H. sabaudus* and *H. foveolatus*. **Paralectotypes**: 10 exs. belong to *H. sabaudus sabaudus*, 1 ex. – to *H. sabaudus sierranevadensis* ssp.n., and 2 exs. – to *H. foveolatus*. *Hydroporus sabaudus sabaudus:* 3 exs. – "Albertville, / Savoy.", "Albertville" [under side, hw Sharp], "Sharp Coll / 1905-313." [under side], "Syntype" [circle with blue margin] (NHML). 1 ex. – "Albertville, / Savoy.", "Sharp Coll / 1905-313." [under side], "Albertville. Savoy" [under side, hw Sharp], "Syntype" [circle with blue margin] (NHML). 1 ex. – "367" [hw Sharp], "Albertville, / Savoy.", "Albertville" [under side, hw Sharp], "Sharp Coll / 1905-313." [under side], "Syntype" [circle with blue margin] (NHML). 1 ex. – "Monte Viso" [hw Sharp], "Sharp Coll / 1905-313." [under side], "367 / Europe" [hw Sharp], "Syntype" [circle with blue margin] (NHML). 2 exs. – "367" [hw Sharp], "Macugnaga, / Piemont.", "Macugnaga" [under side, hw Sharp], "Sharp Coll / 1905-313." [under side], "Syntype" [circle with blue margin] (NHML). 1 ex. – "Val. Bevero" [hw Sharp], "Sharp Coll / 1905-313." [under side], "Syntype" [circle with blue margin] (NHML). 1 ex. [disarticulated] – "Tyrol." [hw Sharp], "Sharp Coll / 1905-313." [under side], " ? 367 var. / apical segt. / impunctate" [hw Sharp], "Syntype" [circle with blue margin] (NHML). *Hydroporus sabaudus sierranevadensis:* 1 ♀ – "Sierra Nevada / 17.7. [18]79. D.S. / ? 367 var." [hw Sharp], "Sharp Coll / 1905-313." [under side], "Syntype" [circle with blue margin], "Paratypus / Hydroporus sabaudus / sierranevadensis ssp.n. / des. Shaverdo 2002" [red] (NHML). *Hydroporus foveolatus*: 1 ex. – "Austria. Alps" [hw Sharp], "Sharp Coll / 1905-313." [under side], "Syntype" [circle with blue margin] (NHML). 1 ex. – "366" [hw Sharp], "Austria Alps." [hw Sharp], "Sharp Coll / 1905-313." [under side], "Syntype" [circle with blue margin] (NHML). Both specimens with additional labels "Hydroporus / foveolatus Heer / Shaverdo H. det. 2002". Respective red labels have been attached to the paralectotypes. **Type locality:** Albertville, Savoie, France.

Hydroporus nivalis var. *scholzi*: **Lectotype** (present designation): ♀ – "Riesengebirge / Weisse Wiese" [upper side], "X/1895" [hw, under side], "Type!" [hw Kolbe], "Holotypus / Hydroporus nivalis / var. scholzi / W. Kolbe 1899:24", "Lectotype / Hydroporus nivalis / var. scholzi W.Kolbe / des. H.Shaverdo 2002" [red], "Hydroporus / sabaudus Fauvel / Shaverdo H. det. 2002" (UWMP). **Note:** According to the original description the type series includes three syntypes. **Type locality:** Riesengebirge, Sudet Mountains, Poland.

Note: The study of the type series of *H. nivalis* has revealed that three syntypes belong to *H. foveolatus*, one syntype to *H. nigrita*, but no one to the species which so far has been considered as *H. nivalis* (see paragraph about *H. foveolatus*). One of the *H. foveolatus* syntypes has been chosen as a lectotype of *H. nivalis*, therefore the latter name is a senior synonym of *H. foveolatus*, and from now the name *H sabaudus* must be used instead of *H. nivalis* for the species under consideration.

Additional material examined:

Germany: 1 ♂, 1 ex. – "Wannenkopf [western Bavarian Alps, 6 km W Fischen/Allgäu, not far from Sonthofen and Oberstdorf; ca. 1625 m, small, shallow moorland water, full sun exposure, W. Sondermann coll.] / 9.07.1988" (CWS). 1 ♂ – "Germania / coll. E. Friv.", "Hydrophorus [sic!] / nigrita F. / coll. E. Frivaldszky", "F. Guignot det., 1856 / Hydroporus nigrita / ab. bisbiguttatus / Sahlb." (HNHM).

Poland: 1 ♂ – "Silesia / Riesen- / gebirg.", "Hydroporus morio Heer / Coll. Reitter" (HNHM). 1 ♂ – "Silesia / R. Scholz.", "Riesengebg. / 7.09" [hw], "Hydroporus morio Heer / Coll. Reitter" (HNHM). 2 ♂♂ – "Riesengebirge / Weisse Wiese"; 1 ex. – "Riesengebirge / Weisse Wiese 7.08" (NHMP). 1 ♂ – "Riesengebirg. / IV.VI.28" (NHMP). 1 ex. – "Riesengb." [hw] (TLF). 1 ♀ – "Riesengebirg." [hw] (MNS). 1 ♂ – "Wiesenbaude [probably near Wrocław] / Letzner [collector]", "Coll. Dr. Ihssen", "nivalis ab. / Scholzi", "Zool. Mus. Berlin" (MNB).

Czech Republic: 9 ♂♂, 10 ♀♀ – "Krkonoše / Dr. Obenberger" (NHMP). 2 ♂♂, 2 ♀♀ – "Krkonoše / 10.7.1919" (NHMP). 1 ♀ – "Krkonoše, 1919 / Boheme, bor. 7 / Dr. Obenberger" (NHMP). 2 ♂♂, 1 ♀ – "Kotelné Jámy [Krkonoše Mts., 1200 m] / 15-16.VI. Boh. / Dr. Obenberger" (NHMP). 1 ♂ – "Špindlerův [Krkonoše Mts., 900 m] / mlýn Boh." (NHMP). 1 ♀ – "Špindlerův mlýn / Krkonoše / Boh. Štěrba" (NHMP).

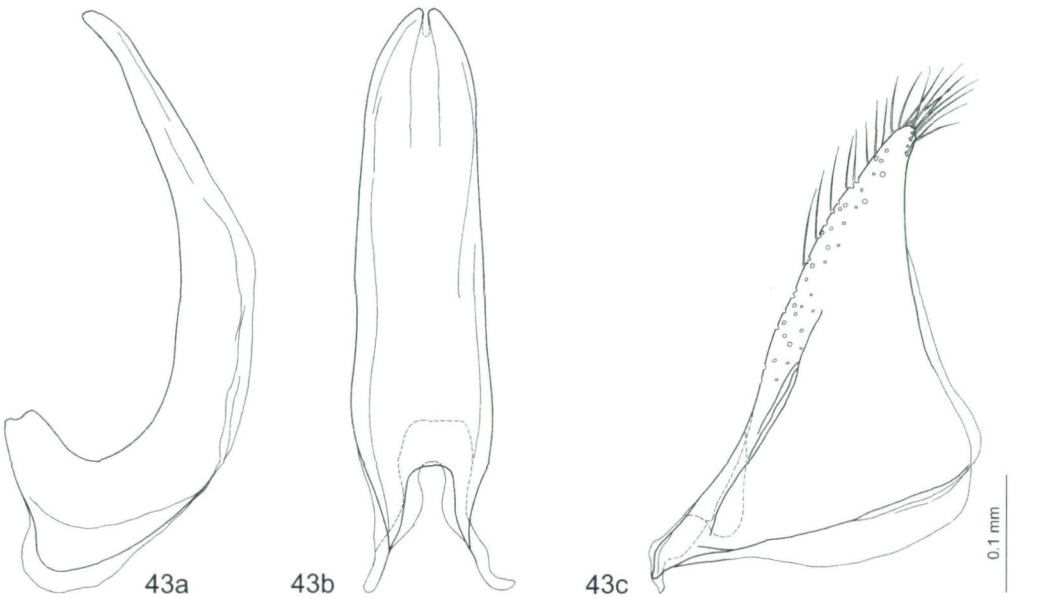


Fig. 43: *Hydroporus sabaudus sabaudus*. Briançon (France): a) median lobe of aedeagus, lateral aspect; b) median lobe of aedeagus, dorsal aspect; c) paramere, external aspect.

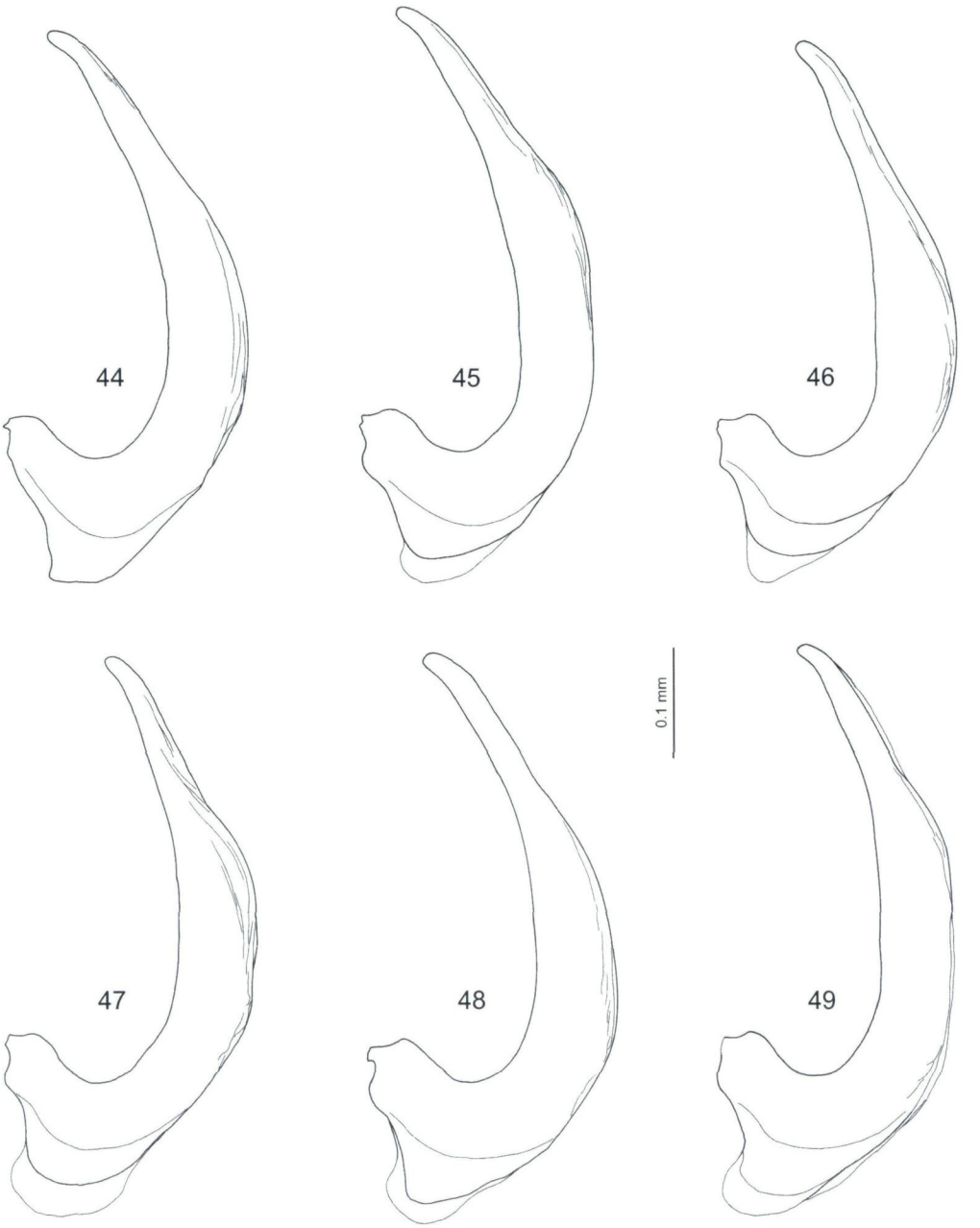
Slovakia: 1 ♂ – "Slovakia 1984 / Vys. Tatry 23.VII. / Capie Pleso / J. Kodada Lgt.", "Hydroporus / nivalis" (CJK).

Austria: 3 ♀♀ – "A. S. Obertauern / 7.1967 / leg. Wewalka", "Hydroporus / nigrita F. / det. Wewalka 70" (NMW). 1 ♀ – "Zell a/See / Pinker 29 VIII 08" [upper side, hw], "Schwalben / wand" [under side, hw] (NMW). 1 ♀, 1 ex. – "Pasterzen- / vorland", "Glocknergr. / alpin, Franz" (NMW). 5 ♂♂, 2 ♀♀, 1 ex. – "Carinthia / Sameralm / R. Hicker" [upper side], "28/7 25" [under side, hw] (NMW). 1 ♀ – "Rauris / Rattenegg / 7.41" (TLF). 1 ♂, 2 ♀♀ – "Stubacht. / 4.9.39", "R. Scholz / Innsbruck" (TLF). 1 ex. – "Stubachtal / 4.9.39" [upper side, hw], "Grünsee / 2300" [under side, hw], "A. Scholz / Innsbruck" (MNS). 1 ♂, 1 ♀ – "Stubachtal – Hohe Tauern / Umg. Weißsee 2000 m / 15.-22.8.1967 leg. Paulus" (CGW). 1 ♂ – "Radstadt, Styr. / Leg. Breuning." (CGW). 1 ♀ – "Steiermark" [hw] (NHMP). 1 ♂, 1 ex. – "A – STMK: Bez. Liezen / 13.5 km S Schladming / 13°42'52"E, 47°16'44"N / 1960 m, 2.8.2000 / leg. Komarek (6)" (CAK, NMW). 1 ♂ – "A – STMK: Bez. Liezen / 11.7 km SSW Schladming / 13°39'20"E, 47°17'13"N / Unt. Giglachsee, 3.8.2000 / 1930 m, leg. A. Komarek (8)" (CAK). 2 ♂♂, 1 ♀ – "Moschlitzen / Nockgruppe / Székessy" (NMW). 1 ♂, 2 ♀♀ – "Kreuzeck / Carinthia" (NMW). 1 ♂ – "Kreuzeck / Kärnten", "Kreuzelhöhe / 15.IX.53", "Gerberhütte / 16.IX.53" (NMW). 1 ♂, 2 ♀♀ – "Wolaya-See, Car. / 3-11.VIII.1949 / leg. F.Schubert" (NMW). 1 ♀ – "Königstuhl / Holdhaus" (NMW). 1 ex. – "Prebertörl Umg. / Schladm. Tauern / leg. H. Franz" (NMW). 1 ex. – "Innergschlöss b. [bei] / Matrei i. Ost Tirol [21.7.1982]" [hw] (NMW). 1 ♂, 1 ♀ – "17.6.73 Galtür / Tirol, 1600 m / Schmelzwasser / lache" [upper side, hw], "FERY leg." [under side] (CHF). 5 ♂♂, 4 ♀♀ – "25.7.84 Austria / Paznauntal / Galtür, 1900 m / Rinnsal / Fery leg." [hw] (CHF). 2 ♂♂, 1 ♀ – "25.7.84 Austria / Paznauntal / Galtür, 1900 m / Rinnsal / Fery leg." [hw], "Hydroporus / nigrita F. / Fery det." [hw], "Hydroporus / nigrita (Fabr.) / Fresneda det 92" (CHF). 5 ♂♂, 2 ♀♀ – "Ötztaler Alpen / Tir. Leg. Kahlen", "Rotmoostal / im Moor / 12.8.72" (TLF). 3 ♂♂, 3 ♀♀ – "OTi-Venedigergruppe / Schwarzachtal / leg. Kahlen", "Talgrund 2050 m / 4.8.90 / Quellmoos" (TLF). 2 ♂♂ – "OTi-Venedigergruppe / Knorrkogel N-Seite / leg. Kahlen", "Salzboden / 2180 m 6.8.91 / Niedermoos" (TLF). 1 ♂, 1 ♀ – "OTi-Granatspitzgruppe / Daberkögele NW-Seite / leg. Kahlen", "Grüner See / 2246 m 10.8.91 / moos. Uber" (TLF). 1 ♀ – "Nordtirol coll.Ammann" (TLF). 1 ♀ – "Peintelstopf / 2300 m, 4.7.43", "Ti. Arlberg / Pechlaner" (TLF). 1 ♂ – "Tirol 7.7.81 / Komnertal / Bittermann" (NMW). 3 ♂♂, 1 ♀ – "Tirol / - 1.7.04" (NMW). 1 ♀ – "Arlberg / Moosbrugg." (NMW). 3 ♂♂ – "a. Pichlerhütte / alp. Ti. bor." (NMW). 1 ♀ – "Ost-Tirol / leg. A.

Kofler", "Porze 2200 / 9.8.78" (MNS). 1 ♂, 1 ♀ – "Austria –Osttirol / Obertilliach, Sumpf- / wiese unter Joch / see 2100 m", "13.9.1982 / leg. Schaeflein" (MNS). 1 ex. – "Austria-Osttirol / Kalkstein / Lipen. Alm 2100 m" [hw], "leg. Schaeflein / 9.1979" [hw] (MNS). 1 ♂ – "Dorfer- / tal" (NMW). 1 ♂ – "Tirol / - 1.7.04" (MNS). 1 ex. – "Cr. Duisburger / Hütte / Hölzel leg." (CGW). 1 ex. – "Vent / Zumme / 1800 – 2000 m. / 14-VIII-1967", "Österreich / Tirol Ötztal / Ent. Expc. Zool. Mus." (CGW).

Italy: 2 ♂♂, 1 ex. – "Val-Valasco / Pinker 18.VII.09" [upper side], "Alp maritim" [under side], "Hydroporus / nigrita F." [hw] (NMW). 1 ♂, 2 ♀♀ – "Val-Valasco / Pinker 18.VII.09" [upper side], "Alp marit." [under side], "Hydropor. / nivalis", "Hydropor. / nigritta F. [sic!]" [hw], "coll. / Meyer" (NMW). 1 ♂ – "Karersee-Gb. / Ganglbauer", "nivalis" [hw] (NMW). 2 ♂♂ – "Ganglbauer / Stilfserj. It.", "nivalis" [hw] (NMW). 3 ♂♂, 6 ♀♀, 2 exs. – "T. [Terme] di Valdieri / Ganglbauer" (NMW). 2 ♀♀ – "Passo 5 croci / Cima d'Asta- / Geb., Franz" (NMW). 9 exs. – "Valle d'Aosta / Colle Piccolo San / Bernando, m 2000 / 8/IX/73, Angelini F." (MHNG). 1 ex. – "Alpes graj. [Grajische Alpes] / A. Crusionay", "c. Dr. Knirsch" (CGW). 1 ♀ – "Plose b. Brixen / Ter. Mer. / H. Becker" (TLF). 2 ♂♂ – "Brixen/Plose / S.Tir. 7.6.1977 / F. Hebauer leg." (TLF). 2 ♂♂ – "Südtir. Brixen / Umg.-Kahlen", "Plose / 1.767", "Hydroporus nigrita F / det. H. Schaeflein" (TLF). 1 ♂, 1 ♀♀ – "Sti Vinschgau / Martelltal / leg. Kahlen", "Madritschtal / 2270 m 14.7.84 / Quellmoos" (TLF). 1 ♂ – "Rolle [Rolle Pass, Southern Tirol] 7 X 08" (TLF). 1 ♂, 1 ♀ – "I: Prov. Sondrio / Val Braulio / 31.8.1987, 2350 / leg. Schaeflein" (MNS). 2 ♀♀ – "Italie - Südtirol / Madritach - Tal / 2350 m 20.9.1984 / leg. Schaeflein" (MNS). 1 ♂ – "4.VII.84. Italy / leg. Schaeflein" (CRC).

Switzerland: 1 ♀ – "Grimsel [Grimsel Pass]" [hw] (HNHM). 3 ♂♂, 1 ♀, 5 exs. – "Suisse-Vs / Bg.St.-Pierre / 6/79 1680 / Toumayeff" (MHNG). 2 ♂♂, 2 ♀♀ – "Suisse-Vs / Bg.St.-Pierre / 6/79 1680 / Toumayeff" (MHNG). 1 ♂, 1 ♀ – "C. Balme / Vs. 8." [upper side], "1961" [under side, hw], "Coll. / Toumayeff" (MHNG). 1 ♂, 2 ♀♀ – "Vs. Sanetsch / 2200 9./67 / Coll. Toumayeff" (MHNG). 1 ♂ – "Suisse-Valais / Pic Arzinol / 2500 – 2600 m / 27.VII.70 / Cl. Besuchet" (MHNG). 1 ♂ – "Vs. v. Menouve / 7./75 2100 / Coll. Toumayeff" (MHNG). 1 ♂ – "Suisse-Vs. / Emosson / 8/65 / Toumayeff" (MHNG). 7 exs. – "Suisse-Vs. / s/Emosson / 8/64 / Toumayeff" (MHNG). 3 exs. – "Vs. Vx. Emosson / 2300 2/63 / Coll. Toumayeff" (MHNG). 3 exs. – "Vx. Emosson Vs. 2300 m 9" [upper side, hw], "1963" [under side, hw], "Coll. / Toumayeff" (MHNG). 6 exs. – "SUISSE-VALAIS / Gd. St. Bernard / 24.VI.76, 2200 m / Cl. Besuchet" (MHNG). 1 ex. – "Suisse Valais / Gd. St. Bernard / 2200 m 25.VII.66 / A. Comellini" (MHNG). 1 ex. – "Suisse Valais / Gd. St. Bernard / 2100 m 30.VIII.65 / A. Comellini" (MHNG). 4 exs. – "Bella / Tola (Vs) / 16.8.1959" (MHNG). 1 ex. – "Bords de la / Draube / Ferret / Valais / 20.7.45" (MHNG). 4 exs. – "18.VIII.1963 / Zinal / Valais alt. 1700", "vasque d'eau / alimentant le / bord de la / Novisence [small water pond affluent to Novisence River]" (MHNG). 1 ex. – "Mattmark / Vs." [upper side], " Coll.Linder / 1951" [under side] (MHNG). 1 ex. – "Mattmark / (Vs) / 17.8.1960" (MHNG). 2 exs. – "Suisse-Valais / Simplon-2400 / 17.7.1950 / V. Aellen" (MHNG). 1 ♀ – "Lac Fenetre / 5.8.1957", "P. Scherler / Suisse Valais" (MHNG). 1 ex. – "Suisse-Valais / Gletsch 16.VIII.75 / ds. étang [pond] / Cl. Besuchet" (MHNG). 1 ♂ – "Vs. v. Menouve / 7/75 / Coll. Toumayeff" (MHNG). 1 ♀ – "Vs Zermatt / Furgg / 8./66 Coll. / Toumayeff" (MHNG). 1 ♂ – "8.VII. 1959 / Schwarzsee / s/Zermatt" [hw], "lac tempor. [temporary lake] / latéral" [hw], "Coll. / M. Rehfous" (MHNG). 1 ♀ – "8.VII. 1959 / Schwarzsee / s/Zermatt" [hw], "petit lac [small lake] / inférieur [lower]" [hw] (MHNG). 1 ♂, 1 ♀ – "14.VIII.1961 / Schwarzsee / s/Zermatt" [hw], "lac / inférieur [lower] " [hw] (MHNG). 2 ♂♂, 1 ♀ – "4.VII.1957 / Findelnalp / alt. 2500" [hw], "trou d'eau [waterhole]" [hw], "Coll. / M. Rehfous", "nivalis Heer" [upper side, hw], "foveolatus ?" [under side, hw] (MHNG). 2 ♂♂, 1 ♀, 8 exs. – "4.VII.1957 / Findelnalp / alt. 2500" [hw], "trou d'eau" [hw] (MHNG). 2 exs. – "16.VII.1957 / Fluhalp / alt 2600", "trou d'eau" [hw] (MHNG). 9 exs. – "4.VII.1957 / Grünsee / s/Zermatt" [hw], "trou d'eau" [hw] (MHNG). 1 ex. – "ab. Scholzi Kolbe" [hw], "4.VII.1957 / Grünsee / s/Zermatt" [hw], "trou d'eau" [hw] (MHNG). 1 ex. – "ab. Sabaudus Fauv." [hw], "4.VII.1957 / Grünsee / s/Zermatt" [hw], "trou d'eau" [hw] (MHNG). 1 ex. – "6.VII.1957 / Rotenboden / alt. 2600" [hw], "herbes dans replat immergé [grasses in flooded area]" [hw] (MHNG). 12 exs. – "10.VII.1957 / Grünsee / alt. 2300" [hw], "trou d'eau / pres du lac [near lake]" [hw] (MHNG). 1 ♀ – "10.VII. 1959 / Findelnalp / s/Zermatt" [hw], "trou d'eau / alt. 2450" [hw] (MHNG). 1 ex. – "16.VII.1957 / Steflisee alt. 2536" [hw], "trou d'eau / pres du lac" [hw] (MHNG). 2 exs. – "8.VIII.1961 / Riffeloce / a/a Gomer [?]" [hw], "lac inférieur [lower lake] / alt. 2750" [hw] (MHNG). 5 exs. – "20.VII.1961 / Rifelalp / s/Zermatt / alt 2350" [hw], "trou d'eau / bord misseau" [hw] (MHNG). 1 ♂, 1 ex. – "Bugnion / 1892", "mare d' / foret d'/ Aletsch 2000 m / Valais", "geniculatus / Fauvel det / aletsch" (NMW). 4 ♂♂, 2 ♀♀ – "Fauvel 97 / Valais" (NMW). 1 ♀ – "St Gotthard / Pass" (NMW). 3 exs. – "Suisse-Tessin / A. d'Arena / 22.VII.83 1600 m / Cl. Besuchet" (MHNG). 5 exs. – "Gridone / 8/64 Ti / Coll. Toumayeff" (MHNG). 4 ♂♂, 7 exs. – "Suisse-Gr. / For.di Livigno / 2350 8/74 / Cl. Besuchet" (MHNG). 1 ex. – "Suisse-Grisons / Forc.di-Livigno / 2300 m 6.VIII.74 / sous Pierres / Cl. Besuchet" (MHNG). 2 exs.



Figs. 44 – 49: Median lobe of aedeagus, lateral aspect, of *Hydroporus sabaudus sabaudus*: 44) Capie pleso, Vysokie Tatry (Slovakia); 45) Krkonoše, Sudet Mts. (Czech Republic); 46) "Osttirol", Venedigergruppe (Austria); 47) Valais (Switzerland); 48) Prades Et. Nohèdes, Pyrenees (France); 49) "Hispania".

– "Suisse-Grisons / s/Cavaione 83 / 2050 m 27.VIII. / Cl. Besuchet" (MHNG). 1 ex. – "Suisse-Gr. / S.Moritz Lej Alv 9/65 / Toumayeff" (MHNG). 4 exs. – "Corviglia / Gr. 6" [upper side], "1953" [under side] (MHNG). 1 ex. – "A. Grüm / Gr. 6." [upper side], "1962" [under side] (MHNG). 1 ♂ – "Gr. St. Moritz / A. Laret / 7/70 / Coll. Toumayeff" (MHNG). 4 exs. – "Suisse Grisons / Bernina sud / 2200 m 22.IX.65 / A. Comellini" (MHNG). 1 ex. – "Suisse-Gr / Bernina Pass / 2300 8/74 / Cl. Besuchet" (MHNG). 1 ♂, 1 ♀ – "Helvetia", "Bernh. don." (NMW). 2 ♂♂, 1 ♀ – "Helvetia / Rhonegletsch.", "Rhonegletscher / Suissa, Régib.", "Hydrop. morio / Heer / Coll. Reitter" (HMNH).

France: 1 ♂, 1 ex. – "3.8.80 Briançon / Lac Néal / 2500 m / Tümpel" [upper side, hw], "FERY leg." [under side] (CHF). 1 ♂, 1 ex. – "7.8.80 Briançon / Lac des Cordes / ca. 2500 m / Tümpel" [upper side, hw], "FERY leg." [under side] (CHF). 1 ♂ – "8.8.80 Briançon / ca. 2200 m / Lac Oceyrette / Bach" [upper side, hw], "FERY leg." [under side] (CHF). 3 ♂♂, 7 ♀♀ – "13.8.80 Le Bourget / Briançon / Teich / ca. 2200 m", [upper side, hw], "FERY leg." [under side] (CHF). 3 ♂♂, 3 ♀♀, 1 ex. – "2.8.84 France / Pyren. or., Prades / Et. Nohèdes / 2000 m, Rinnsal / Fery leg." [hw] (CHF). 3 ♂♂, 1 ex. – "17.8.84 France / Pyren. or., Prades / Et. Nohèdes / ca. 2000 m / Fery leg." [hw] (CHF). **Note:** 1 ♀ – "Auchel / N. Frankreich" (NMW). The specimen looks much like *H. sabaudus* but the locality is very doubtful to be included in the range of this species. More material from northern France should be involved to solve this question.

Doubtful or inexact localities: 1 ♂ – "Hispania", "Hydrop. morio / Heer. / Coll. Reitter" (CHS). 1 ♂ – "Hispania", "alticola / Hisp." [hw], "Hydrop. morio / Heer. / Coll. Reitter" (HNHM). 1 ex. – "A 39", "Hydroporus / nivalis Heer / det. Wewalka 79", "Hydroporus / sabaudus Fauv. / Shaverdo H. det. 2002" (NMW).

Description: TL = 3.0 – 3.7 mm, MWE = 1.5 – 2.0 mm; habitus oval, sometimes broad oval (Figs. 13 – 16), MWE/TL-H = 0.5 – 0.7, pronotum slightly flattened posterolaterally, with sides rounded or almost straight, if latter, then base of pronotum can be narrower than elytral base, MWP/PL = 2.3 – 2.7; elytron often flattened at base and vaulted behind, elytral sides rounded.

Head dark brown to black, with reddish tranverse band on vertex; in some specimens with brown anterior margin; ventrally black, with reddish brown mouth parts and black gula; antenna with antennomeres brown to black, in some specimens with antennomere 1 reddish to reddish brown and antennomeres 2 – 4 reddish to reddish brown at basal half, rarely antennomeres 1 – 4 reddish to reddish brown; pronotum black, never with reddish lateral bead; elytron reddish brown to black, frequently paler (sometimes almost yellowish), sometimes darker on disc, near suture, and paler on base and sides, in some specimens on base with two yellow spots variable in size and shape (Figs. 15, 16), spots frequently hardly bordered, color of elytron paler around them so that spots look like just palest points on elytron, more rarely spots well bordered; spot near first punctural row normally more or less oval, but in some specimens distinctly elongate or even long, the other spot on shoulder typically weakly developed but may be distinct and confluent with spot near punctural row, or developed into band along lateral margin of basal half of elytron, then spot near punctural row indistinct; epipleuron brown to black, paler at shoulder angle in specimens with spots on elytron or very pale side of elytron; ventral surface of body black, with brownish posterior margins of metacoxal proccesses; fore and middle legs with trochanters reddish brown, femora brown to brownish black, paler apically and basally, tibiae reddish brown to brownish black, paler basally, tarsomeres brown to brownish black, hind legs with trochanters reddish brown, femora brown to brownish black, paler basally, tibiae and tarsomeres reddish brown to brownish black, paler basally.

Head with punctation coarse and dense; disc of pronotum with coarse, relatively dense punctation (spaces between punctures 1 – 3 times size of punctures), rarely punctation

finer and sparser, normally punctation of head and especially pronotum coarser and denser than in *H. nigrita*, punctate impressions on posterolateral angles of pronotum stronger; elytron with punctation less impressed than in *H. nigrita*; punctural rows on elytron well developed; abdominal sternum 6 with punctation not even, coarser and denser than in *H. nigrita*, especially at its apical part (Fig. 27); pronotum and elytron with less strong microreticulation, rarely very small part of apex of posteromedian prominence of pronotum without microreticulation; pronotum, elytron, and ventral surface (especially base of prosternum, prosternal process, and metacoxal processes) with denser and less fine whitish yellow hairs than in *H. nigrita*.

♂♂: Aedeagus with median lobe larger, apex more or less curved in lateral aspect (Fig. 43 a, b), paramere as in Fig. 43 c.

♀♀: Without conspicuous external differences to males. Gonocoxosternum and gonocoxa as in Fig. 68.

Habitat: The species inhabits pools and puddles with melt water, flooded grassland, and peat bogs.

Distribution: The species occurs in the European mountains, where it is usually restricted to high altitudes (ca. 900 – 2600 m): the Pyrenees (France, Spain?), the Alps (Germany: Bavarian Alps, Austria, Italy, Switzerland, France), the Sudety (Poland, Czech Republic), the Carpathians (Slovakia) (Fig. 74). The former records of the species from Bulgaria and Turkey refer to *H. thracicus*, and the records from Spain, Portugal, Slovenia, Macedonia, and the Ukraine (RICO et al. 1990, NILSSON 2003) are in need of confirmation.

Hydroporus sabaudus sierranevadensis ssp.n.

Type locality: Barranco San Joan, Sierra Nevada, Spain.

Type material: **Holotype:** ♂ – "Barranco San Joan / Hisp. Sierra Nevada 2600 m / leg. Ledoux 14.8.66" [hw], "Hydroporus / nivalis Heer / det. Wewalka 70" [hw partly], "Holotypus / Hydroporus sabaudus / sierranevadensis ssp.n. / des. Shaverdo 2002" [red] (NMW).

Paratypes: 1 ♂, 1 ♀ – "Barranco San Joan / Hisp. Sierra Nevada 2600 m / leg. Ledoux 14.8.66" [hw] (CGW). 2 ♂♂ – "Laguna de la Yeguas / Hisp. Sierra Nevada / leg. Ledoux. 20.8.66" [hw] (CGW). 1 ♂ – "Laguna de la Yeguas / Hisp. Sierra Nevada / leg. Ledoux. 20.8.66" [hw] (CHS). 1 ♂, 1 ♀ – "4.8.85 España / Sierra Nevada (And.) / Veleta, 3000 m / Laguna Aguas Verdes / Fery leg." [hw], "Hydroporus / nivalis Heer / Fery det." [hw] (CHF). 5 ♂♂, 5 ♀♀ – "4.8.1985 (E) Granada/ S^{ra} Nevada, nr Veleta / 3000 m, Laguna Aguas / Verdes, Fery leg.", "Hydroporus / nivalis Heer / Fery det. 2000" (CHF). 1 ♂, 1 ♀ – "4.8.1985 (E) Granada/ S^{ra} Nevada, nr Veleta / 3000 m, Laguna Aguas / Verdes, Fery leg.", "Hydroporus / nivalis Heer / Fery det. 2000" (CHS). 1 ex. – "4.8.1985 (E) Granada/ S^{ra} Nevada, nr Veleta / 3000 m, Laguna Aguas / Verdes, Fery leg.", "Hydroporus / nivalis Heer / Fery det. 2000" (CRC). 1 ♂, 1 ♀ – "5.8.85 Espana / Sierra Nevada (And.) / Veleta, 3000 m / Laguna d.l. Mosca / Fery leg." [hw], "Hydroporus / nivalis Heer / Fery det." [hw] (CHF). 1 ♀ – "Sierra Nevada / 17.7. [18]79. D.S. / ? 367 var." [hw Sharp], "Sharp Coll / 1905-313." [under side], "Syntype" [circle with blue margin], "Paralectotype / Hydroporus / alticola Sharp / des. H. Shaverdo 2002" (NHML). Respective red labels have been attached to the paratypes.

Description: In habitus and coloration similar to the nominotypical subspecies (Figs. 17, 18) but on average larger: TL = 3.45 – 3.96 mm (x = 3.69 mm, n = 16), MWE = 1.84 – 2.03 mm (x = 1.94 mm). MWE/TL-H = 0.53 – 0.62 (x = 0.59), MWP/PL = 2.31 – 2.55 (x = 2.46).

Head with punctation sparser; disc of pronotum with punctation finer; microreticulation of elytron and especially pronotum much finer, so that specimens more shiny, frequently small part of middle of disc of pronotum and posterior margin of prominence of pronotum without microreticulation.

♂♂: Aedeagus with median lobe evidently larger (longer and thicker), usually with stronger curved apex in lateral aspect (Fig. 50 a, b), paramere as in Fig. 50 c.

♀♀: Without conspicuous external differences to males.

Etymology: The subspecies is named after the Sierra Nevada, a mountain range in southern Spain.

Distribution: Southern Spain, Sierra Nevada (Fig. 74).

Hydroporus thracicus GUÉORGUIEV, 1966

Hydroporus thracicus GUÉORGUIEV, 1966: 71 (orig. descr.); GUÉORGUIEV 1987: 69 (descr., faun.); NILSSON 2001: 163 (cat.); NILSSON 2003: 65 (cat., faun.).

Hydroporus nivalis var. *bodoanus* BODEMEYER, 1927: 67 (nomen nudum; this name was proposed for specimen(s) from Bulgar-Maaden, Turkey, which most likely belong to *H. thracicus*).

Type locality: Southern Bulgaria, Trakiya, Ognyanovo vill., Pazardzhishk area.

Type material: **Holotype**: ♂ – "BULGARIE / Ognjanovo – Paz. / V.Guéorguiev leg. / 21.IV.1960" [partly hw], "sp.nov. / J. Balfour-Browne det. / V.1964" [partly hw], "Holotypus / Hydroporus / thracicus Guéor." [red, partly hw] (NMNHS). **Note:** The holotype lacks the left tarsomere 5, the left mesotarsus, the right mesotibia and mesotarsus, and the right metatarsus.

Additional material examined:

Bulgaria: 1 ♂ – "Sofia / Vitoša pl.", "Hydroporus / alticola / Sharp!", "nivalis Heer" [hw] (NMW). 1 ♂ – "Sofia / Vitoša pl.", "Hydrop. nivalis / ab. Scholtzi Kolbe. / Coll. Reitter" (HNHM). 1 ♂ – "Vitoša plan. / Bulg. 21.V.39 / Hlisnikowski", "HYDROPORUS NIV. / A. SCHOLZI KOLBE / det. Hlisnikovský 1952" (NHMP). 1 ♂ – "Witoschagebirge / b. Sofia Bojana- / Bergbach, 31.VII.[19]24 / 700-1000 m / Dr. Arndt S. G.", "Bojana-Berg- / bach, Witoscha / gebirge / 24, 31.7.[19]24", "Hydroporus / nivalis ab. Scholzi / Kolbe / det. A. Zimmermann" [partly hw Zimmermann], "Zool. Mus. / Berlin" (MNB). 1 ♀ – "Apfelbeck / Sofia", "nivalis Heer" [hw] (NMW). 1 ♂ – "Bulgaria: Sofia / German. m. VIII. / 08, Rambousek", "Hydroporus / nivalis Heer / det. Wewalka 80" (NHMP). 1 ♂ – "Bulgaria: Sofia / Germ. mon. VI. / 08, Rambousek" (NHMP). 1 ex. – "Bulgaria: Sofia / Germ. mon. VI. / 08, Rambousek" (UWMP). 1 ♀ – "Dragallvei [? hw] / Sofia Bulg. / Coll. Purkyně", "Hydroporus / nivalis Heer / det. Wewalka 80" (NHMP). 1 ♀ – "Musalla [Mus Allah] Bulg. / Coll. Purkyně", "Hydroporus sp.? / Det. Obenberger", "Hydroporus / nivalis Heer / det. Wewalka 80" (NHMP). 1 ♂ – "BULG. Rila lacs / Mussala, 9.23 / Dr. Rambousek" (NHMP). 1 ♂ – "Bulg. Samokov / 20.6 / M.Hilf 1911", "HYDROPORUS NIV. / A. SCHOLZI KOLBE / det. Hlisnikovský 1952" (NHMP). 1 ♂ – "Bulg. Samokov / 20.6 / M.Hilf 1911", "v. Scholzi / Kolbe" [hw], "coll. / Moosbrugger" (NMW). 3 exs. – "Bulg. Samokov / 20.6 / M.Hilf 1911 / Coll.O.Leonhard" (UWMP). 1 ♂ – "Bulg. Samokov / M.Hilf 1911 / Coll.O.Leonhard" (NMW). 1 ♀ – "Bulg. Samokov / 14.6. / M.Hilf 1911 / Coll.O.Leonhard", "v. Scholzi Kolbe Z. Bresl." (NMW). 3 exs. – "Bulg. Samokov / 14.6 / M.Hilf 1911 / Coll.O.Leonhard " (UWMP). 3 exs. – "Bulg. Samokov / 19.6 / M.Hilf 1911 / Coll.O.Leonhard " (UWMP). 1 ♂ – "Bulgaria. / Samokov." [hw], "v. Scholzi" [hw], "leg M.Hilf" [hw] (SNM). 1 ♀ – "Samokov / Bulgaria / Leonhard" [hw], "v. Scholzi" [hw] (SNM). 1 ♂, 1 ♀ – "Demir-Kapu / Rhodope", "nivalis" [hw] (NMW). 1 ♂ – "Burgas / Vajakioj-S.", "Salzwasser" [hw], "Unicum!" [hw] (NMW).

Greece (first record): 1 ♂ – "GR. Kastoria / 10 km nördl. 12.6.77 / leg. Wewalka" (CGW).

Russia (first record): 1 ♂ – "Ca. b. Teberda [Karachaevo-Cherkesskaya Prov.] / VI. 912 Roubal" (SNM).

Armenia (first record): 5 ♂♂, 6 exs. – "Armenia: N Yerevan (25) / 24 km NW Hrazdan, bel. [below]

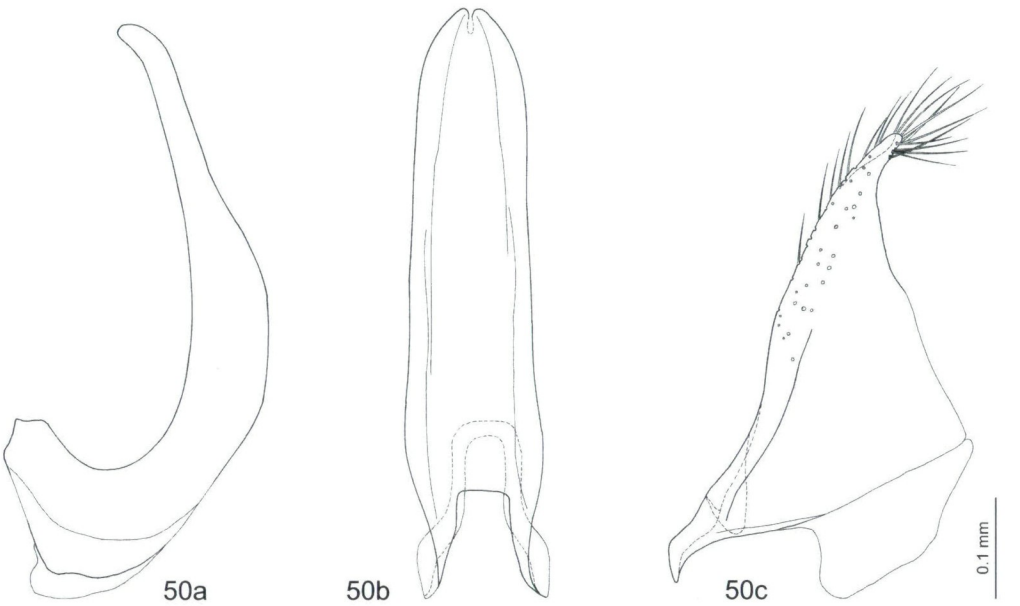


Fig. 50: *Hydroporus sabaudus sierranevadensis*. Holotype: a) median lobe of aedeagus, lateral aspect; b) median lobe of aedeagus, dorsal aspect; c) paramere, external aspect.

Ankavan / 40°38.22'N 44°32.34'E / ca. 1970 m, 9.5.2001 / leg. Shaverdo & Schillhammer" (CHS). 7 ♂♂, 17 ♀♀ – "Armenia: N Yerevan (65) / 24 km NW Hrazdan, bel. Ankavan / 40°38.22'N 44°32.34'E / ca. 1970 m, 27.5.2001 / leg. Shaverdo" (CHS). 7 ♂♂, 4 ♀♀, 20 exs. – "Armenia: N Yerevan (26) / 21 km NW Hrazdan, bel. Ankavan / 40°37.72'N 44°33.20'E / ca. 1850 m, 9.5.2001 / leg. Shaverdo & Schillhammer" (CHS). 4 ♂♂, 4 ♀♀ – "Armenia: N Yerevan (66) / 21 km NW Hrazdan, bel. Ankavan / 40°37.72'N 44°33.20'E / ca. 1850 m, 27.5.2001 / leg. Shaverdo" (CHS). 1 ex. – "Armenia: N Yerevan (55) / 30 km NW Hrazdan, above Ankavan / 40°37.35'N 44°28.02'E / ca. 2050 m, 19.5.2001 / leg. Shaverdo & Schillhammer" (CHS). 1 ♂, 1 ♀ – "Armenia: SE Yerevan (34) / E Yeghegnadzor, 12.5.2001 / 7 km E Bazarchay, ca. 2050 m / 39°41.10'N 45°46.64'E / leg. Shaverdo & Schillhammer" (CHS). 10 ♂♂, 4 ♀♀, 20 exs. – "Armenia: SE Yerevan (85) / E Yeghegnadzor, 1.6.2001 / 7 km E Bazarchay, ca. 2050 m / 39°41.10'N 45°46.64'E / leg. Shaverdo" (CHS). 1 ♂, 1 ♀ – "Armenia: SE Yerevan (82) / E Yeghegnadzor, 1.6.2001 / 22 km E Bazarchay, ca. 2120 m / leg. Shaverdo" (CHS). 1 ♀ – "Armenia: SE Yerevan (41) / SE Yeghegnadzor, 13.5.2001 / 3-4 km E Gyullidus, ca. 1850 m / 39°53.29'N 45°28.97'E / leg. Shaverdo & Schillhammer" (CHS). 1 ♀ – "Armenia: E Dilizhan (61) / Parzlich Lake / 22.5.2001, ca. 1330 m / 40°45.19'N 44°57.72'E / leg. Shaverdo & Schillhammer" (CHS). 1 ♂ – "S-Armenia: 30.5.2001 (74) / Kapan-Kadzharan / Darmanadzor gorge / ca. 1700 m / leg. Shaverdo" (CHS). 1 ♂ – "Armenia / pi Taicaruch [?] / 6609 [?]", "MusArmen / exped.1924", "Hydroporus sp." [hw] (ZISP). 1 ♀ – "Armenia, USSR / Lake Sevan, 2000 m / 17.VIII.1976. / leg. T. Vásárhelyi", " Hydroporus / kozlovskii / Zaitzev / Fery det." (CHF). 1 ex. – "Sevan / Krasnos. per. [Krasnosel'skiy Pass] / ASSR – 12-6-49" (CSK). 1 ex. – "Sevan / Tsakhkadzor / ASSR – 8-8-48" (CSK). 1 ex. – "Kirovakan / Shagaly / ASSR 1.6.49" (CSK).

Georgia (first record): 1 ex. – "Bakuriani / prov. Gori / 29.IV.[19]16" (ZISP). **Note:** for more material of the species see paralectotype data of *H. kozlovskii*.

Turkey (first record): 1 ♂ – "TR-RIZE 31.5.89 / Ovitdagi P. (34) / leg. Jäch 2600 m" (NMW). 1 ♀ – "TR-ARTVIN 5.6. / Savsat 1989 / leg. Schödl (55)", "Hydroporus / nivalis Heer / Fery det." (NMW). 1 ♀ – "TR-ARTVIN 5.6. / Savsat (55) / leg. Jäch 1989" (NMW). 1 ♂, 1 ♀ – "TR-ARTVIN 5.6. / Veliköy 1700 m / lg. Jäch 89 (52)" (NMW). 1 ♀ – "TR-ARTVIN 5.6. / Veliköy 1700 m / Schödl 89 (52)", "Hydroporus / nivalis

Heer / Fery det." (NMW). 1 ♂ – "TR-ARTVIN 5.6. / Veliköy (53) / leg. Jäch 1989" (NMW). 1 ♀ – "TR-ARTVIN 5.6. / Veliköy 1700 m / Schödl 89 (52)", "Hydroporus / nivalis Heer / Fery det.", "ex coll. Wien" (CHF). 4 ♂♂, 1 ♀ – "TR-Kars 8.6. / Sarikamis (70) / leg. M.Jäch 1989" (NMW). 2 ♂♂ – "TR-Kars 7.6. / Cildir See (60) / leg. M.Jäch 1989" (NMW). 4 exs. – "28.4.2000 (TR) Erzurum / ca. 43 km SW Erzurum / S pass, ca. 2000 m, ponds / on meadow, Fery leg." (CHF). 3 ♀♀ – "27.7.1999 (TR) prov. Erzurum / Demirdöven Baraji (= dam) / running water, ca. 8 km NNE / Pasinler, Ö.K.Erman leg." (CHF). 3 ♂♂ – "TR-Erzurum 1.6.89 / Coruh Fl. ö Bay- / burt lg. Jäch (36)" (NMW). 2 ♀♀ – "Türkei (Erzurum) / Aşkale 16.7.1973 / leg. Wewalka" (CGW). 1 ♂ – "Türkei (Erzurum) / Ispir 14.7.1973 / leg. Wewalka" (CGW). 2 ♂♂ – "Turkey / Erzurum / 19.VII.1992 / leg. Mazzoldi P.", "Stream on road / Tortum-Erzurum / m 1800-1900" (CGW). 1 ♂, 2 ♀♀ – "TR – Erzurum / Çat, 30.09.1999 / Ö.K.Erman leg." (CKE). 3 ♂♂, 3 ♀♀ – "TR – Erzurum / Çat, Palandöken / Göleti, 13.07.1999 / Ö.K.Erman leg." (CKE). 1 ♂, 1 ♀ – "TR – Erzurum / Tortum, Aksu Köyü / 9.10.1999 / Ö.K.Erman leg." (CKE). 1 ♂, 4 ♀♀ – "26.4.2000 (TR) Erzurum / ca. 14 km S Tortum, ca. / 2 km S Güzelyayala pass / ponds on meadow, Fery leg." (CHF). 17 ♂♂, 16 ♀♀, 21 exs. – "26.4.2000 (TR) Erzurum / ca. 10 km S Tortum, ca. / 2 km N Güzelyayala pass / ponds on meadow, Fery leg." (CHF). 2 ♂♂, 1 ♀ – "TR – Erzurum / Ispir, Moryayla / Köyü 15.06.1999 / Ö.K.Erman leg." (CKE). 3 ♀♀ – "TR – Erzurum / Ispir, Çayirözü / Köyü 13.10.1999 / Ö.K.Erman leg." (CKE). 2 ♂♂, 6 ♀♀ – "TR – Erzurum / Güzel Yayla Köyü / 23.07.1998 / Ö.K.Erman leg." (CKE). 1 ♂, 2 ♀♀ – "TR – Erzurum / Dumlu, 5.06.1999 / Ö.K.Erman leg." (CKE). 1 ♂ – "[Erzurum] Teke Deresi / 6.7.1997 / Ö.K.Erman" [hw] (CKE). 5 ♂♂, 3 ♀♀ – "24.5.1999 (TR) prov. Erzurum / Aribahçe Köyü, almost dry brook / ca. 23 km NW Erzurum, ca. 18 km / W Dumlu, Ö.K.Erman leg." (CHF). 1 ♀ – "[Erzurum] Aribahçe Köyü / 24.5.1999 ♀ / Ö.K.Erman" [hw], "21" [hw], "Hydroporus / nivalis Heer (??) / Fery det. 1999" (CKE). 1 ♂ – "[Erzurum] Arıbahçe Köyü / 24.5.1999 ♂ / Ö.K.Erman" [hw] (CKE). 1 ♂ – "[Erzurum] Kuzgun Barajı / Karakale Köyü / 30.6.1998 ♂ / Ö.K.Erman" [hw], "Hydroporus / nivalis Heer (??) / Fery det. 1999" (CKE). 11 exs. – "3.8.1999 (TR) prov. Erzurum / Kuzgun Baraji (=dam), running / water near the road / Erzurum-Ispir road / ca. 30 km N Ilica / Ö.K.Erman leg." (CHF). 4 ♂♂, 2 ♀♀ – "18.7.1992 TR Erzurum / MT Palandöken, stream / on road Erzurum - Çat / 2300 m, Toledo leg." (CHF). 1 ♂ – "TR-KASTAMONU (6) / n. Kastamonu 89 / leg. Schödl 25.5", "Hydroporus / tessellatus / Fery det.", "Hydroporus / nivalis Heer / Shaverdo H. det 99" (NMW). 1 ♂ – "TR-ANKARA 12.6. / Isikdagi P. 1989 / leg. Schödl (86)", "Hydroporus / tessellatus / Drap. / Fery det.", "Hydroporus / nivalis Heer / Shaverdo H. det 99" (NMW). 2 exs. – "Sarykamysh'" [hw, Cyrillic] (ZISP).

Description: TL = 3.1 – 3.8 mm, MWE = 1.6 – 2.0 mm; habitus oval, more or less broad (Figs. 8 – 12), MWE/TL-H = 0.6; pronotum typically more convex than in *H. kozlovskii*, flattened or not posterolaterally, with sides slightly rounded, in some specimens almost straight, if latter, then sometimes base of pronotum narrower than base of elytra, MWP/PL = 2.4 – 2.7; elytron slightly flattened or not at base and vaulted or not behind, elytral sides rounded.

Head black, with reddish brown transverse band on vertex; ventrally black, with reddish brown to brown mouth-parts and black, rarely dark brown gula; antenna with antennomeres 1 – 4 yellowish (in some specimens antennomere 4 darker apically) and antennomeres 5 – 11 dark brown or black, in some specimens paler basally; pronotum black, rarely with brownish posterior third of lateral bead; elytron black, rarely brown to dark brown, paler laterally, typically with 3 yellow basal spots (near suture, on middle, and at shoulder, Fig. 9) variable in size and shape; normally all spots distinct but in some specimens all (Fig. 8) or some (typically spot near suture, Fig. 10) of them inconspicuous, reduced, or even absent; frequently spots confluent into dentical band (Fig. 11); spots near suture and in middle of different shape: small, almost round, or more often rather elongate and narrow; in some specimens elongate spot near suture basally reduced to very small spot in middle of basal half of elytron (Fig. 11); in some specimens spots at shoulder and in middle very large, confluent with small transverse spot forming hook-like macula (Fig. 12); in some specimens shoulder spot may reach middle of elytral length along lateral margin; in some specimens elytron also with yellow spot at

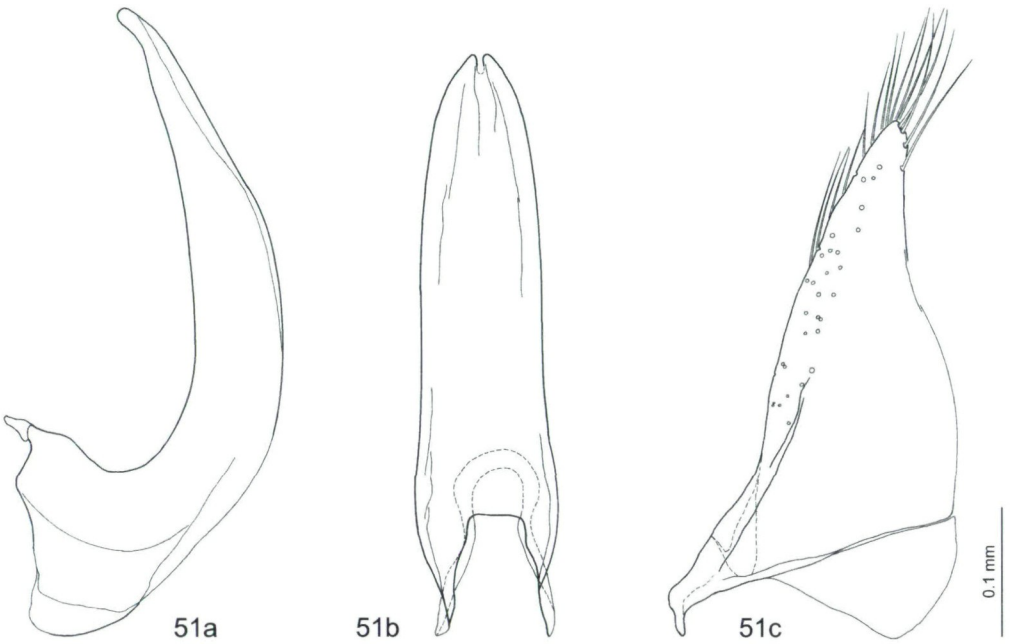


Fig. 51: *Hydroporus thracicus*. Holotype: a) median lobe of aedeagus, lateral aspect; b) median lobe of aedeagus, dorsal aspect; c) paramere, external aspect.

apex; epipleuron black, rarely brown, with yellow spot at shoulder angle; ventral surface of body black, with posterior margins of metacoxal processes brownish; legs with trochanters reddish brown to brown, femora reddish brown to black, paler basally and apically, tibiae and tarsomeres reddish brown to black, darker apically.

Head with quite dense and coarse punctation, punctures smaller than in *H. kozlovskii*, strongly impressed; disc of pronotum with dense punctation (spaces between punctures 1 – 3 times size of punctures), coarser than in *H. nigrita* but not strongly impressed, punctate impressions on posterolateral angles weak in some specimens; elytron with punctation quite dense but frequently weakly impressed, like in *H. kozlovskii*; punctural rows on elytron well developed; the holotype shows some large shallow grooves on the elytra, which are, however, deformations and not real punctures - no one of the other specimens studied has such grooves; abdominal sternum 6 with punctation sparser, finer, and more even on its apical part than in *H. kozlovskii* (Fig. 28), in some Bulgarian specimens punctation similar to that of *H. nigrita* but normally denser than in *H. nigrita* and sparser than in *H. sabaudus*; microreticulation of pronotum and elytron like in *H. kozlovskii* or finer, in some specimens very small middle part of disc and apex of posteromedian prominence of pronotum with very fine microreticulation or without it, usually microreticulation on pronotum coarser than on elytron; pronotum, elytron, and ventral surface (especially base of prosternum, prosternal process, and metacoxal processes) with yellowish hairs like in *H. kozlovskii*.

♂♂: Aedeagus with median lobe smaller (thiner), its apical half in lateral aspect more or less evenly curved, and apex only slightly or indistinctly curved in lateral aspect and usually more pointed in dorsal aspect (Fig. 51 a, b), paramere as in Fig. 51 c. The drawing of the median lobe in the original description is rather schematic, therefore it looks different from my drawing.

♀♀: Without conspicuous external differences to males. Gonocoxosternum and gonocoxa as in Fig. 69.

Variability: The species displays intra- and interpopulational variability in coloration, punctation, microreticulation, pubescence, and shape of median lobe of aedeagus. Bulgarian specimens are characterized by brown elytron, with or without conspicuous spots, frequently with only one spot on the middle of elytral base; in some specimens punctation of elytron sparser (especially its basal part, so that beetles look more shiny), punctation of last abdominal sternum sparser too. Specimens from Turkey and the Caucasus are normally black with evident yellow spots, however, sometimes completely without them (in some Georgian and Armenian beetles). Median lobe in lateral aspect usually with dorsal margin slightly curved (Figs. 52 – 55, 57) but may be more strongly curved (Fig. 56) or almost straight (Fig. 58 – the other specimen from the same locality with medial lobe dorsally slightly curved).

Habitat: The original description says that the holotype has been collected in a ditch with dense aquatic vegetation. In Armenia the species was collected in various stagnant water bodies: small or large, deep puddles, residual pools in dry river beds, ponds, and flooded grassland, with different bottom substrate and aquatic vegetation: stones covered with green filament algae, muddy bottom and flooded vegetation, muddy bottom with green filament algae, without any submerged vegetation, with large stones and decaying plant material, with sandy-stony bottom and thick layer of decaying leaves (SHAVERDO 2003). Also the species was found in streams (see "Additional material, Turkey"). The specimen from Burgas (see "Additional material, Bulgaria") was collected in salt water.

Distribution: The species is distributed in mountain areas of Greece, Bulgaria, Turkey, Armenia, Georgia, and Karachevo-Cherkesskaya province of Russia (Fig. 74). It occurs at altitudes of 700 - 2600 m.

Hydroporus kozlovskii ZAITZEV, 1927

Hydroporus kozlovskii ZAITZEV, 1927: 15 (orig. descr.); GSCHWENDTNER 1939: 34 (descr., faun.); ZAITZEV 1953: 170 (descr., faun.); NILSSON 2001: 163 (cat.); NILSSON 2003: 62 (cat., faun.).

Hydroporus kozlovskii ab. *hamifer* ZAITZEV, 1927: 16 (orig. descr.); ZAITZEV 1953: 170 (descr.).

Hydroporus kozlovskii ab. *depauperatus* ZAITZEV, 1927: 16 (orig. descr.); ZAITZEV 1953: 170 (descr.).

Note: *Hydroporus kozlovskii* ab. *hamifer* and *H. kozlovskii* ab. *depauperatus* are not available since they were described as aberrations. Most likely, the aberration *depauperatus* refers to *H. thracicus* since within the type series the specimens with reduced maculation have been found to belong to this species.

Type locality: Georgia, about 100 km W Tbilisi, near Tabatskhuri, valley of Ktsiya River.

Type material: **Lectotype** (present designation): ♂ – "vall. fl. Ktsia / pr. Tabitschuri [Tabatskhuri] /

Figs. 52 – 58: Median lobe of aedeagus, lateral aspect, of *Hydroporus thracicus*: 52, 53) Vitoša planina (Bulgaria); 54) Demur-Kapu, Rhodope Mts. (Bulgaria); 55) Burgas, Vajakiöj-S. (Bulgaria); 56) Greece; 57) Ispir, Erzurum (Turkey); 58) Bakuriani, Gori (Georgia) – paralectotype of *H. kozlovskii*.

2.VII.16", "Syntypus ? / var. hamifer / Zaitz." [red], "Zoological / Institute RAN / St. Petersburg / Russia" [yellow], "Lectotype / Hydroporus / kozlovskii Zaitzev / des. H. Shaverdo 2001" (ZISP). **Note:** The designation of a lectotype is necessary because the syntype series is composed of three different species: *H. kozlovskii*, *H. thracicus*, and *H. discretus ponticus* ZAITZEV. The lectotype lacks some segments of the antennae, the last segment of the left mesotarsus, the left metatibia and metatarsus, and the right fore leg. **Paralectotypes**: 26 exs. belong to *H. kozlovskii*, 11 exs. to *H. thracicus*, and 1 ex. to *H. discretus ponticus*. *Hydroporus kozlovskii* : 4 ♀♀, 1 ex. – the same data as lectotype (ZISP). 1 ♂, 4 ♀♀ – "vall. fl. Ktsia / pr. Ta-

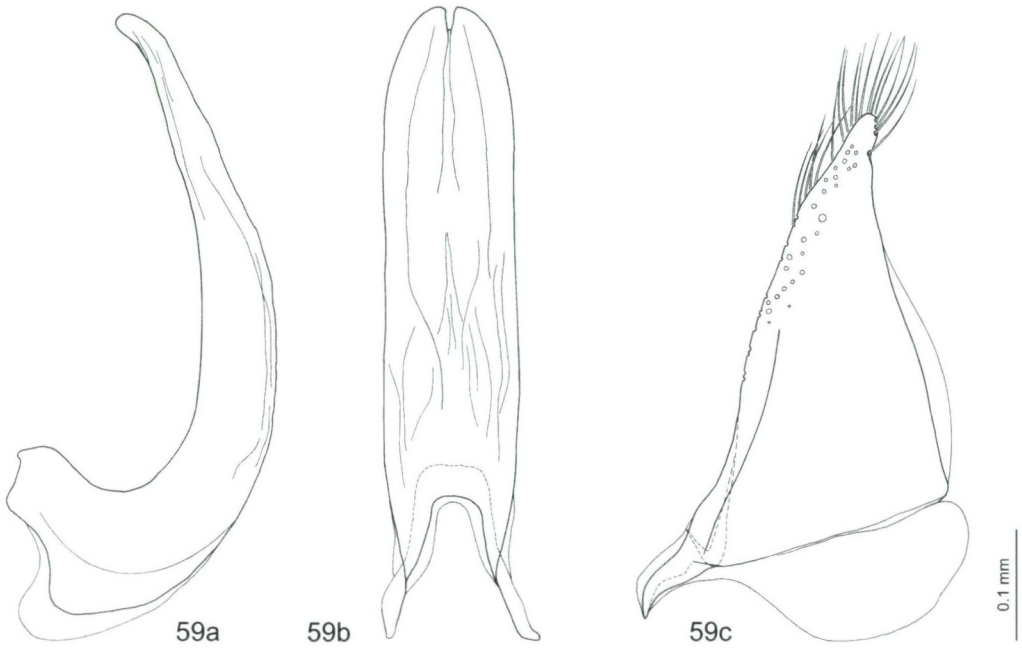


Fig. 59: *Hydroporus kozlovskii*. Lectotype: a) median lobe of aedeagus, lateral aspect; b) median lobe of aedeagus, dorsal aspect; c) paramere, external aspect.

bitschuri [Tabatskhuri] / 2.VII.16.", "Syntypus Hydroporus / kozlovskii / Zaitsev [sic!] 1927" [red] (ZISP). 2 ♂♂, 2 exs. – "vall. fl. Ktsia / pr. Tabitschuri / 2.VII.16." (ZISP). 3 ♀♀, 6 exs. – "Baraleti / prov. Achalk. [Akhaltsikhe] / VI–VII.16." (ZISP). 1 ♀ – "s. [selo = village] Sarykamysh / Kars. o. [oblast' = Province] 11.VI.[19]11 Polt. [leg. Poltoratskiy]" [hw, Cyrillic] (ZISP). 1 ♀, 1 ex. – "Sarykamysh Kr / 5-VII-[19]08 Poltor." [hw, Cyrillic] (ZISP). *Hydroporus thracicus*: 1 ♀ – "Baraleti / prov. Achalk. / VI–VII.16." (ZISP). 2 ♀♀ – "Bakuriani / prov. Gori / 30.VI.16" (ZISP). 1 ♂, 1 ♀ – "Bakuriani / prov. Gori / 24.VI.[19]16" (ZISP). 1 ♂ – "Bakuriani Is. [Is. hw, illegible] / prov. Gori / 8.VI.[19]16", "kozlovskii / var. hamifer Zaitz." [hw] (ZISP). 1 ♀, 1 ex. – "ms. Kadjan 8.760' / distr. Achaltzych / 10.VI.[19]16" (ZISP). 1 ex. – "Sarykamysh Kr. o. / 9.VII.[19]09. Poltoratsk." [hw, Cyrillic] (ZISP). 2 exs. – "prope Sarykamyš / prov. Kars / 19, ….VI….[19]10" (ZISP). All specimens with additional labels "Hydroporus / thracicus / Shaverdo H. det. 2002". *Hydroporus discretus ponticus*: 1 ex. (elytra, abdominal sterna, meso- and metasternum, left hind leg) – "vall. fl. Ktsia / pr. Tabitschuri / 2.VII.16.", "Hydroporus / discretus / ponticus Zaitz. / Shaverdo H. det. 2001" (ZISP). Respective red labels have been attached to the paralectotypes. **Note:** All types are almost completely or partly damaged by dermestids. Also there are the remains of type material completely destroyed by dermestids with labels "Bakuriani / prov. Gori / 24.VI.[19]16", "Baraleti / prov. Achalk. / VI–VII.16.", and "ms. Kadjan 8.760' / distr. Achaltzych / 10.VI.[19]16" in ZISP. The number of these destroyed specimens and their specific assignment is impossible to clarify.

Additional material examined:

Bulgaria (first record): 1 ♂ – "BULGARIA / Rila Gebirge / 7-Seee [sic!]", "1927.VII.13-14. / leg. Dr.J.Fodor", "Hydroporus / nivalis Heer / Fery det." (HNHM). 1 ex. – "Bulgaria mer. occ. / Rila mts. 2350 m / Popovokapski ez. lakes / J. Hájek leg. 10.7.1998 (CJH). 1 ♂ – "Bulgaria mer. occ. / Pirin mts. 2400 m / Čairski ezera lakes env. / J. Hájek leg. 3.7.1998", "Hydroporus / nivalis Heer / Jiři Hájek det. 1998" (CHF). 3 ♂♂ – "Bulgaria mer. occ. / Pirin mts. 2400 m / Čairski ezera lakes env. / J. Hájek leg. 3.7.1998", "Hydroporus / nivalis Heer / Jiři Hájek det. 1998" (CJH). 1 ♂ – "Pirin Bulg. / Banderica / 10.6.38 / Hlis-

Figs. 60 – 66: Median lobe of aedeagus, lateral aspect, of *Hydroporus kozlovskii*: 60) Ankavan (Armenia); 61) Çam Pass, Artvin (Turkey) – specimen with yellow spots on elytron; 62) Çam Pass, Artvin (Turkey) – specimen without yellow spots on elytron; 63) Fagaráš (Romania); 64, 65) Čairski ezera, Pirin Mts. (Bulgaria); 66) Mavrovo (Macedonia).

nikowski", "Hydroporus / nivalis Heer / det. Hlisnikovský 1952", "Hydroporus / nivalis Heer / I. Táboraký det. 1978" (NHMP). 1 ♂ – "Pirin Bulg. / Banderica / 1.6.38 / Hlisnikowski", "Hydroporus / nivalis Heer / det. Hlisnikovský 1952", "Hydroporus / nivalis Heer / I. Táboraký det. 1986" (NHMP). 1 ♀ – "Pirin Bulg. / Banderica / 9.6.38 / Hlisnikowski", "Hydroporus / nivalis Heer / det. Hlisnikovský 1952", "Hydroporus / nivalis Heer / I. Táboraký det. 1978" (NHMP). 1 ♀ – "Demir-Kapu / Rhodope", "nivalis" [hw] (NMW).

Romania (first record): 1 ♂ – "Romania 6.7.1988 / Fagaráš / lgt.Kv.Resl", "Hydroporus / nivalis Heer / Jiři Hájek det. 1998" (CJH).

Macedonia (first record): 1 ♂ – "YUG.-Mavrovo / 14.6.1984 / 577 / H. Gräf" [hw], "Hydroporus / nivalis / Gräf" [hw] (CHF).

Armenia (first record): 1 ♂ – "Armenia: N Yerevan (26) / 21 km NW Hrazdan, bel. Ankavan / 40°37.72'N 44°33.20'E / ca. 1850 m, 9.5.2001 / leg. Shaverdo & Schillhammer" (CHS). 1 ex. – "Sevan / Krasnos. per. [Krasnosel'skiy Pass] / ASSR – 12-6-49" (CSK). 1 ex. – "Sevan / Tsakhkadzor / ASSR – 8-8-48" (CSK).

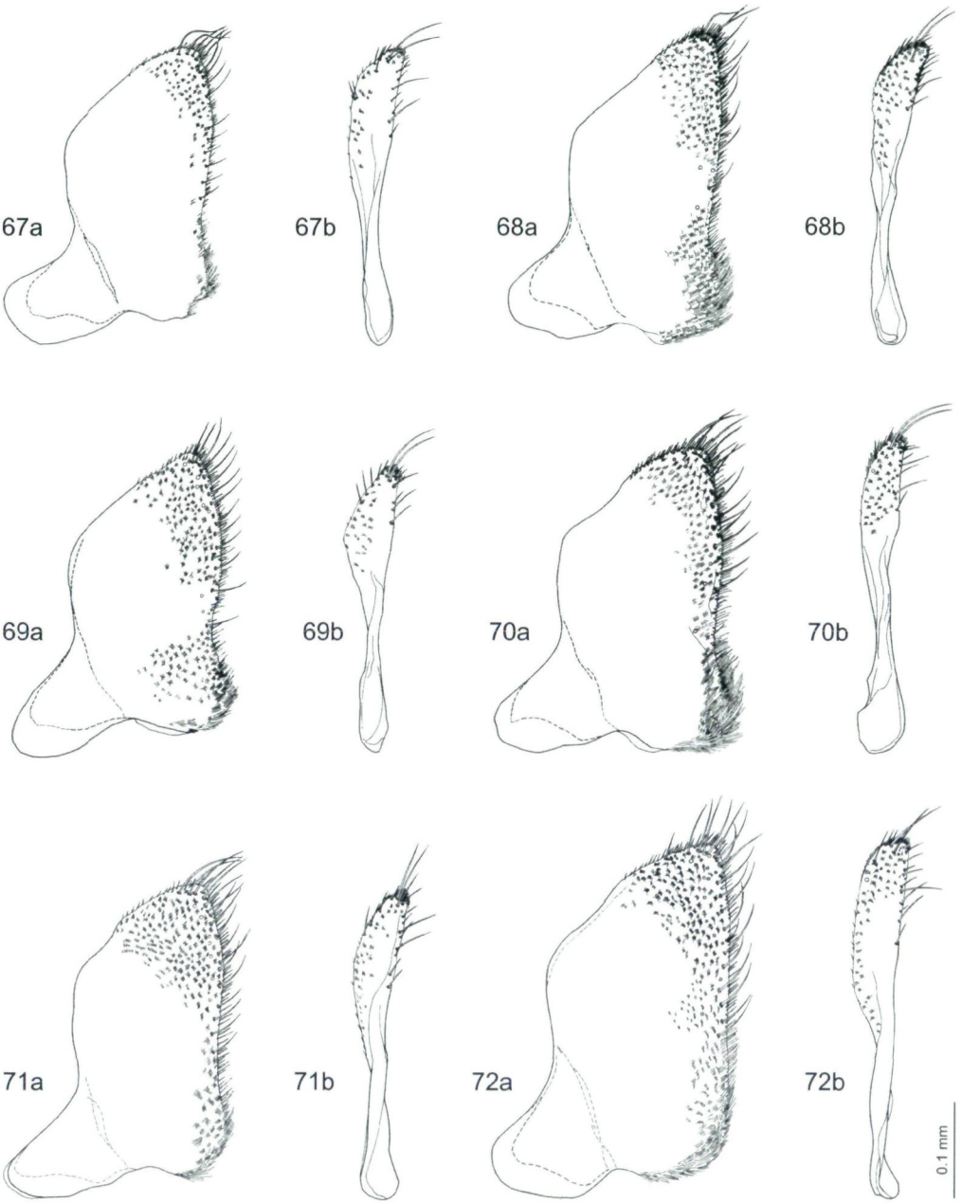
Georgia: see the type material.

Turkey: 1 ♂ – "Türkei 16.7.1973 / Gümüşhane / leg. Wewalka" (CGW). 1 ♂ – "Turquie: Gümüshane / Erzincan-Kelkit / 2100 m / 4.VI.1986" (CHF). 1 ♂ – "TR-RIZE 31.5.89 / Ovitdagi P. (34) / leg. Jäch 2600 m" (NMW). 1 ♂ – "Türkei (Rize) / Ikizdere 14.7.73 / leg. Wewalka", "Hydroporus / nivalis / scholzi Kolbe / det. G.Wewalka 73" (CGW). 2 ♀♀ – "Türkei (Rize) / Ikizdere 14.7.73 / leg. Wewalka" (CGW). 3 ♂♂, 7 ♀♀ – "TR-Artvin 6.6. / Cam Paß 2500 m / Jäch 1989 (57)" (NMW). 1 ♂ – "TR-Artvin 6.6. / Cam Paß 2500 m / Jäch 1989 (57)", "Hydroporus / nivalis / kozlovskii Zaitz / det. G.Wewalka 90" (NMW). 2 ♂♂ – "TR-Artvin 6.6. / Cam Paß 2500 m / Schödl 1989 (57)", "Hydroporus / nivalis / kozlovskii Zaitz / det. G.Wewalka 90" (NMW). 1 ♀ – "TR-KARS [Ardahan] 6.6.89 / s Posof / leg. Jäch (59)" (NMW). 2 ♀♀ – "TR-Kars 8.6. / Sarikamis (70) / leg. M.Jäch 1989" (NMW). 2 exs. – "Sarykamysh" [Cyrillic] (ZISP). 1 ♀, 1 ex. – "Türkei (Erzurum) / Aşkale 16.7.1973 / leg. Wewalka" (CGW). 4 ♂♂, 3 ♀♀, 12 exs. – "18.7.1992 TR Erzurum / MT Palandöken, stream / on road Erzurum - Çat / 2300 m, Toledo leg." (CHF). 2 ♂♂ – "Turkey / Erzurum / 18.VII.1992 / leg. Mazzoldi P.", "m 2300 Pass on / road Erzurum-Çat / Palandöken Mts. / leg. Mazzoldi P." (CGW). 2 ♂♂, 2 ♀♀ – "[Erzurum] Palandöken Dăği / 14.6.1998 / Ö.K.Erman" [hw] (CKE). 1 ♂ – "[Erzurum] Arıbahçe Köyü / 24.5.1999 ♂ / Ö.K.Erman" [hw] (CKE). 1 ♀ – "24.5.1999 (TR) prov. Erzurum / Aribahçe Köyü, almost dry brook / ca. 23 km NW Erzurum, ca. 18 km / W Dumlu, Ö.K.Erman leg." (CHF). 1 ♂, 1 ♀ – "TR – Erzurum / Dumlu, 5.06.1999 / Ö.K.Erman leg." (CKE). 1 ♂, 2 exs. – "TR – Erzurum / Ispir, Moryayla / Köyü 15.06.1999 / Ö.K.Erman leg." (CKE). 2 ♂♂, 2 ♀♀ – "TR – Erzurum / Çat, 30.09.1999 / Ö.K.Erman leg." (CKE). 1 ♂, 1 ♀ – "27.7.1999 (TR) prov. Erzurum / Demirdöven Baraji (= dam) / running water, ca. 8 km NNE / Pasinler, Ö.K.Erman leg." (CHF). 1 ex. – "TR – Erzurum / Tortum, Aksu Köyü / 9.10.1999 / Ö.K.Erman leg." (CKE). 1 ♂, 1 ♀ – "26.4.2000 (TR) Erzurum / ca. 14 km S Tortum, ca. / 2 km S Güzelyayala pass / ponds on meadow, Fery leg." (CHF). 3 ♂♂, 3 ♀♀ – "26.4.2000 (TR) Erzurum / ca. 10 km S Tortum, ca. / 2 km N Güzelyayala pass / ponds on meadow, Fery leg." (CHF). 1 ♂ – "28.4.2000 (TR) Erzurum / ca. 28 km SW Erzurum / N pass, ca. 1800 m, ponds / on meadow, Fery leg." (CHF). 1 ♂ – "TR 11.6.1987 / Muş-Bingöl / leg. Jäch (73)" (NMW). 3 ♂♂ – "Asia minor / Mus [Muş] 5.1972 / leg. Holzschuh" (CGW). 1 ♂, 1 ♀ – "TR 3.6.1987 / [Hakkari] ö Yüksekova / leg. Jäch (54) (53)" (NMW). 1 ex. – "Türkei Antalya / Saklikent / 14.V.2001 / leg. H. Schmid" (CHSch).

Iran (first record): 1 ♂ – "15.8.1998 Iran, Fars, 17 km / SE Sepidan / Shesh Pir", "ditch with running water / Elmi & Fery leg. (#2108)" (CHF).

Description: TL = 3.3 – 4.0 mm, MWE = 1.8 – 2.0 mm; habitus oval or broad oval (Figs. 19 – 21), MWE/TL-H = 0.6, pronotum usually less convex than in *H. thracicus*, frequently slightly flattened posterolaterally, with sides more or less rounded or almost straight, MWP/PL = 2.3 – 2.7; elytron often flattened at base and vaulted behind, elytral sides rounded.

Head black, with reddish brown transverse band on vertex; ventrally black, with dark brown mouth parts and black gula; antenna with antennomeres 2 – 11 dark brown or black, antennomere 1 and basal third of antennomeres 2 – 4 yellowish or reddish, sometimes antennomeres 5 – 11 slightly reddish brown basally, rarely antennae completely dark brown, with antennomeres darker apically; pronotum black, never with reddish lateral bead; elytron normally black, with yellow spots; on apex spot usually almost imperceptible, base of elytron with two very distinct yellow spots: one longitudinal and narrow in middle of base and other larger spot along shoulder and lateral margin of elytron, both usually confluent to hook-like macula (Fig. 19); maximal extension when



Figs. 67 – 72: Gonocoxosternum, ventral aspect, (a) and gonocoxa, ventral aspect, (b) of: 67) *Hydroporus nigrita* (Reydarvatn, Iceland); 68) *H. sabaudus* (OTi-Venedigergruppe, Austria); 69) *H. thracicus* (Ankavan, Armenia); 70) *H. kozlovskii* (Sarykamysh, Turkey); 71) *H. teres*, holotype; 72) *H. martensi*, holotype.

spot in middle of base reaching almost to middle of elytral length and shoulder spot reaching to apex of elytron, joining apical spot, leaving only very narrow black line in anterior half of elytron (often only bead of elytron black) and broader black line in posterior half, leaving narrow yellow line along elytral bead (Fig. 20); rarely spots indistinct (dark brown, Fig. 21); rarely elytron with additional indistinct small elongate spot near suture; epipleuron black, with yellow spot at shoulder angle; ventral side of body black; fore and middle legs with trochanters reddish brown to brown, femora dark brown to black, paler basally and apically, tibiae reddish brown basally and brown to dark brown apically, tarsomeres dark brown to black; hind legs with trochanters and femora dark brown to black, reddish brown basally, tibiae and tarsomeres reddish brown to brown, dark brown to black apically.

Head with very dense and coarse punctation, punctures very impressed; in some specimens microreticulation rough, with convex meshes; disc of pronotum with coarser and denser punctation than in *H. nigrita* (usually spaces between punctures 1 – 3 times size of punctures, rarely more: 3 – 6 times), but not strongly impressed, punctate impressions on posterolateral angles stronger; elytron with punctation weakly impressed; punctural rows on elytron well developed; abdominal sternum 6 with punctation coarse and very dense on apical portion (Fig. 29); pronotum (mainly disc) and elytron with fine microreticulation, less impressed than in *H. nigrita*, meshes larger, rarely very small middle part of disc and apex of posteromedian prominence of pronotum with very fine microreticulation or without it; pronotum, elytron, and ventral surface (especially base of prosternum, prosternal process, and metacoxal processes) with yellowish hairs, thicker than in *H. nigrita* and *H. sabaudus*.

♂♂: Aedeagus with median lobe larger (thicker), its apical half in lateral aspect almost straight, and apex shortly but strongly curved in lateral aspect and usually more rounded in dorsal aspect (Fig. 59 a, b); median lobe of *H. kozlovskii* similar to that of *H. sabaudus sierranevadensis*, but not convex in middle part in lateral aspect, paramere as in Fig. 59 c.

♀♀: Without conspicuous external differences to males. Gonocoxosternum and gonocoxa as in Fig. 70.

Variability: The species shows variability mostly in coloration of elytron, and shape of the median lobe of aedeagus (Figs. 60 – 66). There are specimens with maculate elytra and specimens with uniform black elytra, or with indistinct dark brown spots within one Turkish population. The specimens from Bulgaria, Macedonia, and Romania are characterized by unicolorous elytra or elytra with indistinct basal spots; some specimens from Bulgaria and one from Macedonia (Fig. 66) also have a shorter (but thick) median lobe. The Bulgarian specimens from the same locality (Pirin Mts.) have median lobes slender and thicker (Figs. 64, 65). Also there are specimens with more and less strongly impressed microreticulation and punctation of elytron within and among the populations. More strongly impressed microreticulation and punctation of elytron are characteristic for the specimens from Bulgaria, Macedonia, and Romania.

Note: As mentioned above, the specimens from Bulgaria, Macedonia, and Romania show a number of differences compared to most Turkish specimens. Therefore, my first intention was to consider these beetles to belong to *H. sabaudus* and to consider them as a third subspecies, which would have been similar to *H. sabaudus sierranevadensis*.

Later I decided to treat them as *H. kozlovskii* since I could not see evident difference between them and immaculate Turkish specimens, which besides the absence of the spots also had more strongly impressed microreticulation and punctation of elytron. However, I would like to note that the taxonomic status of these populations may be changed in future when additional material becomes available.

Habitat: The species inhabits various small water-bodies: ditches with running water, stagnant puddles on flooded grassland, with decaying vegetation on the bottom. Often it co-exists with *H. thracicus* (see "Additional material, Bulgaria, Armenia, Turkey"), but usually it is less numerous than *H. thracicus*.

Distribution: The species occurs in mountain areas of Macedonia, Romania, Bulgaria, Turkey, Armenia, Georgia, and Iran (Fig. 74); its distribution is restricted to high altitudes: 1850 – 2400 m. The record of *H. kozlovskii* from South European Territory of Russia (NILSSON 2003) is in need of confirmation.

Hydroporus teres SHARP, 1882

Hydroporus teres SHARP, 1882: 458 (orig. descr.); ZIMMERMANN 1931: 159 (Sharp's descr.); BALFOUR-BROWNE 1944: 350 (compar. note); WEWALKA 1974: 105 (descr., faun.); WEWALKA 1984: 135 (compar. note); NILSSON 2001: 163 (cat.); NILSSON 2003: 65 (cat., faun.).

Type locality: Syria.

Type material: **Holotype**: ♀ – "1150" [hw Sharp, small label], "Type" [round label of 8 mm diameter, white with red line on perimeter], "Syria Dr. C.Millingen." [hw Sharp], "Sharp Coll. / 1905-313." [on underside], "H. teres Shp. Type!" [hw Sharp], "standing in BMNH / as: Hydroporus / teres / S.J. Hine 1990" [partly hw] (NHML).

Additional material examined:

Jordan: 1 ♀ – "Trans-Jordan: / Wadi Musa / 24.X.1942 / W. H. R. Lumsden. / B. M. 1947-33" (CGW).

Description: TL = 3.4 mm, MWE = 1.80 mm; habitus oval (Fig. 22), MWE/TL-H = 0.6; pronotum convex, more transverse, MWP/PL = 2.7, not flattened posterolaterally, with sides almost straight; elytron not flattened at base and not vaulted behind; elytral sides rounded.

Head black, with inconspicuous dark brown transverse band on vertex, ventrally black, with mouth parts reddish brown and with black gula; antennomeres concolorous, reddish brown; pronotum black, with lateral bead black in anterior half and reddish brown in posterior half; in specimen from Jordan pronotum with reddish brown lateral margins and bead; elytron much paler than pronotum, concolorous, reddish brown; epipleuron reddish brown, narrowly darker at edges; ventral surface of body black, with brownish black abdominal sterna and posterior margins of metacoxal processes; legs dark brown, with darker femora and tibiae and slightly paler trochanters and metatarsi, tarsi of fore and middle legs much paler, concolorous with antenna, reddish brown.

Head with rather even punctation, coarser and denser than in *H. nigrita* but evidently sparser and finer than in *H. sabaudus* and *H. thracicus*; disc of pronotum with fine, weakly impressed, sparse punctation (spaces between punctures 3 – 7 times size of punctures), similar to that in some *H. nigrita* specimens, punctate impressions on posterolateral angles evident but shallow; elytron with punctation relatively dense (spaces between punctures 1 – 2 times size of punctures), punctures much bigger than those on pronotal disc; punctural rows on elytron conspicuous; abdominal sternum 6 with punc-

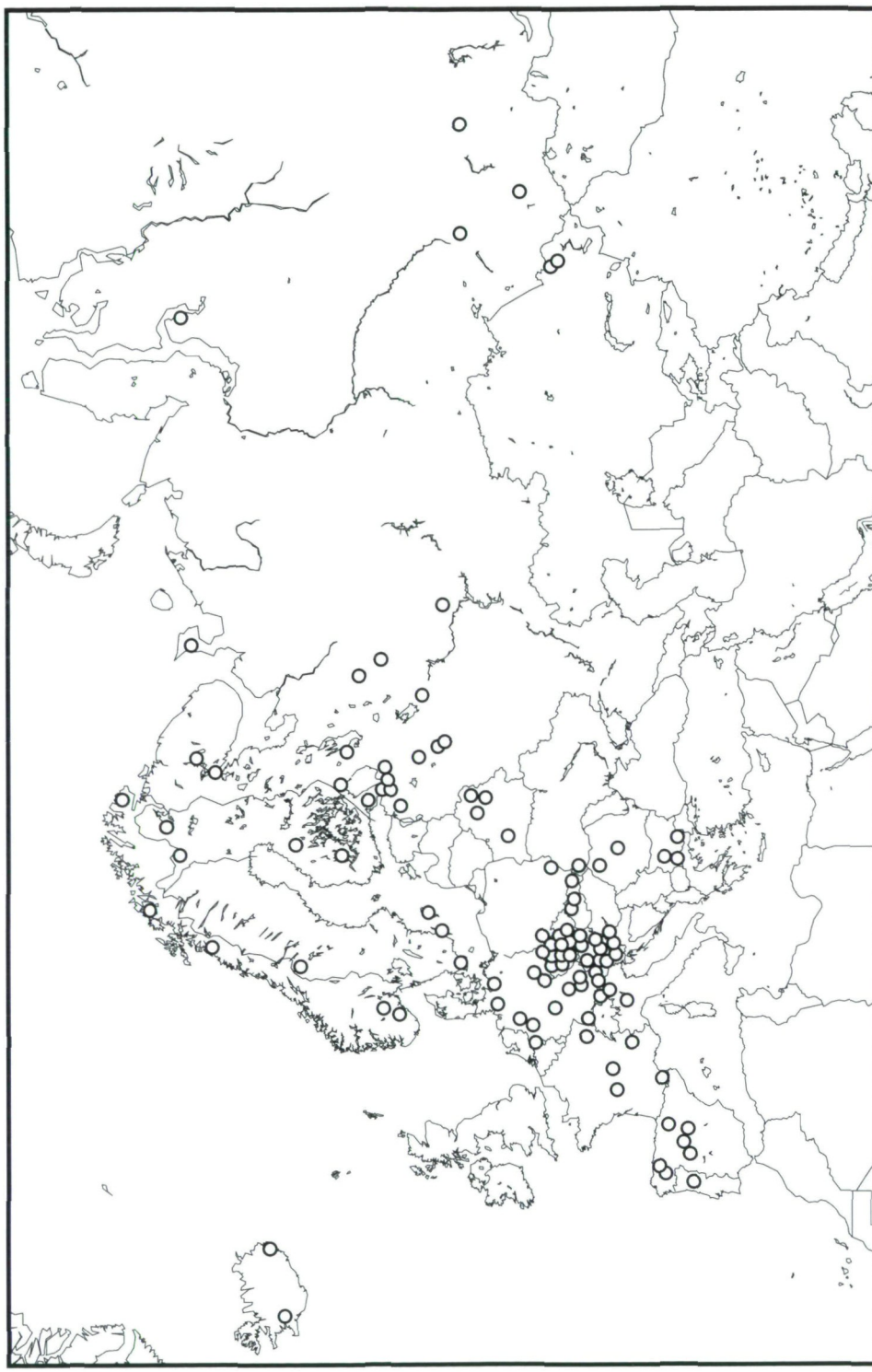


Fig. 73: Distribution of *Hydroporus nigrita* based on studied specimens. Only precise localities are indicated.

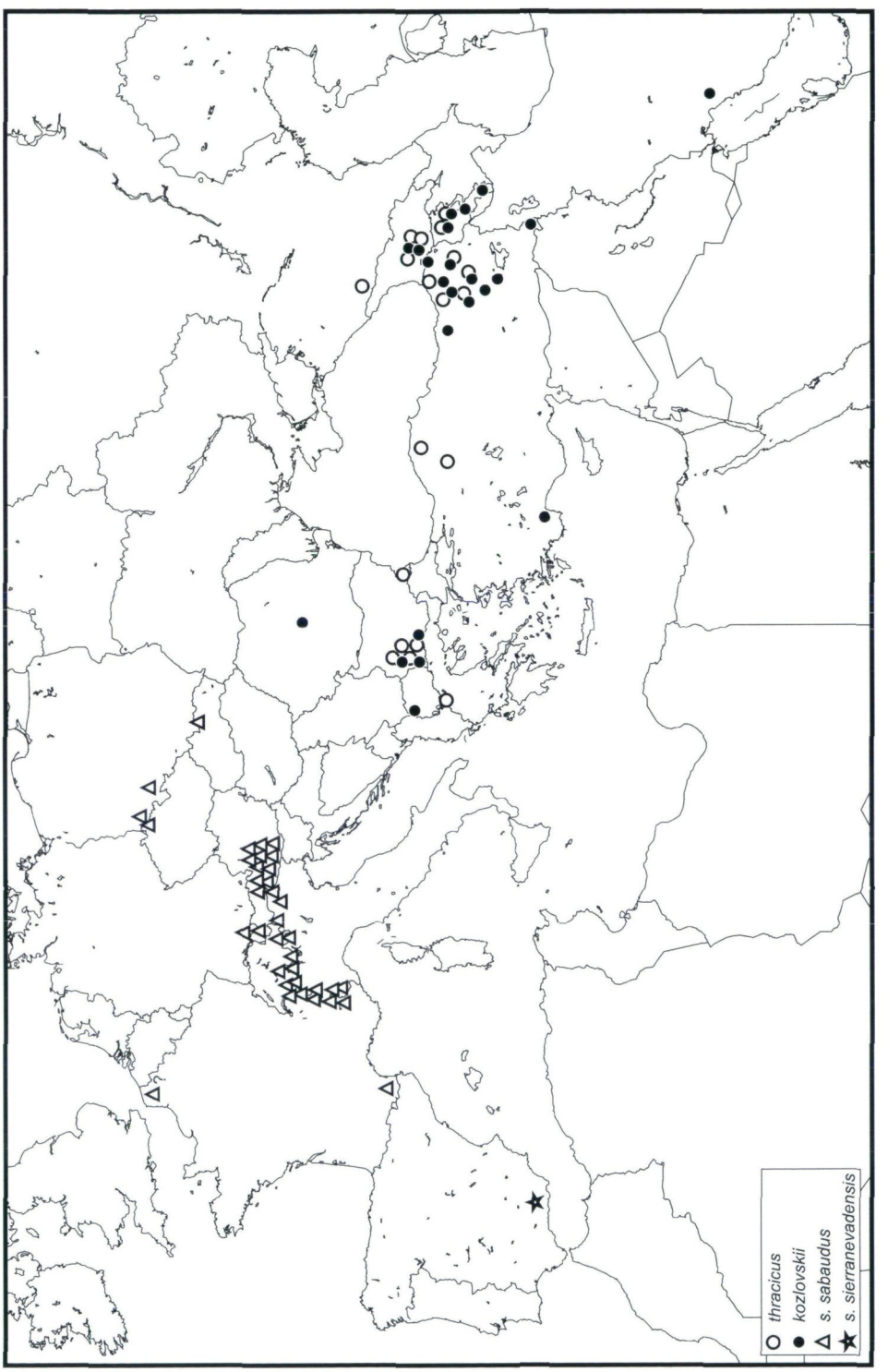


Fig. 74: Distribution of *Hydroporus sabaudus sabaudus*, *H. sabaudus sierranevadensis*, *H. thracicus*, and *H. kozlovskii* based on studied specimens.

tation relatively sparse and fine on basal part and evidently coarse and very dense on apical part; pronotum and elytron with relatively fine microreticulation, on pronotum microreticulation slightly coarser than on elytron; pronotum, elytron, and ventral surface of body with yellowish hairs.

Antennomeres not dilated, more or less equal in width.

♂♂: Unknown.

♀♀: Gonocoxosternum and gonocoxa as in Fig. 71.

Habitat: Unknown.

Distribution: The species is known from Syria and Jordan (NILSSON 2003).

Hydroporus martensi BRANCUCCI, 1981

Hydroporus martensi BRANCUCCI, 1981: 180 (orig. descr.); NILSSON 2001: 163 (cat.); NILSSON 2003: 62 (cat., faun.).

Type locality: Tangmarg, Pir Panjal Range, Kashmir, India.

Type material: **Holotype**: ♀ – "India: Kashmir: Tangmarg / Pir Panjal Gebirge / 2600 m, 21.-25.V.1976 / Martens & Schawaller leg." [label folded], "Holotypus" [narrow, red label], "Holo- / Typus" [upper side, partly hw, red], "SMF / C 14896" [under side, hw], "Hydroporus / martensi / Brancucci / det. M.Brancucci" [mostly hw Brancucci], "Senckenberg- / Museum / Frankfurt/Main" (SMF).

Description: TL = 3.9 mm, MWE = 2.00 mm; habitus oval (Fig. 23), MWE/TL-H = 0.6; pronotum convex, less transverse, MWP/PL = 2.3, not flattened posterolaterally, with sides almost straight; elytron not flattened at base and not vaulted behind; elytral sides rounded.

Head black, with reddish brown transverse band on vertex, ventrally black, with mouthparts reddish brown, slightly darker apically, and with black gula; antenna pale reddish brown, with antennomeres 5 – 11 slightly daker apically; pronotum black, with lateral bead black, slightly brownish in posterior fourth; elytron concolorous with pronotum, black; epipleuron black, reddish brown at shoulder angle; ventral surface of body black, with brownish posterior margins of metacoxal processes; legs with brownish black femora, reddish brown to brown trochanters and tibiae, tarsi somewhat paler.

Head with punctation, not even, coarser and denser on small posterocentral area (spaces between punctures up to 2 times size of punctures) and finer and sparser anteriorly (spaces between punctures 2 – 5 times size of punctures); disc of pronotum with coarse, relatively dense punctation (spaces between punctures 1 – 4 times of size of punctures), evidently coarser and denser than in *H. teres*, punctate impressions on posterolateral angles evident but shallow; elytron with punctation relatively dense (spaces between punctures equal to size of punctures), punctures bigger than those on pronotal disc and stronger impressed than in *H. teres*; puncture rows on elytron conspicuous; abdominal sternum 6 with punctation relatively sparse and fine at base and evidently coarse and very dense on apical part; pronotum and elytron with microreticulation relatively fine but stronger than in *H. teres*, on pronotum microreticulation slightly coarser than on elytron; pronotum, elytron, and ventral surface of body with yellowish hairs much more conspicuous than in *H. teres*.

Antennomeres not dilated, more or less equal in width.

♂ ♂: Unknown.

♀ ♀: Gonocoxosternum and gonocoxa as in Fig. 72.

Habitat: Unknown.

Distribution: Known only from the type locality: Kashmir, India.

Species not belonging to the *nigrita*-group

Hydroporus foveolatus HEER, 1839

Hydroporus nivalis HEER, 1839: 157 (orig. descr.); SCHAUM 1844: 197; SCHAUM 1845: 406; REDTENBACHER 1858: 91 (descr. in key); SCHAUM 1868: 67 (descr.); SHARP 1880-1882: 469 (descr., faun.); SEIDLITZ 1887: 73 (descr. in key); GANGLBAUER 1892: 475 (descr., as *H. foveolatus*).

Hydroporus foveolatus HEER, 1839: 157 (orig. descr.); SCHAUM 1844: 197; SCHAUM 1845: 406 (syn. with *H. nivalis*); GEMMINGER & HAROLD 1868: 437 (syn. of *H. nivalis*); GANGLBAUER 1892: 475 (descr., with synonyms *H. nivalis* (sensu SCHAUM 1845) and *H. atropos*); ZIMMERMANN 1920: 87 (cat., with synonyms *H. nivalis* (sensu SCHAUM 1845) and *H. atropos*); ZIMMERMANN 1931: 47 (descr., faun.); FRANCISCOLO 1979: 331 (descr., faun.); NILSSON 2001: 157 (cat.); NILSSON 2003: 65 (cat., faun.).

Hydroporus atropos MULSANT & GODART, 1860: 179 (orig. descr.); GEMMINGER & HAROLD 1868: 437 (syn. with *H. nivalis*); GANGLBAUER 1892: 475 (syn. with *H. foveolatus*).

Hydroporus foveolatus HEER var. *apfelbecki* GANGLBAUER, 1892: 475 (orig. descr.); ZIMMERMANN 1920: 87 (cat., syn. of *H. foveolatus*).

Type material: *Hydroporus nivalis*: **Lectotype** (present designation): ♂ – "b" [Switzerland, Canton Glarus, Seelochseeli], "Lectotypus Hydroporus nivalis Heer des. Shaverdo 2001" [red], "Hydroporus foveolatus Heer Shaverdo H. det. 2001" (ETH). **Note:** According to HORN et al. (1990) the complete Heer's material is stored at ETH. This is why I am sure that I have studied all syntypes of *H. nivalis*. The designation of a lectotype is necessary because the syntype series is composed of two different species: *H. foveolatus* and *H. nigrita*. **Paralectotypes**: *Hydroporus foveolatus:* 1 ♀ – "b" [same data as lectotype] (ETH). 1 ex. – "a" [Switzerland, Canton Uri/Ticino, Gotthard Mountains] (ETH). Both paralectotypes with additional labels "Paralectotypus Hydroporus nivalis Heer des. Shaverdo 2001" [red] and "Hydroporus foveolatus Heer Shaverdo H. det. 2001". *Hydroporus nigrita*: 1 ♀ – "b" [same data as lectotype], "Paralectotypus Hydroporus nivalis Heer des. Shaverdo 2001" [red], "Hydroporus nigrita (F.) Shaverdo H. det. 2001" (ETH). **Notes:** The paralectotype with label "a" is almost completely damaged by dermestids; the types bear only small labels with the respective letters; the corresponding notes about type localities have been given by the curator. **Type locality:** Seelochseeli, Canton Glarus, Switzerland.

Hydroporus foveolatus: **Lectotype** (present designation): ♂ – "e" [Switzerland, Bergliseeli, Canton?], "Lectotype / Hydroporus / foveolatus Heer / des. Shaverdo 2002" [red] (ETH). **Type locality:** Bergliseeli, probably Canton Glarus, Switzerland.

Hydroporus foveolatus is found to be a junior synonym of *H. nivalis*. The synonymy of *H. foveolatus* with *H. nivalis* was first proposed by SCHAUM (1844, 1845) who gave priority to the name *H. nivalis*. *Hydroporus foveolatus* was treated as a synonym of *H. nivalis* by REDTENBACHER (1858), GEMMINGER & HAROLD (1868), SCHAUM (1868), J.SAHLBERG (1875), SHARP (1880-1882), and SEIDLITZ (1887). However, after SEIDLITZ (1887) the name *H. nivalis* was not used for this species and was replaced in numerous following papers with the name *H. foveolatus*, as started by GANGLBAUER (1892). Therefore, precedence of the name *H. foveolatus* over the name *H. nivalis* is proposed (SHAVERDO & JÄCH 2003).

Hydroporus tibetanus ZAITZEV, 1953

Hydroporus tibetanus ZAITZEV, 1953:169 (orig. descr.); NILSSON 2001: 163 (cat.); NILSSON 2003: 65 (cat., faun.)

Type locality: Amdo, Tibet.

Type material: **Lectotype** (present designation): ♂ – "Amdo, 1884, Przevalsky" [upper side], "5-11.VI" [hw, under side], "tibetanus sp. n." [hw Zaitzev], " Hydroporus tibetanus Zaitz. det. A. Nilsson 1988", "SYNTYPES" [hw Nilsson], "Lectotype / Hydroporus / tibetanus Zaitzev / des. Shaverdo 2002" (ZISP). **Paralectotype**: ♀ – same label data as lectotype, but "Paralectotype / Hydroporus / tibetanus Zaitzev / des. Shaverdo 2002" (ZISP).

Hydroporus tibetanus has been found not to belong to the *nigrita*-group but to the *acutangulus-polaris* species complex of the *planus*-group since it shares the following characters with the species of this complex:

- elytral disc without microreticulation, with indistinct microreticulation on side and in posterior third;
- metacoxal lines subparallel, with intralinear space covered with very dense, short, golden setae;
- male metatrochanter with a dense, posterior, setal fringe;
- median lobe of aedeagus long, narrow, with pointed apex.

Hydroporus tibetanus differs from *H. acutangulus* THOMSON and *H. polaris* FALL by black dorsal surface of head and body, black femur and dark brown trochanter, tibia, and tarsus, brown to dark brown antennomeres 1 – 4, by distinctly longer golden setae in metacoxal intralinear space, similarity of anterior and posterior claws of male protarsus, and more narrow and straight apical part of median lobe of aedeagus. The species seems to be close to the recently described *H. tuvaensis* PEDERZANI, 2001 but differs from it by smaller size: TL = 3.3 mm. Generally, as it was noted by PEDERZANI (2001), the *acutangulus-polaris* species complex, which now includes *H. tibetanus*, is in need of more careful study.

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