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RESEARCH PAPER

Revision of the subgenus *Nessus* of the genus *Hypocaccus* from Central Europe, with description of a new species (Coleoptera: Histeridae)

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Abstract. Members of the subgenus *Nessus* Reichardt, 1932 of the genus *Hypocaccus* C. Thomson, 1867 from Central Europe are revised based on examination of the type material. A nidicolous new species *Hypocaccus* (*Nessus*) *hungaricus* sp. nov. is described and figured. *Saprinus curtus* Rosenhauer, 1847 is transferred to the subgenus *Nessus* Reichardt, 1932 of the genus *Hypocaccus* C. Thomson, 1867. *Hypocaccus* (*Nessus*) *puncticollis* (Küster, 1849) is synonymized with *Hypocaccus* (*Nessus*) *curtus* (Rosenhauer, 1847) syn. nov., based on examination of the type material. A neotype for *Hister* [= *Hypocaccus* (*Nessus*)] *rufipes* Kugelann, 1792 is designated. Lectotypes and paralectotypes of the following taxa are designated herein: *Hister rufipes* Paykull, 1798, *Saprinus curtus* Rosenhauer, 1847, *Saprinus puncticollis* Küster, 1849, *Saprinus arenarius* Marseul, 1855, *Saprinus longistrius* Marseul, 1855, *Saprinus cribellaticollis* Jacquelin du Val, 1858, *Saprinus sicanus* Marseul, 1862, *Saprinus revisus* Marseul, 1876, and *Hypocacculus* (*Nessus*) *controversus* G. Müller, 1937. All species are redescribed and provided with images and male genitalia drawings. A key to the species is given. *Hypocaccus* (*Nessus*) *controversus* is newly reported from Cyprus, and *Hypocaccus* (*Nessus*) *rufipes* is newly reported from Turkey.

Key words. Coleoptera, Histeridae, Saprininae, *Hypocaccus*, *Nessus*, revision, Central Europe, Palaearctic Region

Zoobank: http://zoobank.org/urn:lsid:zoobank.org:pub:2E9BB0E5-6412-422C-872A-60C2F4BF1D61

Introduction

Several years ago one of us (G.S.) collected numerous specimens of a species of *Hypocaccus* (*Nessus*) in burrows of European Ground Squirrel (*Spermophilus citellus* (Linnaeus, 1776)) in Hungary, which could not be attributed to the externally similar and rather common Central and East European species *Hypocaccus* (*Nessus*) *rufipes* (Kugelann, 1792). The collected specimens differed in subtle but visible external morphological characters as well as in male genitalia. Upon showing the specimens to the senior author we decided to examine all type specimens of all species as well as their synonymies classified currently in the subgenus *Nessus* Reichard, 1932 of the genus *Hypocaccus* C. Thomson, 1867 from Central Europe. According to the latest catalogue of Palaearctic Coleoptera (Lackner et al. 2015), there are only two species of the subgenus *Nessus* of the genus *Hypocaccus* present in Central Europe: *H.* (*N.*) *rubripes* (Erichson, 1834) and *H.* (*N.*) *rufipes* (Kugelann, 1792). We also include here *H.* (*N.*) *controversus* (G. Müller, 1937). Lackner et al. (2015) overlooked that this species, mainly distributed in the Mediterranean area (reported from Greece, Montenegro, Spain, Morocco, Jordan, Saudi Arabia, and Turkey – Lackner et al. 2015), was actually described from Băile Herculane in Romania and thus its occurrence is possible in southernmost Hungary. One remaining mystery was a *Hypocaccus* species described from 'Hungary' by Rosenhauer in 1847 as '*Saprinus curtus*'. Because this taxon was synonymized with

circum-Mediterranean *Hypocaccus* (*Nessus*) *puncticollis* (Küster, 1849) several times, and we were able to locate the type specimens of both respective species, we decided to include them in our work. The results are presented below.

Material and methods

For the purpose of this paper, 'Central Europe' is understood as encompassing the following countries: Slovakia, Poland, Hungary, Austria, Switzerland, the Czech Republic, and Germany.

Dry-mounted specimens were relaxed in warm water for several hours. After removal from original cards, they were side-mounted on a triangular point and examined under a Nikon 102 binocular microscope with diffuse light. Male genitalia were first macerated in 10% KOH solution for about three hours, afterwards cleared in 80% alcohol and macerated in lactic acid with fuchsine, incubated at 60ºC for another 30 minutes, and subsequently cleared in 80% alcohol and then observed in α-terpineol in a small glass dish. Digital photographs of male genitalia were taken with a Nikon 4500 Coolpix camera and edited in Adobe Photoshop CS5. Based on the photographs, or direct observations, the genitalia were drawn using a light-box Hakuba klv-7000. Habitus photographs were made by János Romsauer (Štúrovo, Slovakia); except for Fig. 15, which was made by Nikola Rahmé (Budapest, Hungary). Specimens were measured with an ocular micrometer. Body part terminology follows that of Ôhara (1994) and Lackner (2010), and the following abbreviations of morphological measurements are used:

APW width between anterior angles of pronotum
EL length of elytron along elytral suture
EW maximum width between outer margins of elytra
PEL length between anterior angles of pronotum and apices of elytra
PPW width between posterior angles of pronotum.

Labels of type specimens were recorded verbatim in single quotations; a single slash separates rows within a label, and a double slash separates individual labels. Additional remarks are given in square brackets.

Specimens examined in this study are deposited in the following collections:

CGSE private collection of Gábor Seres, Budapest, Hungary;
CPVV private collection of Pierpaolo Vienna, Venice, Italy;
CST Museo Civico di Storia Naturale, Trieste, Italy (A. Colla);
CTLA private collection of Tomáš Lackner (temporarily housed in ZSM);
HNHM Hungarian Natural History Museum, Budapest, Hungary (O. Merkl);
MFNB Museum für Naturkunde, Berlin, Germany (B. Jäger);
MMBC Moravian Museum, Brno, Czech Republic (P. Baňař);
MNHN Muséum National d'Histoire Naturelle, Paris, France (A. Taghavian);
MSNG Museo Civico di Storia Naturale 'Giacomo Doria', Genova, Italy (M. Tavano);
MTD Museum für Tierkunde, Dresden, Germany (O. Jäger);
NRMH Naturhistoriska Riksmuseet, Stockholm, Sweden (J. Bergsten);
NHMW Naturhistorisches Museum, Vienna, Austria (H. Schillhammer);
NMPC National Museum, Prague, Czech Republic (J. Hájek);
ZIN Zoological Institute of Russian Academy of Sciences, St. Petersburg, Russia (B. Kataev);
ZSM Zoologische Staatssammlung, München, Germany (M. Balke).

Taxonomy

Genus *Hypocaccus* C. Thomson, 1867
Subgenus *Nessus* Reichardt, 1932

Type species. *Saprinus rubripes* Erichson, 1834: 193, by original designation.

Diagnosis (applies to Central European taxa). Members of the subgenus *Nessus* differ from members of the nominotypical subgenus as well as from the subgenus *Baeckmanniolus* Reichardt, 1926 in generally smaller size, and in the absence of several deep elongate rugae on the frons (the pronotum is furthermore glabrous in *Baeckmanniolus*, while it is punctate in the other two subgenera). The frontal disc of *Nessus* species is adorned with dense punctation or numerous short elongate rugae (see e.g. Lackner 2010: fig. 420). On the other hand, members of the nominotypical subgenus, as well as the subgenus *Baeckmanniolus* possess usually only several, often single or double deep longitudinal rugae on their frontal disc (see e.g. Lackner 2010: fig. 436). Members of the three respective subgenera differ also in their behavior: species of *Nessus* are found mostly on carrion or in dung, or, in case of the newly described species, in burrows of small mammals. Members of the nominotypical subgenus, and the subgenus *Baeckmanniolus* on the other hand, usually occur on beaches, riverbanks or sandy shoals of streams, only occasionally are found on sandy soils further away from water (for details see also Lackner 2010: 134, 140). Species of the genus *Hypocaccus* from Central Europe can be identified using the works of Mazur (1973), Mazur & Kaszab (1980) or Kryzhanovskij & Reichardt (1976).

Key to the species of the subgenus *Nessus* of the genus *Hypocaccus* from Central Europe

1(2) Protibia on outer margin with 5–7 denticles, of which the distalmost three (or four) are triangular and conspicuously larger than the proximal rest (Fig. 31). ..... ***Hypocaccus rubripes*** (Erichson, 1834)

2(1) Protibia on outer margin with 8–11 shorter denticles, of which the distalmost three (or four) are not triangular and not conspicuously larger than the proximal rest (Fig. 32).

3(6) Dorsal elytral striae reaching approximately 3/4 of the length of elytra; the first dorsal elytral stria shorter than striae 2–4 (Fig. 1).

4(5) Pronotum broader, lateral sides not conspicuously convergent apically (Fig. 14); males with two faint tubercles on basal third of metaventrite, best visible in lateral view (Fig. 15); sternite VIII of male genitalia narrowing apically (Fig. 16); aedeagus shorter and stouter (Fig. 23). ... ***Hypocaccus hungaricus* sp. nov.**

5(4) Pronotum narrowing apically (Fig. 1); metaventrite in males without tubercles; sternite VIII of male genitalia sub-rectangular, apex with a brush of tiny setae (Fig. 3); aedeagus overall thinner and longer (Fig. 10). ..... ***Hypocaccus rufipes*** (Kugelann, 1792)

6(3) Dorsal elytral striae reaching approximately 1/2 of the length of elytra, first dorsal elytral stria slightly to conspicuously longer than striae 2–4 (Fig. 40).

7(8) Dorsum with faint bluish to greenish metallic tinge (Fig. 40); frons with very dense punctation often intermingled with tiny rugae; aedeagus sub-parallel, overall thinner, bluntly pointed apically (Fig. 53). .... ***Hypocaccus curtus*** (Rosenhauer, 1847)

8(7) Dorsum light to dark brown, without metallic tinge (Fig. 45); frons without tiny rugae, punctation of frons less dense; aedeagus shorter and stouter, acutely pointed apically (Fig. 62). .... ***Hypocaccus controversus*** G. Müller, 1937

Hypocaccus (*Nessus*) *rufipes* (Kugelann, 1792)

(Figs 1–13)

Hister rufipes Kugelann, 1792: 304 (original description). Illiger (1807): 43 (as syn. of *H. conjugatus* Illiger, 1807).

Hister rufipes Paykull, 1798: 50 (original description; primary junior homonym). Duftschmid (1805): 228 (redescription); Paykull (1811): 74 (redescription, incl. pl. VII: fig. 1).

Saprinus rufipes (Paykull): Gebler (1847): 449 (noted, new combination); Redtenbacher (1849): 238 (keyed); C. Thomson (1862): 240 (redescription); Marseul (1862): 491 (redescription, incl. pl. XVII: fig. 48); Jakobson (1911): 651 (noted).

Hypocaccus rufipes (Paykull): C. Thomson (1867): 401 (keyed); Schmidt (1885): 313 (keyed); Ganglbauer (1899): 390 (redescription); Reitter (1909): 293 (keyed).

Hypocacculus (*Nessus*) *rufipes* (Paykull): Reichardt (1932): 41, 113 (redescription, keyed, incl. pl. I: fig. 12, pl. III: figs 12–14, pl. IV: fig. 13); Reichardt (1941): 284, 295 (redescription, keyed, incl. figs 145C, 153R); Horion (1949): 338 (noted); Witzgall (1971): 173 (keyed); Kryzhanovskij & Reichardt (1976): 203, 207 (redescription, keyed, incl. figs 403, 413, 419).

Hypocacculus (*Nessus*) *rufipes* (Kugelann): Mazur (1984): 90 (catalogue); Mazur (1997): 255 (catalogue); Mazur (2004): 94 (catalogue).

Hypocaccus (*Nessus*) *rufipes* (Kugelann): Mazur (2011): 209 (catalogue); Lackner et al. (2015): 118 (catalogue).

Hister antiquulus Illiger, 1807: 43 (original description); Ganglbauer (1899): 390 (synonymy).

Saprinus antiquulus: Erichson (1834): 191 (new combination); Marseul (1855): 732 (redescription, keyed); Marseul (1862): 491 (redescription, incl. pl. XIII: fig. 48).

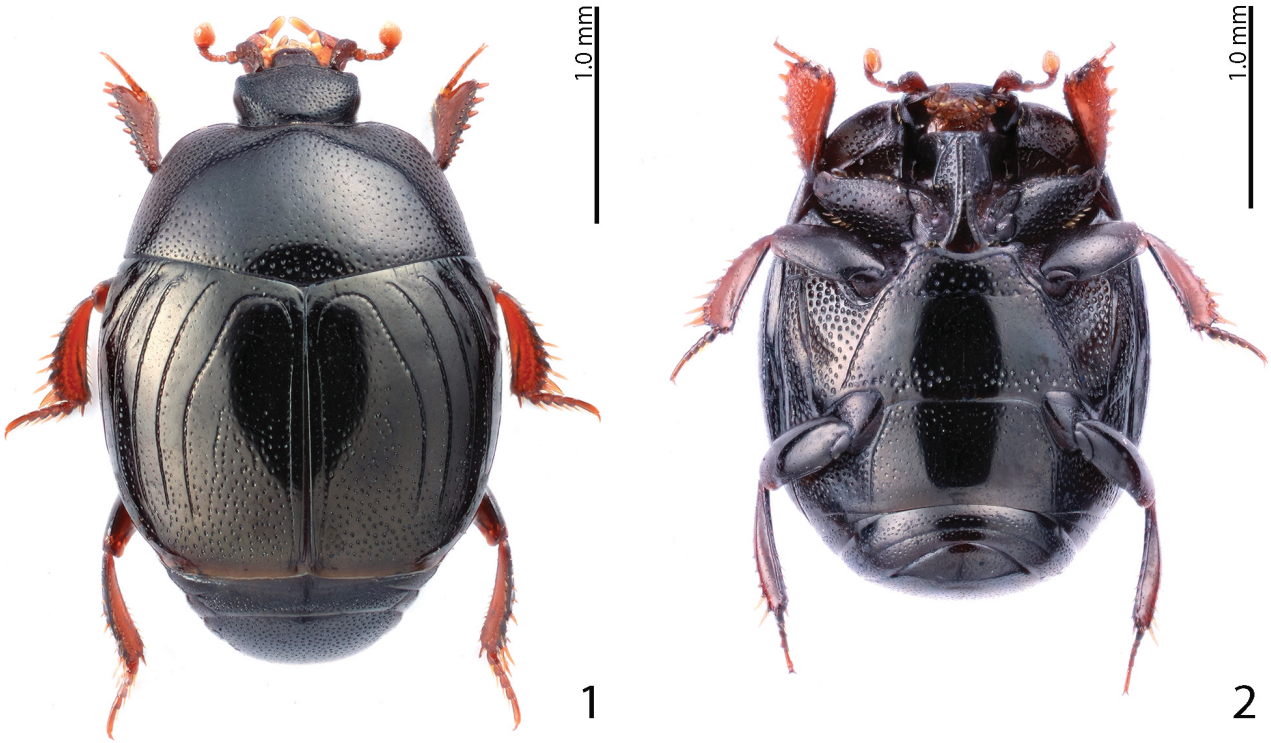
Saprinus longistrius Marseul, 1855: 684 (original description, incl. pl. XVIII: fig. 126). Marseul (1862): 492 (synonymy).

Type locality. Original type locality 'Preussen [after title of the paper]' changed here to: Hungary, Csongrád megye, Királyhegyes, Királyhegyesi puszta by designation of neotype.

Type material examined. *Hister rufipes* Kugelann, 1792: Neotype (present designation): ♂, mounted on a rectangular mounting card with genitalia extracted, disarticulated and mounted in Euparal on a separate plastic card under the specimen, with the following labels: 'HUNG., Csongrád m., / Királyhegyes, Királyhegyesi puszta, / héricses domb [printed] // löszgyep, talajcsapda, [loess grassland, pitfall] / 2013 iv.18., leg., / Deli / Tamás & Danyik Tibor [printed] // *Hypocacculus rufipes* / (Kugelann, 1792) / det. O. Merkl, 2014 [printed] // *Hister rufipes* / Kugelann, 1792 / NEOTYPE / Des. T. Lackner 2017 [red label, printed]' (HNHM).

Hister rufipes Paykull, 1798. Lectotype (present designation): pinned specimen, probably a female, right protarsus, right hind leg missing, with the following labels: 'Hister rufipes / Paykull, 1798 / Lectotype / Des. T. Lackner 2017 [red label, written]' (NRMH).

Hister antiquulus Illiger, 1807. Syntypes: 1 ♀ (Fig. 12), originally pinned, mounted on a rectangular mounting card, final three right metatarsomeres missing, '49200 [printed] // Hist.-Coll. (Coleoptera) / Nr. 49200 / Saprinus antiquulus Illig. / Austria / Zool. Mus. Berlin [black-framed, printed label] // SYNTYPE / Hister antiquulus / Illiger, 1807 / labelled by MFNB 2016 [red label, printed] // antiquulus / Er. / Hist. ant. Ill* / rufipes Pk. / Austr. Hung [black-framed hand-written label]' (MFNB); 1 ♂, mounted on a rectangular mounting card, genitalia extracted and glued to the same mounting card as the specimen, with the following labels: '49200 [written] // Hist.-Coll. (Coleoptera) / Nr. 49200 / Saprinus antiquulus Illig. / Austria / Zool. Mus. Berlin [black-framed, printed label] // SYNTYPE / Hister antiquulus / Illiger, 1807 / labelled by MFNB 2016 [red label, printed]' (MFNB); 1 ♀, with the labels identical to the



Figs 1–2. *Hypocaccus* (*Nessus*) *rufipes* (Kugelann, 1792), habitus. 1 – dorsal view; 2 – ventral view.

preceding (MFNB). The lectotype designation was not allowed by the MFNB staff, hence no lectotype is designated.

Saprinus longistrius Marseul, 1855. Lectotype (present designation): 1 spec. of unidentifiable sex (Fig. 13), originally pinned, glued onto a rectangular mounting card, except for left protibia (sans tarsus) and right mesotibia all other body appendages and abdomen missing, 'r? [tiny yellow rectangular label, completely illegible] // Saprinus / longistrius m. / Autr. Dej. / rufipes Pk. / Dej. 63 [round label, written in black ink] // Saprinus / longistrius / 124 Austria [yellow label written in black ink] // TYPE [red-printed label] // Museum Paris / coll. / De Marseul 1890 [printed] // *Saprinus longistrius* / Marseul, 1855 / LECTOTYPE / des. T. Lackner 2017 [red label, printed]' (MNHN). Additional specimen: 1 ♀, bearing Marseul's round label: '126 / Saprinus / longistrius / m. / Autriche / Laferté / Dej. ' (MNHN). This specimen is probably the one mentioned by Marseul (1862: 492) as 'sent to me afterwards and is not the type of my description'; see remarks.

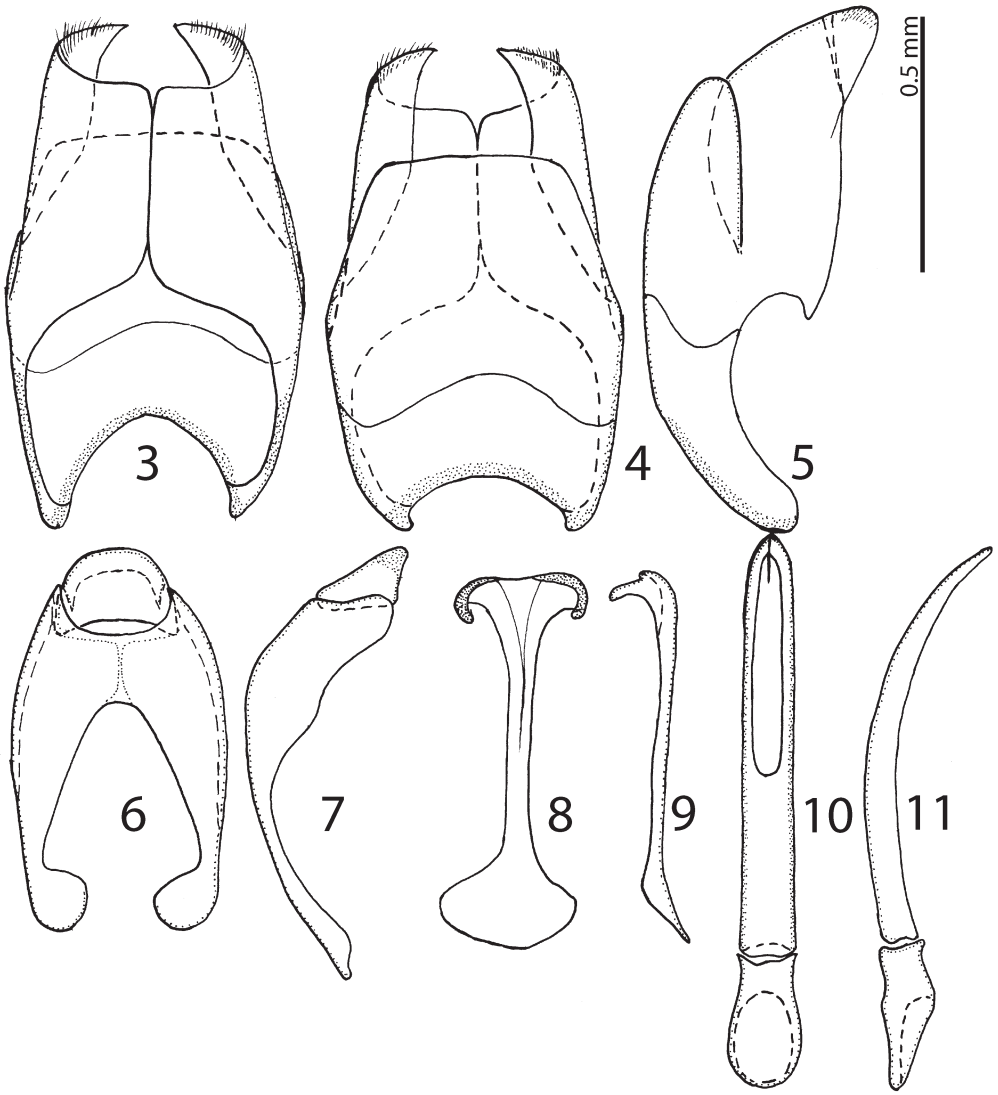
Additional material examined. ARMENIA: Province unknown: Cevagjuch, 2.vi.1988, 1 ♀, Bečvář lgt. (CTLA). **AUSTRIA:** Austria, no further data, 1 ♀, coll. Seidlitz (ZSM); Austria, no further data, 2 ♂♂, 4 ♀♀, (MFNB); Austria?, no further data, 1 ♀ (MFNB). **Burgenland:** Zurndorf, 5 ♂♂, 2 ♀♀, H. Franz lgt. (NHMW); Nickelsdrof, 1 ♂, H. Franz lgt. (NHMW). **Lower Austria:** Parndorfer Platte beim Neusiedl am See, 4 ♂♂, 2 ♀♀, H. Franz lgt. (NHMW); Weiden am Neusiedlersee, 1 ♂, H. Franz lgt (NHMW). **Vienna:** Vienna env., 1 ♀, Reitter lgt. (MNHN, coll. Thérond); Vienna env., Mödling, 1 ♀, H. Franz lgt. (NHMW). **CROATIA:** Croatia, no further data, 2 spec., Padewieth lgt. (HNHM). **CZECH REPUBLIC: Jihomoravský kraj:** Pouzdřany, 1 ♀, no further data (NMPC). **Moravskoslezský kraj:** Bescides [= Beskydy Mountains], no further data, 1 ♀ (NMPC). **Moravia:** Moravia, no further data, 1 ♂ 2 ♀♀ (NMPC); Mähren [= Moravia], 1 ♂, 1 ♀, 1 spec., Märkel lgt. (MTD). **FRANCE:** Gallia merid., no further data [locality doubtful] 1 ♀, Reitter & Leder lgt. (NMPC). **GEORGIA: Tbilisi Region:** Tiflis [=Tbilisi], no further data, 1 ♂ (MFNB). **GERMANY: Bavaria:** Munich, no further data, 2 ♀♀ (ZSM); Dachau Moor, iv.1956, 1 ♀, 2 ♂♂, Witzgall lgt. (ZSM); Erlangen, Rosenh[auer?], no further data, 1 ♂ (MFNB). **HUNGARY:** 1 spec., Hungaria, Bodemeyer lgt., no further details (HNHM); 1 ♂, Ungarn, no further data (MFNB); Hungaria, no further data, 2 ♂♂ (MFNB); Hungary, no further data, 1 ♀, Kraatz (MNHN). **Bács-Kiskun megye:** Kalocsa, 2 spec., Speiser lgt. (HNHM); Kiskunsági National Park, Kunszentmiklós, Apaj-puszta, 13.v.1977, 1 ♀, 1 spec. (pitfall trap), Ádám & Hámori lgt. (CGSE). **Baranya megye:** St. Lőrincz [=Szentlőrinc], 1 spec., Victor Stiller lgt. (HNHM). **Békés megye:** Kevermes: Hármas-határ halom, 29.iii.2014, 1 ♂, 1 ♀ (pitfall trap), T. Deli & T. Danyi lgt. (CGSE); Battonya, Tompapuszta, löszgyep [= loess grassland], 3.v.2013, 1 ♂, 1 spec., T. Deli & T. Danyi lgt. (CGSE). **Borsod-Abaúj-Zemplén megye:** Bükk Mountains, Tard, 21.iii.1957, 1 spec., S. Tóth lgt. (HNHM). **Csongrád megye:** Szeged, 4 spec., Victor Stiller lgt. (HNHM). **Fejér megye:** Martonvásár, 7.iv.1955, 1 spec. (from a corn field), Dr. Gozmány lgt. (HNHM); Székesfehérvár, 1 spec., Lichtneckert lgt. (HNHM); Martonvásár, 21.iv.1953 spec., J. Bagotai lgt., coll. Dr. D. Révy (HNHM); Velencei hills, Nadap, Kőfejtő [=quarry], 204 m, 7.iv.1951, 1 spec., Kaszab & Székessy lgt. (HNHM); Székesfehérvár, Börgöndi airport, 47º07′40.0″N, 18º30′03.7″E, 11.iv.2017, 2 spec. (pitfall trap), 25.iv.2017, 2 spec. (pitfall trap), V. Szénási & G. Seres lgt. (CGSE). **Pest megye:** Budapest, no further details, 1 spec., Csiki lgt., (HNHM); Budapest, no further details, 1 spec., Gutrányi lgt. (HNHM); Budafok, 30.v.1907, 1 spec., collector unknown (HNHM); Budapest, 7.v.1911, 1 spec., collector unknown (HNHM); Budapest, 1 spec., Hajóss lgt. (HNHM); Budapest, Füvészkert, iii.1879, 1 spec., collector unknown (HNHM); Budapest, without further data, 3 spec., coll. Dr. R. Streda (HNHM); Budapest, Lágymányos, 1 spec., coll. H. Diener (HNHM); Budapest, Rákos, 1 spec., coll. H. Diener (HNHM); Budapest env., Óbudai Hills, 1 spec., coll. H. Diener (HNHM); Budapest env., Csepel-sz., 1 spec., coll. H. Diener (HNHM); Nagykovácsi, Nagyszénás, Nagyszénás tető, 10.v.1954, 1 spec. (individual collecting on sheep excrements), S.-né Hámori & I.-né Kovács lgt. (HNHM); Nógrádverőce [=Verőce], Katalinvölgy, 14.iv.1952, 1 ♀ (on cadaver), Endrődy lgt. (CTLA); Pest m., Fót, Fóti-Somlyó, 13.iv.1980, 1 ♂ (individual collecting), Ádám lgt., (CGSE). **Somogy megye:** Zamárdi, Töreki láp, on the edge of a field, 5.v.1953, 1 spec., Kaszab lgt. (HNHM); Siófok, 2 spec., Lichtneckert lgt. (HNHM); Ságvár, 1 spec., Lichtneckert lgt. (HNHM); Balatonszéplak, 1 spec., Dr. Lenci (HNHM). **Veszprém megye:** Berhida, iv.1955, 2 ♂♂, 7 spec., Dr. Lenci lgt. (HNHM). **KAZAKHSTAN: Kyzylorda Region:** Syr-Darja River, Perovsk [=Kyzylorda], 1 ♂, v. Bodemeyer lgt. (MNHN, coll. Thérond). **POLAND: Hajnówka:** Klesczele, żwirownia [=gravel pit], 28.iv.2004, 2 ♀♀, A. Byk lgt. (MSNG). **SLOVAKIA: Košický kraj:** Zemplínske Vrchy, Ladmovce, 8.v.1979, 2 ♀♀, L. Mencl lgt. (CTLA); Somotor, 2.iv.1997, 1 ♂ 1 ♀ (pitfall trap), T. Lackner lgt. (CTLA); Streda nad Bodrogom, xi.1951 ♀, R. Veselý lgt. (NMPC). **ROMANIA: Banat:** Banat, no further data, 2 ♂♂, Reitter lgt. (MMBC, NMPC). **Constanța:** Mangalia, 17.vii.1961, 1 ♂, no collector (CTLA). **RUSSIA: Belgorodskaya Oblasť:** Valuyki, 1 ♀, Velichkovsky lgt. (NHMW). **Rostovskaya Oblasť:** Sosnovyj village, 20.v.2000, 2 ♀♀, collector unknown (MSNG). **SERBIA: Belgrade:** Zemun, 30.v.1935, 1 ♂, 1 ♀, Nonveiler lgt. (CTLA). **SPAIN: Andalusia:** 'Andalusia', no further data, 1 ♀ (MNHN, coll. Thérond) [dubious record, see remarks]. **TURKEY: Ankara:** Çamlidere, Isik d., 23.vi.1947, 1 ♀, Expedition of the National Museum of ČSR (NMPC). **UKRAINE:** Kleinrussland, no further data, 1 ♀ (MFNB). **Luhanskaya Oblasť:** Kovalevka, Podolské, 2 ♀♀, Hanuš lgt. (NMPC).

Diagnostic description of the neotype. Rather small-sized, roundly oval, light to dark brown saprinine histerid with complete frontal stria and densely punctate frons. Pronotal hypomeron asetose; pronotal disc (except for finely punctate median part) densely punctate. Elytral striae 1–4 thin, usually reaching ¾ of elytral length apically; 1st elytral stria shorter than the rest; 4th stria connected with almost complete sutural elytral stria. Apical elytral stria lacking. Elytral punctation usually confined to apical third. Both sets of prosternal striae connected apically; prosternal foveae present. Protibia with 8–10 tiny denticles diminishing in size proximally.

Redescription. PEL: 1.75–2.50 mm; APW: 0.75–0.90 mm; PPW: 1.40–1.60 mm; EW: 1.50–2.00 mm; EL: 1.20–1.50 mm. Body (Figs 1–2) roundly oval, cuticle light-brown with slight (metallic) tinge; pronotum slightly darker than elytra; legs, mouthparts and antenna amber to reddish.

Head: frontal stria well-developed, outwardly arcuate; supraorbital stria vague, occasionally lacking; occipital stria very weak. Anterior angles of frons acute, protruding. Eyes flattened, but visible from dorsal view. Frontal disc even, rather densely punctate; punctures rather deep, separated from each-other by 0.5–1.5 times their own diameter, interspaces with fine alutaceous microsculpture; clypeus with coarser and denser punctation, punctures separated by less than half their diameter; anterior margin of clypeus elevated. Antennal scape slightly thickened, dorsally with several long setae; club rounded, slightly pointed apically; basal third asetose, apical 2/3 with short sensilla intermingled with sparse erect setae. Sensory structures of antennal club not examined. Labrum medially convex, punctate; labral pits present, each with two short labral setae. Subapical tooth of left mandible almost rectangular. Terminal labial as well as maxillary palpomere elongate, approximately 2.0–2.5 times as long as wide.

Pronotum: lateral sides slightly narrowing apically; disc with sparse and fine punctation, punctures separated by several times their diameter; laterally punctures become coarser and denser; marginal pronotal stria slightly carinate, visible along its entire length from dorsal view. Along pronotal base present double row of irregularly-sized punctures. Scutellum very small, triangular; pronotal hypomeron asetose.



Figs 3–11. Male genitalia of *Hypocaccus* (*Nessus*) *rufipes* (Kugelann, 1792). 3 – VIII sternite and tergite, ventral view; 4 – ditto, dorsal view; 5 – ditto, lateral view; 6 – IX and X tergites, dorsal view; 7 – ditto, lateral view; 8 – IX sternite (spiculum gastrale), ventral view; 9 – ditto, lateral view; 10 – aedeagus, dorsal view; 11 – ditto, lateral view.

Elytra: marginal epipleural stria fine, complete; marginal elytral stria complete, slightly carinate; apical elytral stria absent; elytral epipleuron with sparse microscopic punctures. Humeral elytral stria fine, impressed on basal elytral third; internal subhumeral stria fine, present medially, well-developed. Elytra with dorsal elytral striae 1–4 well-developed, all striae surpass ⅔ of elytral length apically, often reaching as far as ¾ of elytral length; first stria slightly shorter than the rest. Fourth dorsal elytral stria basally connected to complete sutural elytral stria; all striae in faint punctures; occasionally short vestigial stria present on fourth elytral interval medially. Punctation of elytral disc rather variable, punctures usually confined to basal elytral fifth, only occasionally entering elytral intervals 1–3, on fourth elytral interval (between fourth dorsal elytral stria and sutural elytral stria) punctures almost reach elytral half basally (but in many cases confined to apical elytral third); punctures separated approximately by 0.5–1.5 times their diameter, irregular in size; elytral flanks impunctate; extreme elytral apex impunctate. Occasionally sparse microscopic punctures present on entire elytral disc.

Propygidium and pygidium: propygidium with several rows of very dense punctures, separated by less than their own diameter; pygidium covered with regular round punctures separated by approximately their own diameter.

Prosternum: prosternal process anteriorly with traces of marginal prosternal stria; flanks of prosternal process densely punctate; carinal prosternal striae slightly divergent on prosternal apophysis, next subparallel to slightly approximate, united anteriorly just before carinate anteriorly united lateral prosternal striae. Next to carinal prosternal striae a line of punctures present mesally; prosternal foveae present, distinct.

Mesoventrite: lateral mesoventral stria present, complete, inwardly arcuate anteriorly, next to it line of punctures present mesally; mesoventral disc with very sparse and fine punctures; disc approximately three times as broad as long; meso-metaventral suture indistinct, meso-metaventral sutural stria in form of a chain of punctures.

Metaventrite: disc of metaventrite, except for several rows of irregularly-sized punctures along its base entirely smooth; lateral metaventral stria fine, complete, almost reaching metacoxa. Lateral disc of metaventrite with large deep punctures separated by one to several times their diameter; metepisternum with similar, even denser punctation.

Legs: protibia: outer margin of protibia with 8–10 denticles diminishing in size proximally; protarsal groove shallow; protibial spur tiny, growing out of near tarsal insertion; setae of outer row sparse, regular, rather long. Outer part of posterior surface of protibia rugulose-lacunose, separated from glabrous median part by distinct ridge bearing several denticles basally; apex of protibia with two tiny apical denticles; posterior protibial stria complete; setae of inner row regular, strongly sclerotized. Mesotibia: outer margin of mesotibia with row of gradually enlarging denticles distally; anterior face of mesotibia with another row of 4–5 widely spaced minuscule denticles. Metatibia: slightly longer and more slender than mesotibia; outer margin with single tiny denticle on basal fifth, longer single denticle present approximately in metatibial mid-length, another three much longer denticles present on apical metatibial fifth. Each meso- and metararsomere with single, rather long seta; ultimate meso- and metatarsomere as long as two preceding combined; meso- and metatarsal claws shorter than half of the ultimate meso- and metatarsomere, respectively.

Male genitalia: Sternite VIII (Figs 3–4) slightly narrowing apically, sub-rectangular, apex with brush of short setae. Tergite X (Fig. 6) rather small; tergite IX (Fig. 6) medially with faint lines depicting suture; spiculum gastrale strongly dilated on both ends (Fig. 3); 'head' with inwardly curved 'horns'. Aedeagus (Figs 10–11) slender overall, apex acute.

Variation. As a widely-distributed species, *Hypocaccus* (*Nessus*) *rufipes* expresses variations especially regarding dorsal as well as ventral punctation, carinal prosternal striae or colour of the dorsal cuticle. The cuticle can bear bronze to greenish metallic tinge, but is never distinctly dark-brown to black, as in the presumably closely related species *H.* (*N.*) *hungaricus* sp. nov. Occasionally, the fourth dorsal elytral stria can be only vaguely (or not at all) connected with the sutural one.

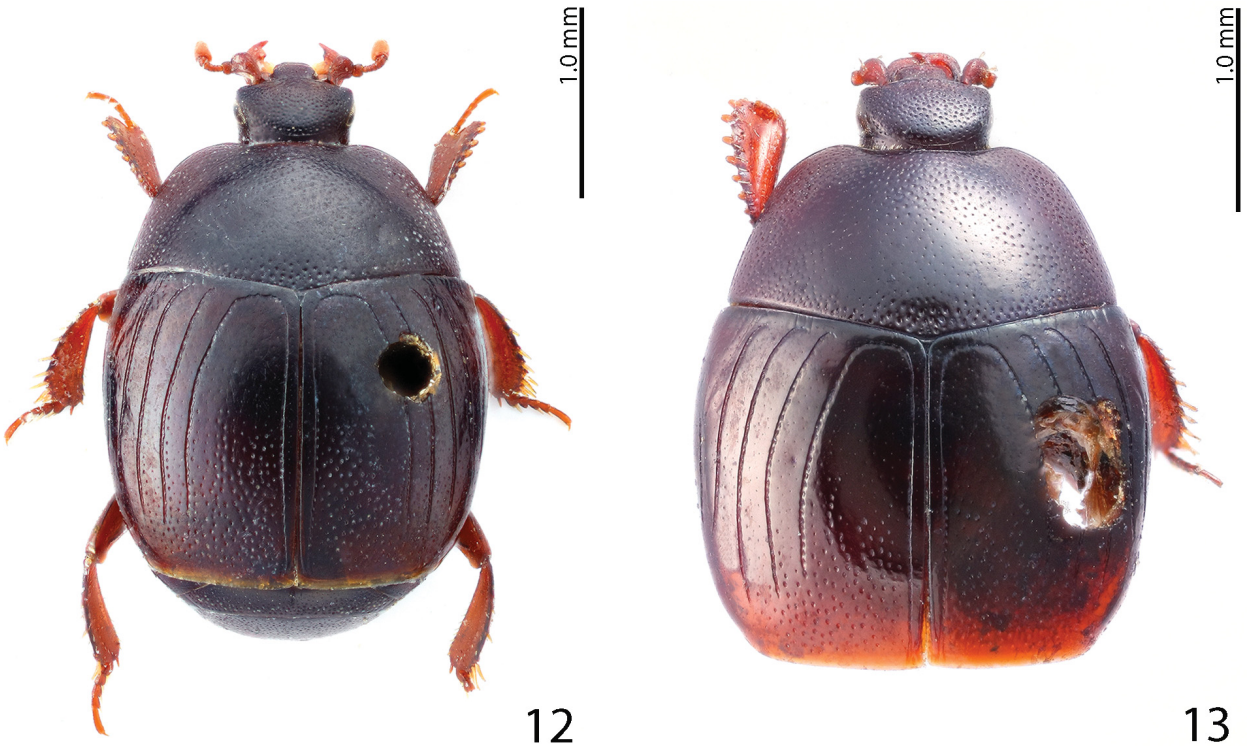
Differential diagnosis. Most similar to the newly described species *H.* (*N.*) *hungaricus* sp. nov., differing from it mainly in the absence of tiny metaventral tubercles in males and lighter coloration of the dorsum. Further differences are found on male genitalia. For complete differential diagnosis see Kryzhanovskij & Reichardt (1976): 207.

Distribution. According to Lackner et al. (2015), *H.* (*N.*) *rufipes* is known from the following countries: Armenia, Austria, Bulgaria, Croatia, Czech Republic, Germany, Estonia, France, Germany, Georgia, Greece, Hungary, Italy, Iran, Kazakhstan, Latvia, Lithuania, Moldova, Poland, Romania, Russia: Central European Territory, South European Territory, Serbia, Slovakia, Slovenia, Sweden, Switzerland, Uzbekistan and Ukraine. Kryzhanovskij & Reichardt (1976) reported it also from southern Norway. Absent from the Mediterranean. Newly recorded from Turkey.

Biology. Found mostly on sandy soils in decomposing organic matter, on excrements, in dung, on carcass as well as decaying vegetables; often collected by pitfall trapping.

Remarks. Kugelann (1792: 304) described the species *Hister rufipes*, which he provided with a very brief description: 'Nigro-aeneus, corpore subgloboso, pedibus rufus [Black-metallic, body almost rounded, legs reddish]'. This Latin description was supplemented with a short description in German, which was basically the translation from Latin, adding that he (Kugelann) found this beetle one time in sand. This description has gone largely unnoticed for the next almost 200 years and all authors attributed the authorship of *Hypocacculus* (*Nessus*) *rufipes* to Paykull, 1798 instead. It was Mazur (1984: 90) who attributed the name *Hypocacculus* (*Nessus*) [=*Hister*] *rufipes* to Kugelann for the first time, referring to the catalogue of Bickhardt (1916: 98) as the alleged original author of this combination. Bickhardt (1916: 98), however, attributed the authorship of *Hypoacculus rufipes* to Paykull (1798) and did not mention Kugelann at all. It was therefore Mazur (1984), who attributed the name *Hister rufipes* correctly to Kugelann for the first time. According to the curator of the Museum and Institute of Zoology in Warsaw, Poland (T. Huflejt) the collection of Kugelann was destroyed during the WWII. As this species is easily confused with the newly described *H.* (*N.*) *hungaricus* sp. nov. and the name *Hister rufipes* Paykull, 1798 is a junior homonym of *Hister rufipes* Kugelann, 1792, a neotype designation has become necessary for this common, mainly Central and East European species.

Illiger (1807) mentioned '*Hister rufipes* Kugelann' with the correct and complete citation, meaning he must have read it, adding that 'Ich finde sie nirgend geschrieben [I do not find it mentioned anywhere]'. He (Illiger 1807: 43) attributed this name [*rufipes* Kugelann] to a specimen collected in Vienna and received from a certain 'Mr. Megerle from Mühlefeld'. Illiger (1807) then continues: 'Paykull's *rufipes* should possess a complete sutural elytral stria as well as dorsal elytral striae almost reaching elytral apex, which does not correspond with our specimen [translated from German]'. Likewise, according to Illiger (1807: 43) Paykull does not mention the 'characteristic punctures before the scutellum'. It is unclear what punctures 'before scutellum' Illiger (1807) had in mind, since in the description of *Hister rufipes* no punctures are mentioned. Based on the above mentioned it is obvious, that Illiger (1807) considered *H. rufipes* Kugelann as a species distinct from that of Paykull and he gave the priority to Paykull's name, probably due to the fact that Kugelann's name was overlooked, thought it was older and thus had the priotity. Instead he described a new species *H. conjugatus* Illiger, 1807 and considered *H. rufipes* Kugelann its synonym. However, Illiger based his observation on an additional specimen and subsequent authors considered *H. conjugatus* a synonym of *Gnathoncus rotundatus* (Kugelann, 1792); first synonymized by Erichson (1834: 175).



Figs 12–13. *Hypocaccus* (*Nessus*) *rufipes* (Kugelann, 1792), dorsal habitus. 12 – *Hister antiquulus* Illiger, 1807, syntype. 13 –*Saprinus longistrius* Marseul, 1855, lectotype.

Illiger (1807: 43) described *Hister antiquulus* from Austria as differing from Paykull's *Hister rufipes* in its metallic colour (as opposed to Paykull's black) and presence of frontal stria (indicating that Paykull's *rufipes* does not possess a frontal stria). Illiger (1807) stated: 'Einen kleinen aus Oesterreich erhaltenen Käfer würde ich für den Paykullischen *rufipes* halten, wenn nicht seine Farbe mehr metallisch als schwarz, und seine Stirn gerandet wäre.' Illiger (1807) concluded the description of his new species (*antiquulus*) with: 'Kugelann's *rufipes* belongs to this species, which I determine based on a specimen that I was given by him; previously I attributed this specimen to [*Gnathoncus*] *rotundatus* [translated from German original]'. This means that Illiger must have seen a specimen of '*Hister rufipes* Kugelann' and described his '*antiquulus*' as belonging (being related to) to it. He (Illiger 1807) also believed that Paykull's '*rufipes*' is different in being more metallic and not having a frontal stria. We have located and examined Paykull's type specimen of '*rufipes*', and can conclude that it is only slightly metallic and does possess the frontal stria. Paykull's description (1798: 50) even states 'fronte integra' – most likely meaning that the frontal stria is complete. Either way, Illiger's syntype material of '*Hister antiquulus*' completely morphologically corresponds to *Hypocaccus* (*Nessus*) *rufipes* (Kugelann, 1792).

Marseul (1855: 732), in the section 'species, which I have not seen' provided a short description of *Saprinus antiquulus*, comparing it to *S.* (*S.*) *chalcites* (Illiger, 1807), differing from it in 'smaller size, strong shine and reddish-brown body appendages'. Marseul's (1855) short redescription of *S. antiquulus* is meaningless and does not provide any further clues to differentiate the species. In his later work (Marseul 1862: 491) he provided a thorough redescription of *Saprinus antiquulus*, adding that 'this small species from Hungary, which I was given by Dr. Kraatz under the name *S. antiquulus* Illiger corresponds well overall with its description by that author, if it were not for its frontal punctation, which is really rugose. It is probably identical to my *Saprinus longistrius*, although its subhumeral stria is loose (disjointed) [translated from French]'. Marseul (1862: 492) continues 'However, the specimen [of *S. longistrius*] which I have from M. de Laferté was sent to me afterwards and is not the type of my description [translated from French]'.

It is unclear whether it was the above-mentioned doubt 'it is probably identical to my *longistrius*' by Marseul (1862) that led some further author to synonymize the two species, and further synonymize them both with *Hypocaccus* (*Nessus*) *rufipes*. The species was described based on unknown number of specimens and the lectotype designation is provided to fix the species identity. Nonetheless, we hereby confirm that the type specimen of *Saprinus longistrius* Marseul, 1862 is synonymous with *Hypocaccus* (*Nessus*) *rufipes* (Kugelann, 1792).

The record of this species from Spain (Andalusia) is based on a single female specimen, labelled: 'Andalusia / ex Reitter // A gracious offer! / by Reitter, originating / from the Schmidt's collection / identified by himself as *S. antiquulus*' and is dubious, since Yélamos (2002) in his monograph of the Histeridae of the Iberian Peninsula does not list this species as present there.

Hypocaccus (*Nessus*) *hungaricus* sp. nov.

(Figs 14–24)

Type locality. Hungary, Bács-Kiskun megye, Kunpeszér, 47º06′07.5″N, 19º13′45.0″E.

Type material. Holotype: ♂, mounted on a rectangular mounting card, genitalia extracted and disarticulated, mounted in Euparal on a separate translucent plastic slide under the specimen, 'HUNGARY Bács-K. c. / Kunpeszér, Peregi- / házak 29.III.2014 / leg. Gábor Seres [printed] // 47º06'07.5"N / 19º13'45.0"E / in burrow of / *Spermophilus cit.* [printed] // *Hypocaccus* (*Nessus*) / *hungaricus* sp.nov. / HOLOTYPE 2017 / Det. T. Lackner & G. Seres [red label, printed]' (HNHM). Paratypes (71 spec.): **HUNGARY:** 1 ♀, 'Kalocza / 93 3 / 26T [written] // Samml / Daniel [printed] // Nessus / rufipes Payk / det. Dr. Herzer 1944 [printed-written]' (ZSM); 1 ♂, 'R. Palota / 31.iii.1891 / Hensen [written] // Samml / Daniel [printed] // Nessus / rufipes Payk / det. Dr. Herzer 1944 [printed-written]' (ZSM); 1 ♀, 'Saprinus / longistrius / rufipes Pk. Du / Hong.? / Dej. 62 [round, written label] // Museum Paris / Coll. / De Marseul 1890 [printed]' (MNHN); 1 ♀, '133 / Saprinus / rufipes Pk. / rubripes Er.? / Hongrie / Krtz. 29 [round, written label] // Saprinus / antiquulus / rubripes? / further text illegible [round, written label] // Museum Paris / Coll. / De Marseul 1890 [printed]' (MNHN); 1 ♀, 'Ungarn [written] // Hist.-Coll. (Coleoptera) / Nr. 49200 / Saprinus antiquulus Illig. / Hungaria / Zool. Mus. Berlin' (MFNB); 1 ♂ 2 ♀♀, 'HUNGARY / Kunpeszér / 19.iv.2015 / G. Seres lgt. [written]' (CTLA); 4 ♂♂, 3 ♀♀, 1 spec., 'HUNGARY Bács-K.c. / Kunpeszér, Peregi- / házak, pasture / 04.IV.2015 [printed] // inside the burrows of / *Spermophilus* / *citellus* / leg. Gábor Seres [printed] // *Hypocacculus* / *rufipes (Payk.)* / *det. S. Mazur* [printed]' (CTLA, 1 ♀ and 1 spec. in CGSE); 2 ♂♂, 1 ♀, 8 spec., 'HUNGARY Bács-K. c. / Kunpeszér, Peregi- / házak 29.III.2014 / leg. Gábor Seres [printed] // 47º06'07.5"N / 19º13'45.0"E / in burrow of / *Spermophilus cit.* [printed]' (TLAN; 2 spec. NMPC); 4 ♀♀, 1 spec., 'HUNGARY Kunpeszér / 02.IV.2014 in burrow / of *Spermophilus citellus* / leg. Gábor Seres [printed]' (CGSE); 1 spec., 'HUNGARY Pest. c. / Taksony 02.V.2014 / on cottage cheese bait / leg. Gábor Seres [printed]' (CGSE); 1 ♀, with a specimen of *Formica* ant on a separate mounting card under the specimen, 'HUNGARY Pest c. / Taksony 26.IV.2014 / in a *Formica* sp. nest / leg. Gábor Seres [printed]' (CGSE); 1 spec., 'HUNGARY Pest. c. / Monorierdő, Bogárzó / 01.IV.2014 / leg. László Nádai [printed]' (CGSE); 1 spec., 'HUNGARY Pest. m. / Erdőkertes, HM / lőtér, 12.IV.2015 / leg. Attila Kotán [printed]' (CGSE); 1 ♂, 9 ♀♀, 4 spec., 'HUNGARY Bács-Kiskun / c., Kunpeszér 14.IV.2017 / from *Spermophilus citellus* / burrow. leg. Gábor Seres [printed]' (CGSE); 2 spec., 'HUNGARY Bács-Kisk. c. / Kunpeszér 19.V.2013 in / burrow of *Spermophilus* / *citellus* leg. Gábor Seres [printed]' (CGSE); 1 ♂, 'Bpst Umgbg. / Albertfalva [black-framed, printed label] // rufipes / Payk. / coll. H. Diener [printed-written] // *Hypocacculus* / *rufipes (Payk.)* / *det. S. Mazur* [printed]' (CTLA); 1 ♂, 'Bpst Umgbg. / Issaszegh [printed] // coll. H. Diener [printed] // *Hypocacculus* / *rufipes (Payk.)* / *det. S. Mazur* [printed]' (CTLA); 1 ♂, 'Isasegh / 1908 v. 17. / coll. H. Diener [printed-written] // *Hypocacculus* / *rufipes (Payk.)* / *det. S. Mazur* [printed]' (CTLA); 1 ♀, 'Hu. Pest m. / Fót / Fóti Somlyón [written] // egyelés / 1980 iv.13 / leg. Ádám [written] // *Hypocacculus* / *rufipes (Payk.)* / *det. S. Mazur* [printed]' (CTLA); 1 ♀, 'Budapest / HUNGARIA [black-framed, printed label] // Ex. Coll. / Dr. I. Pereg [printed] // *Hypocacculus* / *rufipes (Payk.)* / *det. S. Mazur* [printed]' (HNHM); 1 ♀, 'Albertfalva / 1922 iv. [printed-written] // rufipes / Payk. / coll. H. Diener [printed-written] // *Hypocacculus* / *rufipes (Payk.)* / *det. S. Mazur* [printed]' (HNHM); 1 ♀, 'Istvántelek / coll. Sajó // *Hypocacculus* / *rufipes (Payk.)* / *det. S. Mazur* [printed]' (HNHM); 1 ♀, 'M-csanak [= Ménfőcsanak] / 1943, vii.27. / Révy D. [black-framed, written] // coll. Dr. D. Révy [printed] // *Hypocacculus* / *rufipes (Payk.)* / *det. S. Mazur* [printed]' (HNHM); 1 ♀, 'Hu.occ. 1950 / Velencei-tó [printed] // Dinnyés, V. 17 / homok-gödörben [printed] // legit. Dr. Kaszab [printed] // *Hypocacculus* / *rufipes (Payk.)* / *det. S. Mazur* [printed]' (HNHM); 1 ♀, 'Budapest / Újpest-Alag [printed-written] // 1931 v.1. / coll. H. Diener [printed-written] // *Hypocacculus* / *rufipes (Payk.)* / *det. S. Mazur* [printed]' (HNHM); 1 ♀, 'Hu. Pest m. / Táborfalva / legelő, egyelés [written] // 1981 iv. 8. / Leg. Migály [written] // *Hypocacculus* / *rufipes (Payk.)* / *det. S. Mazur* [printed]' (HNHM); 1 ♀, 'Nagykovácsi 1956 / Nagyszénás V. 9. [printed] // Exc. Kaszab / & Székessy // *Hypocacculus* / *rufipes (Payk.)* / *det. S. Mazur*

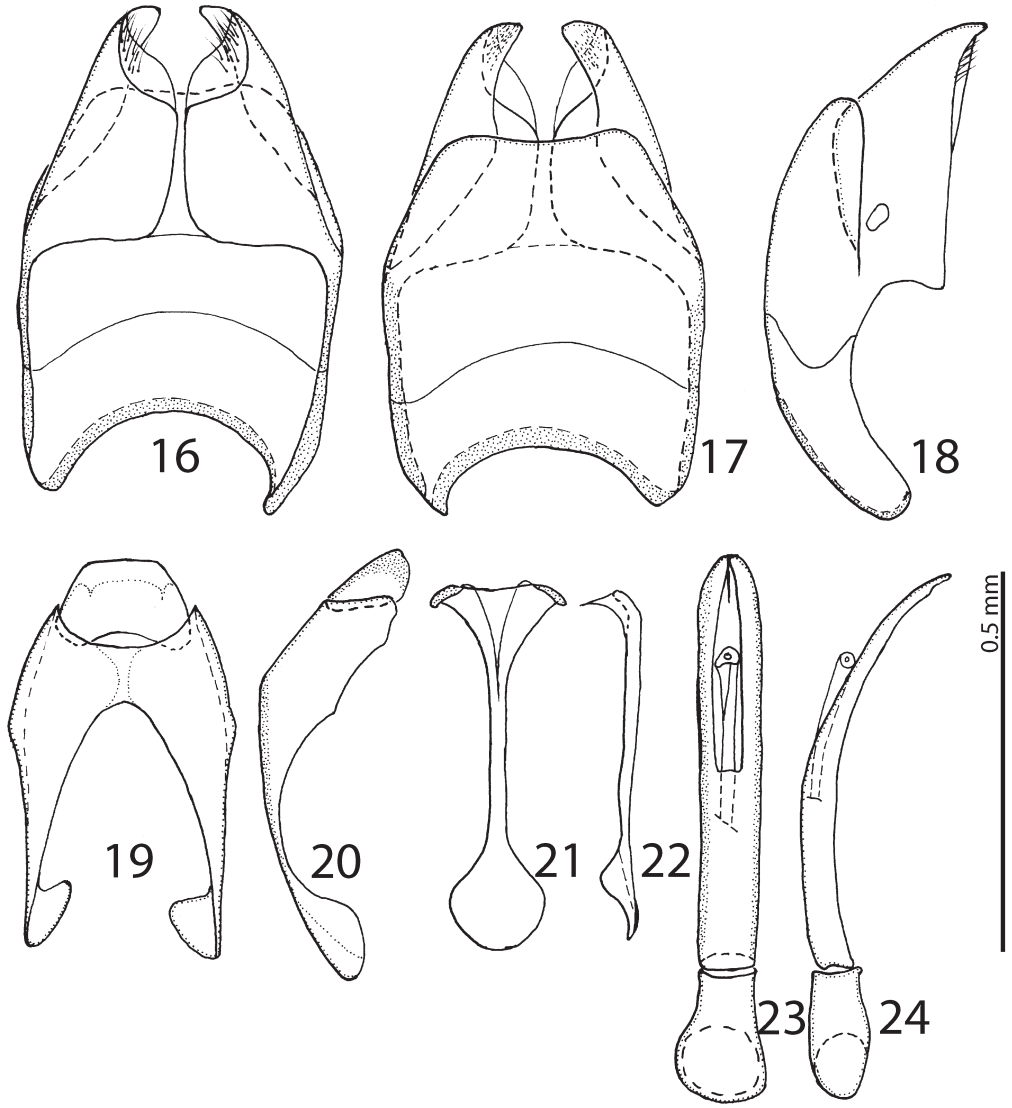
Figs 14–15. *Hypocaccus* (*Nessus*) *hungaricus* sp. nov. 14 – habitus, dorsal view. 15 – ventrolateral view, arrow points the metaventrite with tubercles.

[printed]' (HNHM); 1 ♀, 'HUNG. Pest m. / Domony, Domonyvölgy, / autóshálózás, / 2015 IV.11., Merkl Ottó' (HNHM); 1 ♀, 'Bpst. Umgb. / Újpest-Alag [printed] // coll. H. Diener [printed] // *Hypocacculus* / *rufipes (Payk.)* / *det. S. Mazur* [printed]' (HNHM); 1 ♀, 'Hu.occ.1950 / Velencei-tó [printed] // Dinnyés / V. 17-18 [printed] // legit / Dr. Kaszab // *Hypocacculus* / *rufipes (Payk.)* / *det. S. Mazur* [printed]' (HNHM); 2 ♀♀, 'Siófok / Lichtneckert [printed] // *curtus* / Rosenh. / det. S. Mazur [printed-written] // *Hypocacculus* (*Nessus*) / *puncticollis* (Küster) / P. Vienna det., 2004 [black-framed, printed label]' (HNHM); 1 ♂, 'Budapest [printed] // coll. / Dr. R. Streda [printed] // Hypocacculus / rufipes Payk. / det. Blühweisz [printed-written] // *Hypocacculus* / *rufipes (Payk.)* / *det. S. Mazur* [printed]' (HNHM); 1 ♂, side-mounted on a triangular mounting card, genitalia extracted, 'Hunga- / ria [printed] // Hypocacculus / rufipes Payk. / Coll. Schmidt- / Bickhard [printed]' (MFNB). **AUSTRIA:** 1 ♂, 'Austria [written] // Hypocacculus / rufipes Payk. / Coll. Schmidt- / Bickhard [printed]' (MFNB). All paratypes provided with following red and printed label: '*Hypocaccus* (*Nessus*) / *hungaricus* sp.nov. / PARATYPE 2017 / Det. T. Lackner & G. Seres'

Differential description. The new species (Fig. 14) is generally very similar to *H*. (*N*.) *rufipes*, differing from it only slightly. Therefore we chose not to provide the new species with a full description, rather pointing out the most significant characters that differentiate it from *H*. (*N*.) *rufipes*. Body (Fig. 14) generally smaller (PEL: 1.40–2.00 mm; APW: 0.75–1.00 mm; PPW: 1.25–1.50 mm; EW: 1.45–1.80 mm; EL: 1.00–1.30 mm), more rectangular-oval (*H*. (*N*.) *rufipes* is more round-oval); pronotum more parallel-sided, anterior angles distinctly obtuse; punctation of pronotal disc laterally very coarse and dense, punctures sometimes almost forming elongate rugae (in *H*. (*N*.) *rufipes* punctation of pronotal disc likewise becomes denser laterally, but punctures never form elongate rugae); cuticle never metallic, rather dark-brown to almost black (in *H*. (*N*.) *rufipes* cuticle is variable, but often shiny to slightly metallic, can be with bronze or even greenish hue); alutaceous microsculpture among frontal punctures more marked than in *H*. (*N*.) *rufipes*. Males with two faint, but discernible small tubercles situated on basal third of metaventrite medially (Fig. 15). The two species differ in the form of male terminalia, especially eighth sternite, which is narrowing anteriorly in *H*. (*N*.) *hungaricus* while it is almost parallel-sided in *H*. (*N*.) *rufipes* (compare Figs 16–17 with 3–4). The aedeagus of *H*. (*N*.) *hungaricus* is slightly shorter and stouter than in *H*. (*N*.) *rufipes* (compare Figs 10 with 23).

Etymology. Patronymic, named after the country of origin.

Distribution. Known so far only from Hungary and Aus-



Figs 16–24. Male genitalia of *Hypocaccus* (*Nessus*) *hungaricus* sp. nov. 16 – VIII sternite and tergite, ventral view; 17 – ditto, dorsal view; 18 – ditto, lateral view; 19 – IX and X tergites, dorsal view; 20 – ditto, lateral view; 21 – IX sternite (spiculum gastrale), ventral view; 22 – ditto, lateral view; 23 – aedeagus, dorsal view; 24 – ditto, lateral view.

tria. Records from Austria do not carry any specified data and could also originate from the former Austro-Hungarian Empire meaning that they were actually collected in Hungary. An overlooked species, confused with *H.* (*N.*) *rufipes*, possibly spread over a larger area.

Biology. So far found only in the burrows of European Ground Squirrel (*Spermophilus citellus* (Linnaeus, 1766)); an apparent nidicole. A single specimen was collected in a nest of *Formica* sp., probably accidentally. Some specimens were collected in pitfall traps baited with cottage cheese.

Note. Already Reichardt (1941: 296) mentioned 'some specimens from Hungary possess more parallel-sided pronotum with distinctly obtuse anterior pronotal angles, while their body measurements are generally smaller'. Unfortunately Reichardt (1941) did not pay much attention to these character states and did not compare the male genitalia among populations. Obviously he also overlooked the faint metaventral tubercles.

Hypocaccus (*Nessus*) *rubripes* (Erichson, 1834)

(Figs 25–31, 33–39)

Saprinus rubripes Erichson, 1834: 193 (original description).

Hypocaccus (*Nessus*) *rubripes*: Mazur (2011): 209 (new combination); Lackner et al. (2015): 118 (catalogue). For complete references see Lackner (2010): 134–135.

Saprinus granarius Erichson, 1834: 191 (original description). Fauvel in Gozis (1886): 202 (synonymy).

Saprinus arenarius Marseul, 1855: 691 (original description). Schmidt (1885): 313 (synonymy).

Saprinus corsicus Marseul, 1855: 688 (original description). Bickhardt (1910): 104 (synonymy).

Saprinus rubripes var. *clermonti* Auzat, 1920: 4 (original description).

Note. Complete synonymies and literature references of this species are given in Lackner (2010: 134–135) and the reader is referred to them there. For the sake of completeness, and the full list of synonymies examined, however, above we list the references of all original descriptions and the works, in which they were synonymised.

Type material examined. *Saprinus rubripes* Erichson, 1834. Syntypes: 1 ♂ (Fig. 25), originally pinned with a pin-hole in its right elytron, glued onto a rectangular mounting card, genitalia examined and photographed by the senior author, unfortunately subsequently lost, '49207 [printed] // Hist. -Coll. (Coleoptera) / Nr. 49207 / Saprinus rubripes Er. x / Sardin. -Lusitan / Zool. Mus. Berlin [black-framed, printed label] // SYNTYPE / Saprinus rubripes / Erichson, 1834 / labelled by MFNB 2016 [red label, printed] // rubripes / Er. / Lusit. Hoffm [black-framed, written label]' (MFNB); 1 ♀, glued onto a rectangular mounting card, originally pinned with a pin-hole in its right elytron, genitalia extracted and glued onto the same mounting card as the specimen, '22 [written] // 49207 [written] // Hist. -Coll. (Coleoptera) / Nr. 49207 / Saprinus rubripes Er. x / Sardin. -Lusitan / Zool. Mus. Berlin [black-framed, printed label] // SYNTYPE / Saprinus rubripes / Erichson, 1834 / labelled by MFNB 2016 [red label, printed]' (MFNB); 1 ♀, left protibia missing, left mesotarsus missing, left metatibia missing, glued onto a rectangular mounting card with the labels identical to those of the preceding syntype (MFNB). According to the MFNB staff, the lectotype designation of this species was not allowed, hence no lectotype was designated.

Saprinus granarius Erichson, 1834. Syntype: 1 ♂ (Fig. 26), originally pinned with a pin-hole in its right elytron, glued onto a rectangular mounting card, left antennal flagellum, left protarsus and right metatibia missing, genitalia extracted, disarticulated and glued to the same mounting card as the specimen, '49201 [printed] // Hist. -Coll. (Coleoptera) / Nr. 49201 / Saprinus granarius Er. x / Austria, Dahl / Zool. Mus. Berlin [black-framed, printed label] // SYNTYPE / Saprinus granarius / Erichson, 1834 / labelled by MFNB 2016 [red label, printed] // granarius Er. / Austr. Dahl [black-framed, written label]' (MFNB). Another ♂, without syntype status, identified as 'Saprinus granarius' and labelled as 'Carthagena [pink label, written] // Saprinus / granarius / Er. [written] // Hist. -Coll. (Coleoptera) / Nr. 49201 / Saprinus granarius Er. x / Austria, Dahl / Zool. Mus. Berlin [black-framed, printed label] (MFNB). According to the MFNB staff, the lectotype designation of this species was not allowed, hence no lectotype was designated.

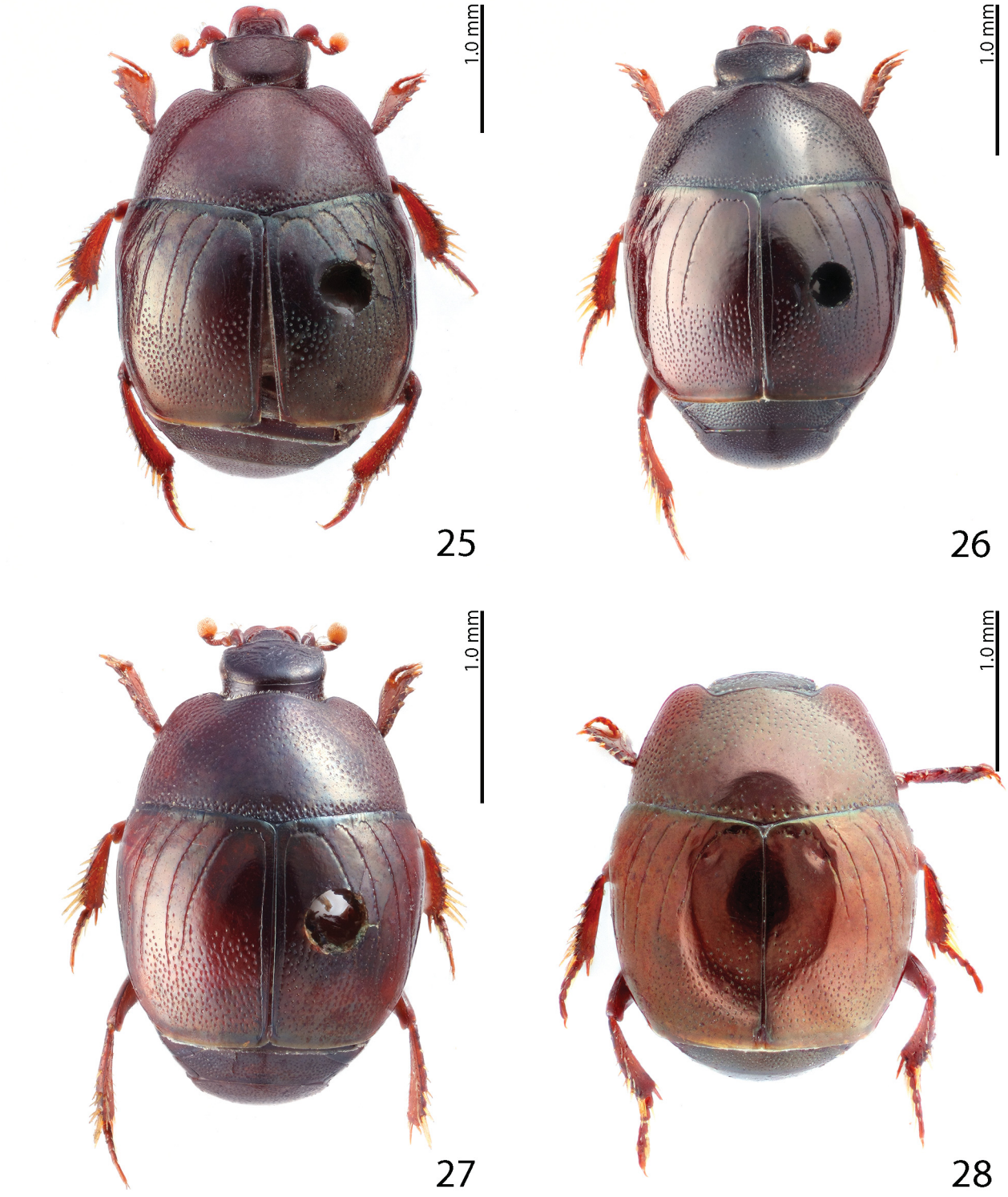
Saprinus arenarius Marseul, 1855. Lectotype (present designation): ♂ (Fig. 27), originally pinned, with a pin-hole in its right elytron, glued onto a rectangular mounting card, right metatarsomere missing, genitalia extracted, disarticulated and glued onto the same mounting card as the specimen, '132 / Saprinus / arenarius / Dej / Aust. / Dej. [round, written label] // Saprinus 132 / arenarius / Dej. / Aust. [yellow, written label] // TYPE [red-printed label] // MUSEUM PARIS / Coll. / DE MARSEUL 1890 [printed] // *Saprinus arenarius* / Marseul, 1855 / LECTOTYPE / Des. T. Lackner 2017 [red label, printed]' (MNHN). This species was described based on unknown number of specimens and existence of other material cannot be excluded therefore we designate the lectotype to fix its taxonomic identity.

Saprinus corsicus Marseul, 1855. Syntype?: ♂ (Fig. 28), glued to a rectangular mounting card, genitalia extracted, disarticulated and glued onto the same mounting card as the specimen, '[small, round golden label, which could be an indication that this was indeed Marseul's type specimen] // Corse [printed] // type / Marseul [written] // Saprinus / granarius [written] // Saprinus / rubripes / v. corsicus, Mars. [written] // *Saprinus corsicus* / Marseul, 1855 / SYNTYPE ? / Des. T. Lackner 2017 [red label, printed]' (MNHN; coll. Thérond).

Saprinus rubripes var. *clermonti* Auzat, 1920: Holotype: ♂ (Fig. 29), right antennal funicle, two left metatarsomeres missing, glued onto a rectangular mounting card, genitalia extracted, disarticulated and glued onto the same mounting card as the specimen, 'Arcachon / Cap Ferret [written] // var. / Clermonti / Type / Dr. Auzat det. 1920 [printed-written] // Coll. / Dr. Auzat [light-green label, written] // TYPE [red label, printed] // *Saprinus rubripes* var. / *clermonti* Auzat, 1920 / HOLOTYPE / Des. t. Lackner 2017 [red label, printed]' (MNHN). This taxon was described based on a single specimen, which is therefore holotype by monotypy.

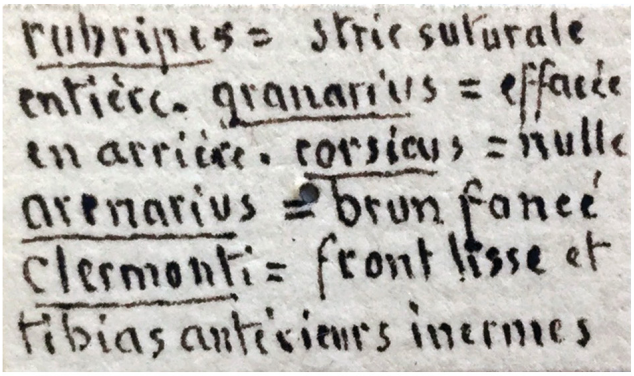
Additional material examined. ALGERIA: Béchar Region: Bèni Abbès, Sahara, 20.x.1980, 1 ♂, A. Olexa lgt. (CTLA). **Oran Region:** Oran, no further data, 1 ♂ (MMBC). **AZERBAIJAN: Lankaran Region:** Mamusta env., 12.v.2001, 5 spec., T. Lackner lgt. (CTLA). **BULGARIA: Blagoevgrad Region:** Struma River valley, Sandanski, 21.–22.iv.1987, 1 spec., J. Mertlik lgt. (CTLA). **Burgas Region:** Burgas, on the beach, 5.viii.1981, 1 ♀, collector unknown (NHMW); Nessebar, 4.viii.1994, 2 spec., 22.viii.1996, 4 spec., T. Lackner lgt. (CTLA); Arkutino, 14.–16.ix.1988, 1 spec., J. Růžička lgt. (CTLA); Sozopol env., 1.iv.2014, 1 spec., P. Kylies lgt. (CTLA); Primorsko, vii.1980, 1 ♀, J. Pokorný lgt. (MMBC). **Varna Region:** Škorpilovici, vii.1983, 1 ♀, J. Pokorný lgt. (MMBC). **FRANCE:** Gallia, no further data, 1 ♀ (MMBC). **Bouches-du-Rhône:** St. Maries, Camargue, 9.x.1928, 1 ♀, L. Puel lgt. (MNHN; coll. Thérond); Grau du Roi, 10.ii.1939, 1 ♂, 1 ♀, 19.vi.1933, 1 ♂, J. Thérond lgt. (MNHN; coll. Thérond). **Corse:** Oletta, 13.viii.1981, 1 ♀, Wewalka lgt. (NHMW); Bonifacio, Révélière, 1 ♀, Col. A. Grouvelle (MNHN, coll. Thérond); Corse, 1 ♂, 2 ♀♀, coll. Croissandeau (MNHN; coll. Thérond); Corse, 1 ♂, coll. Bonnaire (MNHN; coll. Thérond). **Hérault:** Sète, no further data, 1 ♂ (MNHN; coll. Thérond). **GREECE: Corfu:** Acharawi west, 24.vi.2017, 1 spec., O. Majzlan lgt. (CTLA). **Kavavala:** Thassos Island, SW Potos env., saline, 10.vii.2004, 1 spec., P. Bulirsch lgt., (CTLA). **Thessaly:** Leptokaria, 30.vii.–15.viii.1993, 2 ♂♂, J. Háva lgt. (CTLA). **HUNGARY: Bács-Kiskun megye:** Kalocsa, no further data, 1 ♂, Speiser (NMPC); Bócsa, in sand-hills, 17.vi.1956, 3 spec., Kaszab & Székessy lgt. (HNHM); Kéleshalom, vi.1955, 7 spec., Dr. Lenci lgt. (HNHM); Bócsa, 17.vi.1956, 10 spec., Dr. Lenci lgt. (HNHM); Kiskunsági National Park, Fülöpháza sand-hills, 22.vi.1978, 9 spec. (pitfall trap baited with cheese), Ádám & Hámori lgt. (HNHM); Kalocsa, 4 spec., Speiser lgt., coll. Speiser (HNHM); Soltvadkert, 100 m, sandy pasture, 31.iii.1975, 1 spec. (from cow dung), O. Merkl lgt. (HNHM). **Csongrád megye:** Nagyszéksós, vii.1922, 2 spec., Szabó-Patay (HNHM). **Fejér megye:** Budapest env., Martonvásár, no date, 1 spec., H. Diener coll. (HNHM). **Pest megye:** Budapest, no further data, 1 ♂, Gammel lgt. (MMBC); Budapest, 12.xii.1934, 1 spec., Kaszab lgt. (HNHM); Budapest, no further data, 1 spec. (HNHM); Budapest env., Újpest-Alag, no date, 2 spec., coll. H. Diener (HNHM); Budapest, Pest, no further data, 3 spec., Gimmel lgt. (HNHM); Budapest, no further data,

1 spec., Kuthy lgt. (HNHM); Pest m., Pusztavacs, Strázsa hill, 100 m, Festucetum vaginatae danubiale, from plant debris, 29.vi.1990, 30 spec., L. Ádám lgt. (HNHM); Táborfalva, 5.vi.2015, 47º3′39″N, 19º27′36″E, 1 spec. (car-netting on the driving course) (HNHM); Nagykőrös, Csókás forest, 4.iv–9.v.2010, 1 spec. (on sand in the forest), 10.–27.viii.2010, 1 spec. (on sand in the forest), Tallósi lgt. (HNHM); Táborfalva, 30.vi.2012, 1 spec. (car-netting on the driving course), O. Merkl lgt. (HNHM); Budapest-Rákos, no date, 1 spec., H. Diener coll. (HNHM); Óbuda, iv.1903, 1 spec., coll. H. Diener (HNHM); Budapest, no further data, 1 spec., coll. Pillich (HNHM). **Somogy megye:** Zamárdi, Balatonszéplak shore, 17.vii.–10.viii.1951, 1 spec. (on sandy meadow), Kaszab lgt. (HNHM); Siófok, no further data, 3 spec., Lichtneckert lgt. (HNHM); Balatonlelle, no further data, 6 spec., coll. Peregi (HNHM); Öszöd, no date, 1 spec., viii.1903, 1 spec., vii.1905, 1 spec., vii.1906, 2 spec., viii.1906, 2 spec., Ehmnann lgt., coll. Dr. R. Streda (HNHM). **INDIA: Andra Pradesh:** 35 km SE of Rajahmundry, Kottipale, Godavari River bank, 23.–24.ii.1994, 4 spec., Z. Kejval lgt. (CTLA). **Kerala:** 10 km E of Punalur, bank of Kallada River, 8º59′N, 77º01′E, 20.–21.i.1994, 1 spec., Z. Kejval lgt. (CTLA);



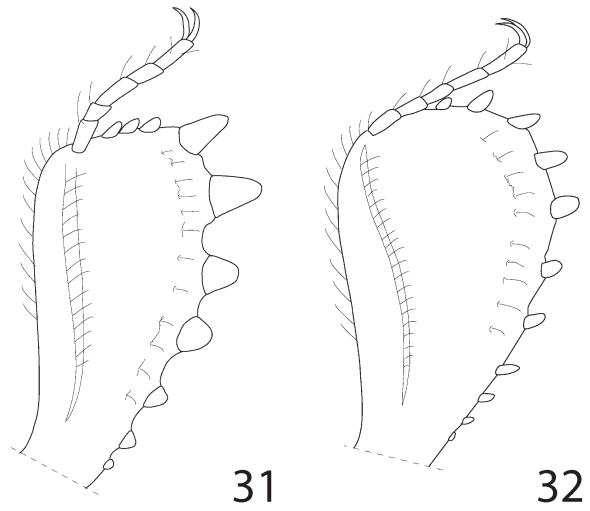
Figs 25–28. *Hypocaccus* (*Nessus*) *rubripes,* dorsal habitus. 25 – *Saprinus rubripes* Erichson, 1834, syntype. 26 – *Saprinus granarius* Erichson, 1834, syntype. 27 – *Saprinus arenarius* Marseul, 1855, lectotype. 28 – *Saprinus corsicus* Marseul, 1855, ?syntype.

29



30

Figs 29–30. *Hypocaccus* (*Nessus*) *rubripes* (Erichson, 1834). 29 – *Saprinus rubripes* var. *clermonti* Auzat, 1920, holotype, habitus, dorsal view. 30 – varieties of *Hypocaccus* (*Nessus*) *rubripes* as summed up by Jean Thérond.

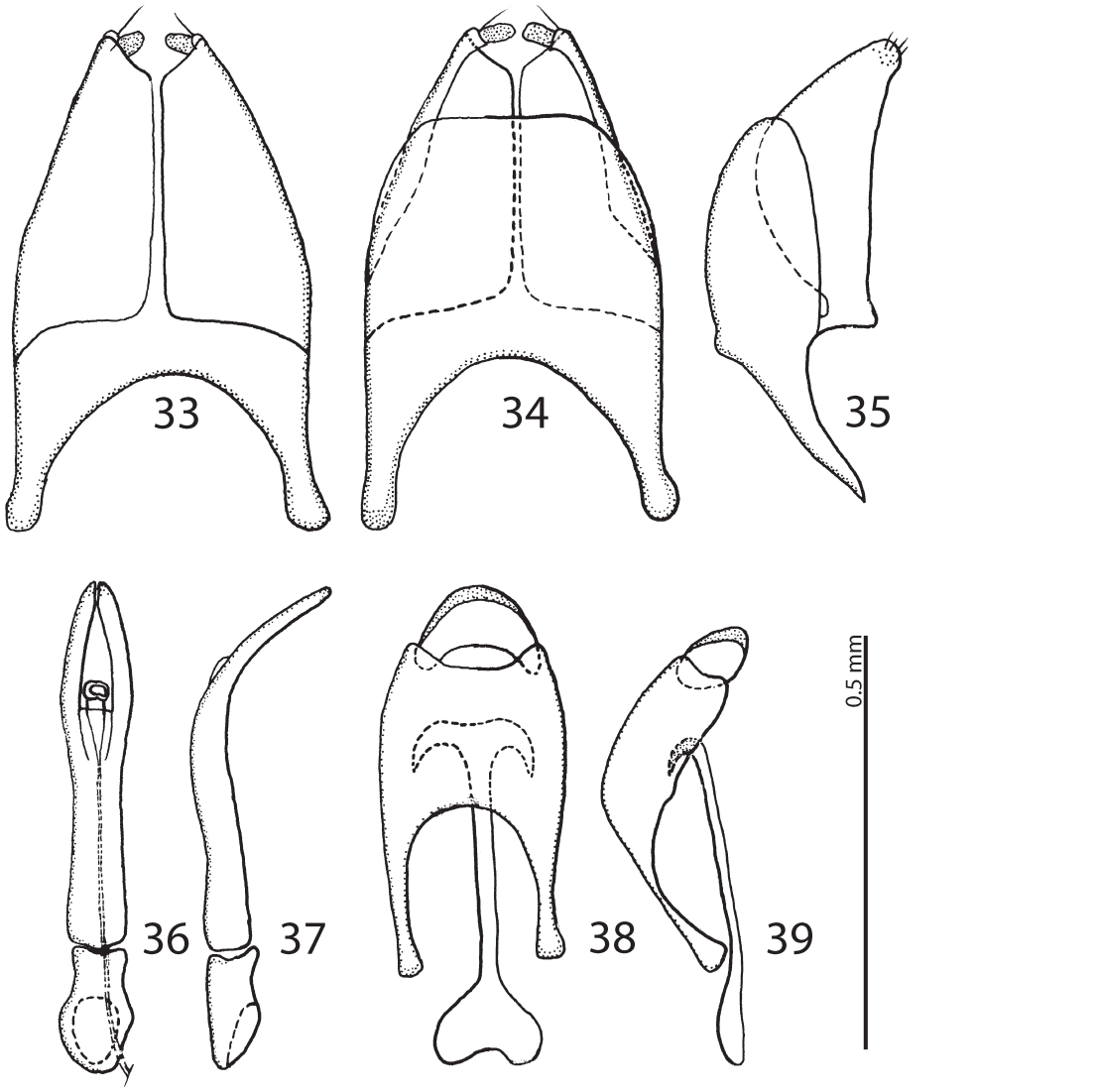


31 32

Figs 31–32. Protibiae, dorsal view. 31 – *Hypocaccus* (*Nessus*) *rubripes* (Erichson, 1834); 32 – *H.* (*N.*) *curtus* (Rosenhauer, 1847) (both re-drawn from Vienna 1980).

Shoranur, Ponnani River, 10º46′N, 76º16′E, 31.i.1994, 3 spec., Z. Kejval lgt. (CTLA). **Orissa:** 30 km NE of Jaleswar, riverbank of the Balasor River, 13.ii.1999, 1 ♂, Z. Kejval lgt. (CTLA); Kalasandhapur, N of Berhampur, on a river bank, 20.–21.ii.1994, 1 spec., Z. Kejval lgt. (CTLA). **ISRAEL:** Arvat Sedom, 8.–29.iv.2014, 1 spec., I. Renan lgt., spring (CTLA). **ITALY: Gorizia:** Grado, 1 ♀, J. Matcha lgt. (NMPC). **Sardinia:** no further data, 1 spec., Gené (MFNB). **Tuscany:** Pisa-Calambrone, 9.iv.2014, 2 spec., P. Kylies (CTLA). **KAZAKHSTAN: Aktyubinsk Region:** Khobda River, 25.v.2000, 3 spec., collector unknown (CTLA). **MONTENEGRO: Budva:** Budva, no further data, 1 ♂ (NMPC). **MOROCCO: Fas-Meknas Region:** Moyen Atlas, Aguelmame Azegza Lake, lake shore, 22.–26.vi.1998, 1 spec., T. Lackner lgt. (CTLA). **SPAIN: Catalonia:** Girona, Sant Pere Pescador, 42°10.628′N, 3°06.608′E, 24.iv.2010, 1 ♂, J. Krátký lgt. (CTLA). **TUNISIA: Jendouba Region:** Chemtou env., Mejerda River, 30.iv.–1.v.1997, 2 spec., J. Mertlik lgt. (CTLA). **TURKEY: Samsun Region:** Samsun, 17 km N of Çarsamba beach, 19.v.1989, 4 spec., P. Kanaar lgt. (CTLA). **UKRAINE: Cherkassy Region:** Dniper River, 10.–25.vii.2000, 1 ♀, Vasko lgt. (NHMW). **Crimea:** Zurzut, 28.v.1999, 2 ♂♂, Putchkov lgt. (NHMW). **Kherson region:** Golopristansky district, Bolshevik, 1.vi.2000, 1 ♀, Putchkov lgt. (NHMW). **UNITED ARAB EMIRATES: Abu Dhabi:** Abu Dhabi, Channel Street, Al Raha Beach, 24°26′07.62″N, 54°33′42.26″E, 22.–31.iii.2015, 1 ♂, A. Pütz lgt. (CTLA).

Diagnostic description. This taxon was redescribed and figured in detail by Lackner (2010) and the reader is referred for the detailed redescription there. For the sake of better recognition we provide here only a short diagnostic description supplemented by a habitus image (Fig. 25) and genitalia drawings (Figs 33–39). Clypeus with elevated anterior margin, somewhat margined laterally, rugulose--lacunose; frontal stria well impressed, straight, carinate; continued as a well-impressed carinate supraorbital stria; frontal disc normally with irregular longitudinal rugae intermingled with sparse microscopic punctation; eyes flat, inconspicuous from above. Pronotal disc laterally with coarse punctation, between it and pronotal margin present a smooth longitudinal band; medially punctation much finer and sparser. First dorsal elytral stria the longest, usually reaching approximately three-fourths of elytral length apically; second, third and fourth dorsal elytral striae about the same length, reaching approximately elytral half apically; fourth dorsal elytral stria basally connected with sutural elytral stria; sutural stria well impressed, in shallow punctures, shortened on its apical tenth. Elytral disc on apical half (except for elytral flanks) with coarse and dense punctation, punctures separated by about their



Figs 33–39. Male genitalia of *Hypocaccus* (*Nessus*) *rubripes* (Erichson, 1834): 32 – VIII sternite and tergite, ventral view; 33 – ditto, dorsal view; 34 – ditto, lateral view; 35 – aedeagus, dorsal view; 36 – ditto, lateral view; 37 – IX & X tergites, dorsal view + IX sternite (spiculum gastrale), ventral view; 38 – IX & X tergites + IX sternite (spiculum gastrale), lateral view.

own diameter, anteriorly reaching about half of elytral length; basal half with only fine microscopic punctation; extreme apex of elytra with an impunctate band. Protibia (Fig. 31) flattened and somewhat dilated, outer margin with four low teeth topped with short denticle followed by three minuscule denticles. Male genitalia. Sternite VIII (Figs 33–34) longitudinally separated medially, apically with tiny inflatable membrane (velum); fringed with single short seta; tergite VIII and sternite VIII not fused laterally (Fig. 35). Morphology of tergite IX (Figs 38–39) typical for the subfamily; spiculum gastrale (Fig. 37) expanded on both ends. Basal piece of aedeagus (Figs 36–37) rather short, ratio of its length to length of parameres equals to 1 : 3; parameres fused along their basal two-thirds; aedeagus curved ventrad (Fig. 37).

Distribution. *Hypocaccus* (*Nessus*) *rubripes*, as presently understood, covers a large area from Portugal in the west to the Russian Far East in the east. It is spread in the entire Mediterranean subregion, the Netherlands, Central, Eastern and Western Europe, Turkey, Georgia, Armenia and Azerbaijan, Iran, Middle Asia, Mongolia, India as well as entire tropical Africa (Mazur 2011).

Biology. This species is most often found in sandy soils, often on riverbanks and seashores where it can be encountered on dung, carcass or under decaying vegetation.

Remarks. As noted already by Reichardt (1932) and Lackner (2010) this species exhibits a large degree of variation regarding its colouration of the cuticle and other external morphological characters, and might represent a complex of cryptic species. In this study, we try to sum up and depict (Figs 25–29) the most common variations ('forms' – most of them originally described as species) of *H.* (*N.*) *rubripes* as elaborated already by Reichardt (1932).

Hypocaccus (*N.*) *arenarius* Marseul, 1855 is a darker form (Fig. 27) without metallic hue, whose colour can be attributed to the specimens' age and has no taxonomic meaning.

Hypocaccus (*N.*) *clermonti* Auzat, 1920 is another form (Fig. 29), which represents specimens worn-out by age; its frontal disc is almost glabrous (missing the numerous

elongate rugae of the typical form) and the fore tibiae are devoid of teeth and denticles (worn off by age). This form has likewise no taxonomic meaning.

Hypocaccus (*N.*) *corsicus* Marseul, 1855 occurring in Corsica, Sardinia and Sicily is a viable candidate for a subspecies (Fig. 28) and in fact has been treated as such (even as a *bona fide* species by several authors (e.g. Saint-Claire-Deville 1907)). In this form, the sutural elytral stria is missing, the elytral punctation is much finer and its aedeagus is somewhat shorter and less dilated. In Corsica, this form occurs together with the typical form.

Hypocaccus (*N.*) *granarius* Erichson, 1834 occurs chiefly in southern Russia, in the Caucasian republics (Armenia, Azerbaijan, Georgia) and is characterized by anteriorly effaced sutural elytral stria, occasionally not connected with the fourth dorsal elytral stria (Fig. 26). Reichardt (1932: 129, figs 16: A, B), when elaborating on different 'forms' and variation of this species put the most emphasis on the different pronotal shapes between (geographically) different populations. The two extremes of the pronotum are represented by acute (Reichardt 1932: 129, fig. 16:A) *vs.* obtuse (Reichardt 1932: 129, fig. 16:B) anterior pronotal angles. In case of acute anterior pronotal angles the marginal pronotal stria is well marked and easily discernible, whereas in case of obtuse anterior pronotal angles the marginal pronotal stria is rather difficult to distinguish. Reichardt (1932) noted that the form with 'acute anterior pronotal angles' is much more frequent and almost all specimens from southern Russia, Crimea and Caucasian republics belong to it, as well as most specimens identified as the '*granarius*' form. On the other hand, most specimens from North Africa belong to the form with obtuse anterior pronotal angles. Although there is no clear-cut difference between these two forms, specimens of both extremes are very different. A thorough morphological as well as molecular study of the possible 'superspecies' *H.* (*N.*) *rubripes* could possibly resolve this conundrum. In fact, the small handwritten label (Fig. 30) found in Thérond's collection (housed in MNHN) summarizes the situation with different 'forms' of this species up nicely. It is believed that Jean Thérond wrote up this label (Y. Gomy pers. comm. 2017).

Saprinus corsicus Marseul, 1855. The examined specimen does not bear the labels typical for Marseul's types, but it bears the tiny round golden label, which could indicate that it actually is the original Marseul's type specimen. The description of Marseul (1855: 688) generally agrees with this specimen, because of the uncertainty of the exact status of the specimen we refrain from designating it as the lectotype. In the general collection of the Histeridae housed at MNHN (which contains Marseul's collection) the type specimen(s) of *Saprinus corsicus* is missing. It is possible that this specimen was part of Auzat's collection, which was later purchased by Thérond (N. Dégallier, pers. comm., 2017).

After the publication of Lackner (2010) this species (together with the rest of the taxa included in the subgenus *Nessus* Reichardt, 1932) was transferred from the genus *Hypocacculus* Bickhardt, 1914 into genus *Hypocaccus* C. Thomson, 1867 by Mazur (2011) without explanation.

Hypocaccus (*Nessus*) *curtus* (Rosenhauer, 1847) comb. nov.

(Figs 32, 40–44, 46–54)

Saprinus curtus Rosenhauer, 1847: 26 (original description). Marseul (1855): 751 (redescription).

Saprinus (*Hypocaccus*) *curtus*: Ganglbauer (1899): 389 (redescription).

Hypocacculus (*Nessus*) *curtus*: Reichardt (1932): 49, 122 (keyed, redescription, incl. pl. IV, fig. 9); Reichardt (1941): 285, 300 (keyed, redescription, incl. fig. 147C).

Saprinus puncticollis Küster, 1849: 30 (original description). Marseul (1855): 755 (redescription); Bickhardt (1916): 96 (synonymy).

Saprinus (*Hypocaccus*) *puncticollis*: Ganglbauer (1899): 389 (redescription).

Hypocacculus (*Nessus*) *puncticollis*: Kryzhanovskij & Reichardt (1976): 204, 213 (keyed, redescription); Vienna (1980): 179, 181 (keyed, redescription, incl. fig. 64b); Mazur (1984): 89 (catalogue); Mazur (1997): 254 (catalogue); Yélamos (2002): 320 (keyed, redescription, incl. fig. 157f); Mazur (2004): 94 (catalogue); Mazur (2011): 209 (catalogue); Lackner et al. (2015): 118 (catalogue).

Saprinus cribellaticollis Jacquelin du Val, 1858: 99 (original description). Fauvel in Gozis (1886): 202 (as synonym of *Saprinus puncticollis*). Marseul (1862): 509 (redescription).

Saprinus (*Hypocaccus*) *cribellaticollis*: Schmidt (1885): 312 (keyed).

Saprinus sicanus Marseul, 1862: 490 (original description, incl. pl. XVII, fig. 47). Baudi di Selve (1864): 233 (as synonym of *Saprinus puncticollis*).

Saprinus kuesteri Marseul, 1862: 715 (catalogue; unecessary replacement name for *S. puncticollis* Küster, 1849).

Saprinus revisus Marseul, 1876: 39 (original description). Bickhardt (1916): 97 (as synonym of *Saprinus curtus*).

Type material examined. *Saprinus curtus* Rosenhauer, 1847. Lectotype (present designation): ♂ (Fig. 40), originally pinned with pin-hole in its right elytron, mounted on a rectangular mounting card, right antennal funicle and left mesotarsus missing, genitalia extracted and disarticulated, glued to the same mounting card as the specimen, 'curtus / Rosenh. [written] // Hungaria [written] // herbeus Mars. [written] // Ex Musaeo / **Rosenhauer** [black-margined, printed label] // pas synonime / d'Herbeus Mars. / Dr. Auzat 1917 [written-printed] // Hongrie / Ex-Musaeo / ROSENHAUER [printed] // *Hypocacculus* / (*Nannolepidius*) *curtus* / (Rosenhauer, 1847) / Dr. Auzat Dét. 1917 [printed] // Exemplaire provenant de la / collection Vauloger de Beaupré / Marcel (1862-1904) et inclus dans / la collection S. Risser en 2011 [black-margined, printed label] // *Saprinus curtus* / Rosenhauer, 1847 / LECTOTYPE / Des. T. Lackner 2017 [red label, printed]' (ZSM).

Saprinus puncticollis Küster, 1849. Lectotype (present designation): ♂ (Fig. 42), glued onto a rectangular mounting card, two left and three right mesotarsomeres missing, genitalia extracted, disarticulated and glued to the same mounting card as the specimen, 'Typ ! [written] // Cagliari / Dr. Küster [written] // puncticollis / Küst. [written] // Saprinus / curtus Rosenh. [written] // *Saprinus puncticollis* / Küster, 1849 / LECTOTYPE / Des. T. Lackner 2017 [red label, printed]' (ZSM).

Saprinus cribellaticollis Jacquelin du Val, 1858. Lectotype (present designation): ♀ (Fig. 41), glued on a rectangular mounting card, both antennal funicles broken off; legs: except for right foreleg and left foretibia, all tibiae broken off; with the following labels: tiny, green rectangular label that is glued onto much larger translucent plastic mounting card (original mounting card of J. du Val) and tiny, red, quadrate label, followed by, '*Saprinus cribellaticollis* / Jacquelin du Val, 1858 / LECTOTYPE / Des. T. Lackner 2017 [red label, printed]' (MNHN; coll. Jacquelin du Val).

Saprinus sicanus Marseul, 1862. Lectotype (present designation): ♂ (Fig. 43), glued onto a rectangular mounting card, right antennal funicle, both protarsi, two segments of right mesotarsus, as well as both metatibiae missing, male genitalia extracted, disarticulated and glued onto the same mounting card as the specimen, with the following labels: small, square-shaped blue label, followed by, 'Saprinus / sicanus m. / Schaum '59 [round label, written] // 129c / Saprinus / sicanus m. / Sicile / Schm 679 [round label, written] // 47 (129c) Saprin / sicanus m60 / Sicil. [written] // MUSEUM PARIS / Coll. De Marseul / 2842-90 [printed] // TYPE [red-printed label; followed by: "*Saprinus sicanus* / Marseul, 1862 / LECTOTYPE / Des. T. Lackner 2017 [red label, printed]' (MNHN).

Saprinus revisus Marseul, 1876. Lectotype (present designation): ♀ (Fig. 44), left antennal funicle, left protarsus, and left metatarsus missing, glued onto a rectangular mounting card, female genitalia extracted, glued to the same card as the specimen, 'Saprinus / revisus / rest of label illegible [round, blue label, written] // MUSEUM PARIS / Coll. / De Marseul 1890 [light-green label, printed] // TYPE [red-printed label] // *Saprinus revisus* / Marseul, 1876 / LECTOTYPE / Des. T. Lackner 2017 [red label, printed]' (MNHN).

Additional material examined. ALGERIA: Annaba: Bône [=Annaba], 1 ♀, coll. Dr. Buysson (MNHN; coll. Thérond); Bône [=Annaba], 1 ♂, Desbr. (MFNB). **EGYPT:** Egypt, no further data, 1 ♀, coll. Ancey, (MNHN; coll. Thérond). **FRANCE: Bouches-du-Rhône:** Camargue, 2 ♂♂, L. Puel lgt., Auzat coll. (MNHN; coll. Thérond); Camargue, Vaccares, no date, 1 ♂, 29.v.1937, 1 ♂, J. Thérond lgt. (MNHN; coll. Thérond); Camargue, La Sauvage, 1.v.1928, 1 ♂, L. Puel lgt. (MNHN; coll. Thérond); St. Maries de la Mer, 18.vii.1922, 1 ♀, Dr. A. Chobaut lgt., coll. Dr. Auzat (MNHN; coll. Thérond). **ITALY: Sardinia:** Cagliari, Saline di Stato, 10.v.1989, 1 ♂, 3 ♀♀, C. Meloni lgt. (1 ♂ in CTLA, 3 ♀♀ in MSNG); Stagno di Molentargius, 27.iii.1979, 1 ♂, C. Meloni lgt. (CPVV), 29.v.1988, 1 ♂, 1 ♀, C. Meloni lgt. (MSNG); Serdiana, 8.vi.2003, 6 ♂♂, 6 ♀♀, Fancello lgt. (MSNG); Molentargius, 31.i.1979, 1 ♂, C. Meloni lgt. (MSNG); Cagliari, Campo Santa Gilla, 28.iii.1983, 2 ♀♀, C. Meloni lgt. (MSNG). **Sicily:** Sicily, no further data, 1 ♂., 1 spec., Krtz. (MNHN); Sicilia, no further data, 1 ♀ (MFNB). **LIBYA: Tripoli:** Tripolis, no further data, 1 ♀ (MFNB). **SPAIN: Andalusia:** Andalusia, no further data, 1 ♀ (MFNB). **TUNISIA: Tunis:** Tunis, 1 spec., collector unknown, Reitter coll. (ZSM); Tint, i.–ii.1882, 1 ♂, G. & L. Doria lgt. (ZIN); Carthage, vii. 1914, 1 ♂, Novak lgt. (ZIN); Tunis, no further data, iv.[18]83, 1 ♂ (MFNB); Tunis, no further data, 6 ♂♂, 3 ♀♀ (MFNB); Tunis, ii.–iii.1882, 1 ♂, G. & L. Doria lgt. (MFNB); Radès, iv.1933, 1 ♂, M. Grossclaude (MNHN; coll. Thérond). **Sousse:** Sebkha Kelbia lake near Sousse, 8.iv.1962, 1 ♂, Cl. Besuchet lgt. (MSNG).

Redescription. PEL: 1.60–2.00 mm; APW: 0.75–1.00 mm; PPW: 1.40–1.60 mm; EW: 1.50–1.75 mm; EL: 1.00–1.40 mm. Body (Fig. 40) oblong, oval, rather convex, cuticle dark-brown to black with faint to pronounced greenish hue; legs and antennal funicle light reddish-brown; antennal scape somewhat darker.

Head: mandibles densely punctate dorsally; clypeus densely and coarsely punctate, almost rugose-lacunose, anterior margin slightly elevated; frontal disc with similar, if somewhat weaker punctation; occasionally this punctation is confluent and forms tiny rugae; frontal stria slightly outwardly arcuate, complete to reduced to interrupted medially, supraorbital stria well developed; eyes flattened, but visible from above. Basal third of frontal disc with irregular rounded glabrous area; occipital stria weak, but visible. Antennal scape somewhat darker than reddish antennal funicle, antennae similar to other species of the subgenus, sensory structures of the antennal club studied by De Marzo & Vienna (1982).

Pronotum convex, lateral sides slightly narrowing anteriorly; anterior pronotal angles obtuse, marginal pronotal stria complete, its lateral portion observable in some cases from lateral view only. Entire pronotal disc covered with punctures separated by one to several times their diameter, punctation weakens medially. Scutellum very small, triangular.

Elytra: elytral epipleuron impunctate, marginal epipleural stria complete, marginal elytral stria well developed, complete, continued as apical elytral stria for short distance. Humeral elytral stria well developed, present on basal elytral third; internal subhumeral stria present as a median fragment. Dorsal elytral striae 1–4 well developed, first the longest, slightly bisinuate, reaching approximately two-thirds of elytral length apically, occasionally even slightly longer, striae 2–4 shorter, reaching approximately elytral mid-length apically, while second stria may be longer than striae 3–4; fourth stria usually the shortest, formed in most cases of beads of punctures, stopping short of elytral mid-length apically. Fourth dorsal elytral stria usually not connected (connected in specimens that belong to form '*cribellaticollis*') with the basal end of (in)complete sutural elytral stria, which is in punctures and can be basally shortened. Elytral punctation covers approximately apical half of elytral disc, slightly surpassing elytral mid-length basally, slightly and scatteredly entering elytral intervals in some specimens; punctation rather dense, punctures separated by approximately their own diameter. Basal elytral fifth, fourth elytral interval, elytral flanks and extreme elytral apex impunctate, or with scattered microscopic punctation only.

Propygidium and pygidium: propygidium covered with punctation similar to that of elytra; pygidium with much finer and sparser punctation. Prosternum: prosternal process slightly to moderately concave (observed from lateral view); carinal prosternal striae carinate, divergent on prosternal apophysis, running convergent to sub-parallel to almost approximate apically; from mid-length of prosternal process slightly divergent anteriorly, apically united under tiny loop; interspaces between carinal prosternal striae with scattered punctures. Lateral prosternal stria strongly carinate, convergent apically, united in front of united carinal prosternal striae; lateral sides of prosternal process densely punctate; prosternal foveae moderately large, deep.

Mesoventrite: disc of mesoventrite approximately three times as wide as long, with scattered punctures (occasionally almost glabrous); marginal mesoventral stria complete, slightly inwardly arcuate medially; meso-metaventral stria undulate, bisinuate, in punctures, slightly distanced from meso-metaventral suture medially.

Metaventrite: disc of metaventrite apart from several rows of tiny punctures situated along basal margin entirely glabrous; lateral metaventral stria almost straight, slightly bisinuate, deeply impressed, in punctures, stopping short of metacoxa; lateral disc of metaventrite depressed, with large oval deep punctures separated by less than their diameter; metepisternum with similar punctation, punctures of smaller sizes than those of lateral disc of metaventrite. First visible abdominal ventrite striate laterally, with scattered fine punctation, occasionally almost impunctate.

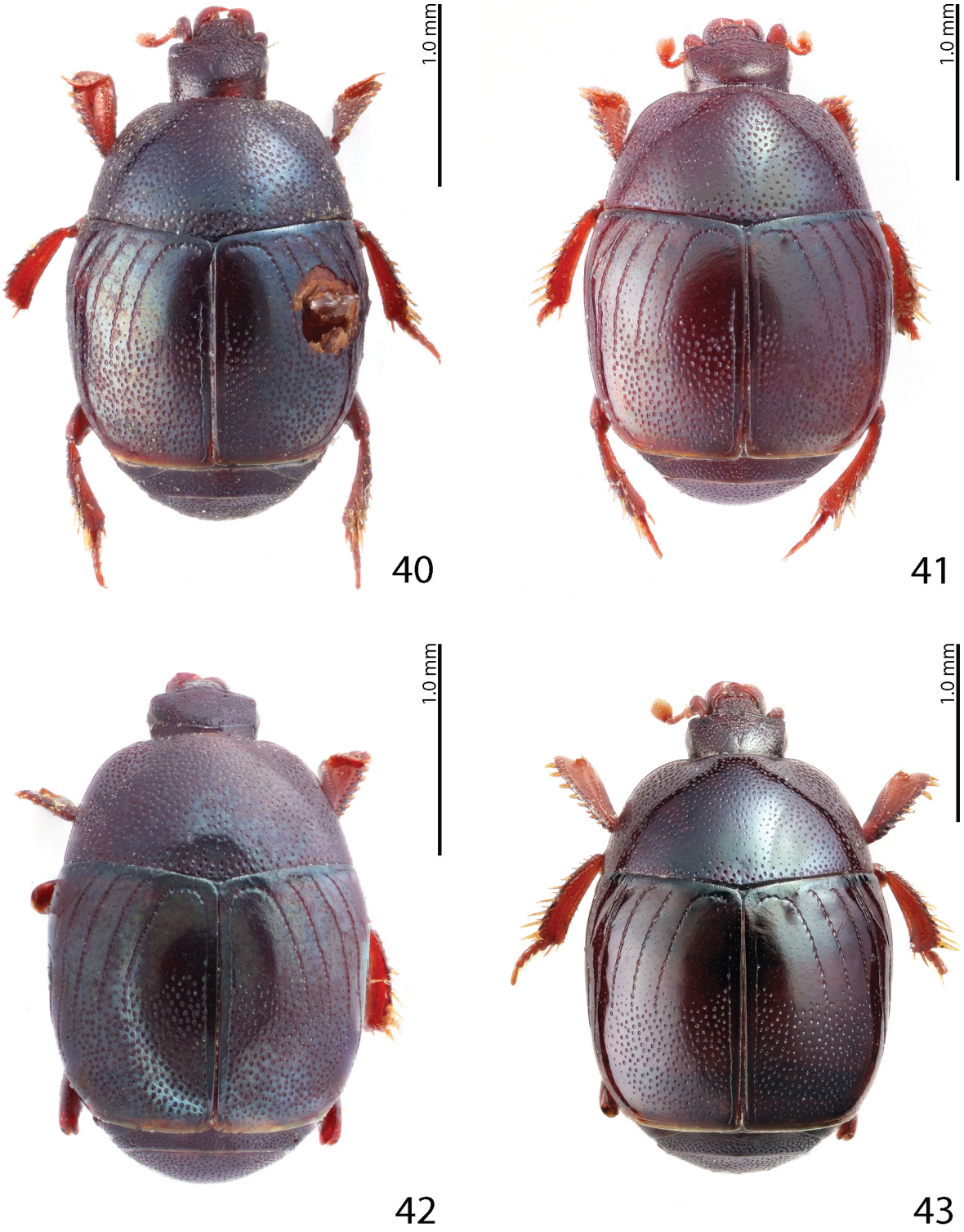
Legs: protibia (Fig. 32) on outer margin with 8–11 short to moderately long denticles diminishing in size proximally, protibial groove deep; rest of leg characters similar to preceding species.

Male genitalia: sternite VIII (Figs 46–47) narrowing apically; sternite VIII and tergite VIII fused laterally (Fig. 48). Tergite IX medio-laterally with tiny acute projection (Figs 49–50). Spiculum gastrale (Figs 51–52) similar to other congeners. Aedeagus (Figs 53–54) almost subparallel, bluntly pointed apically.

Distribution. Hungary(?), France, Italy: Sardinia, Sicily, Spain, Portugal, Greece, Malta, Cyprus, Turkey, Tunisia, Algeria, Libya, Egypt.

Biology. According to Vienna (1980), who repeats Thérond (1975), *H.* (*N.*) *curtus* is found under detritus in sand near the seacoast, where it was collected from near *Suaeda* sp. and *Statice virgata* W. plant roots.

Remarks. The type specimen was part of Rosenhauer's collection, which later became partly a part of R. Oberthür's collection (A. Taghavian, pers. comm. 2017), currently housed in MNHN. The senior author has visited MNHN multiple times and failed to locate the type specimen(s) of this species in the collections of MNHN (including R. Oberthür's collection). Mr. Serge Risser (Pleucadeuc, France) recently purchased the Histeridae collection of the late Marcel René Paul de Vauloger de Beaupré and published its contents in two separate papers (Risser 2013a,b). When reading Risser's paper (2013a) we were intrigued by a specimen identified as *Hypocaccu-*



Figs 40–43. *Hypocaccus* (*Nessus*) *curtus* (Rosenhauer, 1847), dorsal habitus. 40 – *Saprinus curtus* Rosenhauer, 1847, lectotype. 41 – *Saprinus puncticollis* Küster, 1849, lectotype. 42 – *Saprinus cribellaticollis* Jacquelin Du Val, 1858, lectotype. 43 – *Saprinus sicanus* Marseul, 1862, lectotype.

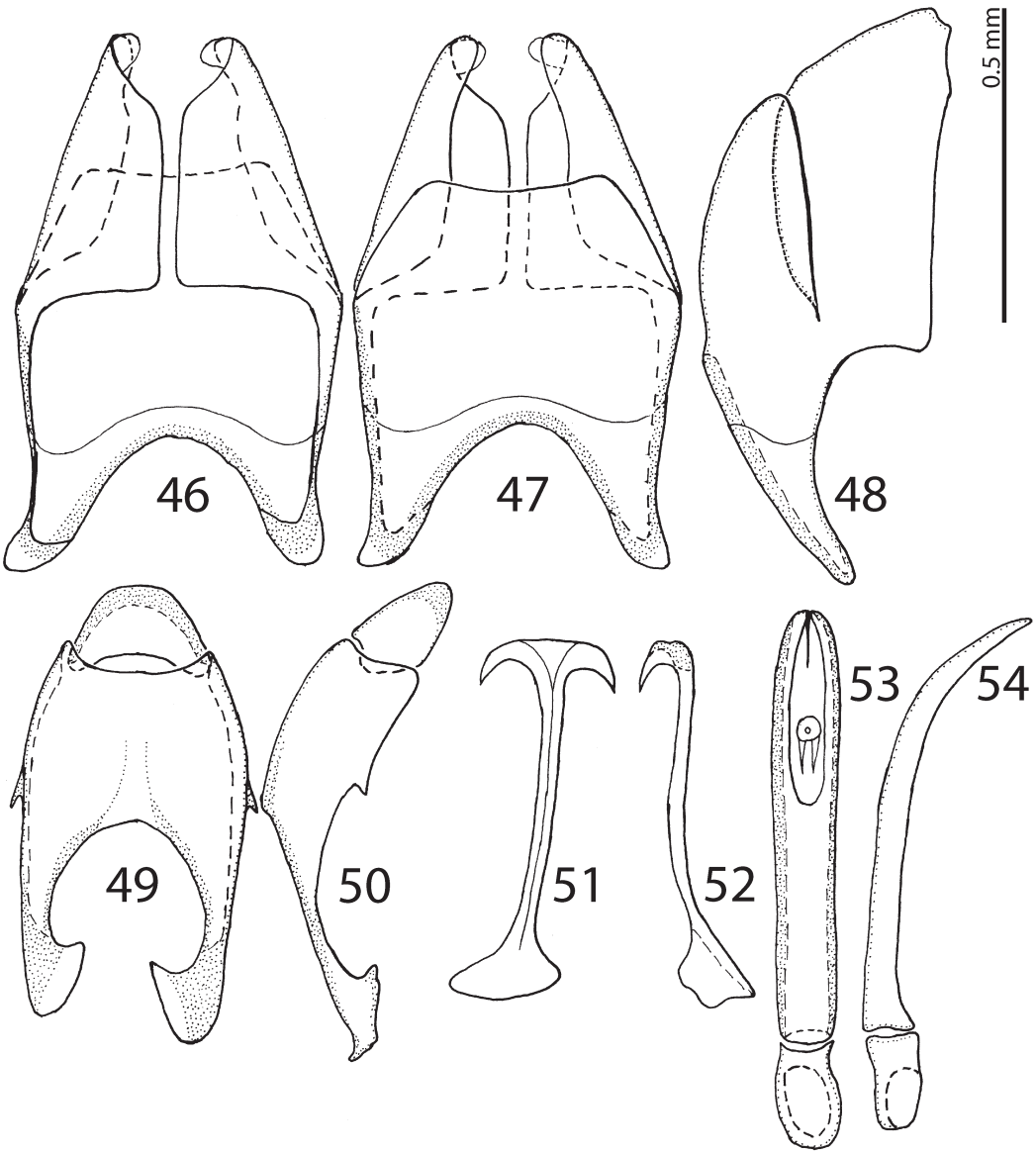
lus (*Nannolepidius*!) *curtus* originating from Hungary and from 'Musaeo Rosenhauer'. Mr. Risser was kind enough to send this specimen to one of us (T. L.). Having examined it as well as compared it to Rosenhauer's original description we concluded that this is the long-lost type specimen of Rosenhauer's species *Saprinus curtus*. This species was described based on an unspecified number of specimens and therefore we designate a lectotype to fix the species identity.

Saprinus curtus has become a mystery practically since its description, which was, however, rather detailed and served the purpose well. The reason for this was probably the fact that the type specimen(s) were unavailable for comparison and perhaps also because no more specimens matching this species were ever reported from 'Hungary'. Based on the description alone, Bickhardt (1916) correctly synonymized the *H.* (*N.*) *puncticollis* (Küster, 1849) with *H.* (*N.*) *curtus*, which was also followed by Reichardt (1932). Müller (1937), however, doubted the two species are synonymous since the apical elytral stria in *H.* (*N.*) *curtus* reaches only mid-length of elytral apex, while, according to Müller (1937) it is complete in *H.* (*N.*) *puncticollis*. Furthermore, Müller (1937) advocated using Küster's *H.* (*N.*) *puncticollis* as the valid (albeit not the earliest) name for this species and suggested, perhaps because of the incomplete description or the absence of the type material, that *H.* (*N.*) *curtus* was a dubious taxon. In the latest treatise on the Histeridae of the USSR (Kryzhanovskij & Reichardt 1976), which in fact included almost the entire Palaearctic fauna, Kryzhanovskij upheld Müller's (1937) opinion, and the name *Hypocaccus* (*Nessus*) *puncticollis* gained priority. This was followed by Mazur (1984, 1997, 2011) in all three editions of his world catalogue of the Histeridae as well as by the latest edition of the Palaearctic Catalogue by Lackner et al. (2015). Having examined both type specimens as well as numerous non-type specimens we can conclude that the two species are synonymous, and the earlier described taxon (*H.* (*N.*) *curtus*) has the priority. Regarding external morphological variation of this species, see Remarks section of *H.* (*N.*) *curtus*.

Saprinus puncticollis was described from a specimen found in Cagliari by Küster himself, as well as from specimen(s) brought by Mr. Handschuh from Cartagena (Spain) (Küster 1849). The depository of the Spanish specimens is unknown and hence we designate the male specimen from Cagliari (Sardinia) as the lectotype to fix the identity of this taxon for purpose of synonymy.

Saprinus cribellaticollis was described based on unknown number of specimens. A single specimen was located in the original collection of Jacquelin du Val, deposited in MNHN, under the label '*Saprinus cribellaticollis*'. Jacquelin du Val did not provide his specimens with any labels, but, according to the curator of Coleoptera in MNHN, A. Taghavian, he kept his types in his private collection. Therefore we presume that this specimen, which completely matches J. du Val's description, is a syntype. The species was described based on an unknown number of specimens and therefore we designate the lectotype to fix the taxon identity for purpose of synonymy.

Figs 44–45. *Hypocaccus* (*Nessus*) *curtus* (Rosenhauer, 1847), dorsal habitus. 44 – *Saprinus revisus* Marseul, 1876, lectotype. 45 – *Hypocacculus* (*Nessus*) *controversus* G. Müller, 1937, lectotype.



Figs 46–54. Male genitalia of *Hypocaccus* (*Nessus*) *curtus* (Rosenhauer, 1847). 45 – VIII sternite and tergite, ventral view; 46 – ditto, dorsal view; 47 – ditto, lateral view; 48 – IX and X tergites, dorsal view; 49 – ditto, lateral view; 50 – IX sternite (spiculum gastrale), ventral view; 51 – ditto, lateral view; 52 – aedeagus, dorsal view; 53 – ditto, lateral view.

Saprinus sicanus was described from Sicily (Italy) based on an unspecified number of specimens, therefore we designate the lectotype to fix the taxon identity for purpose of synonymy.

Saprinus revisus was described from Algiers (Algeria) based on an unknown number of specimens, therefore we designate the lectotype to fix the taxon identity for purpose of synonymy.

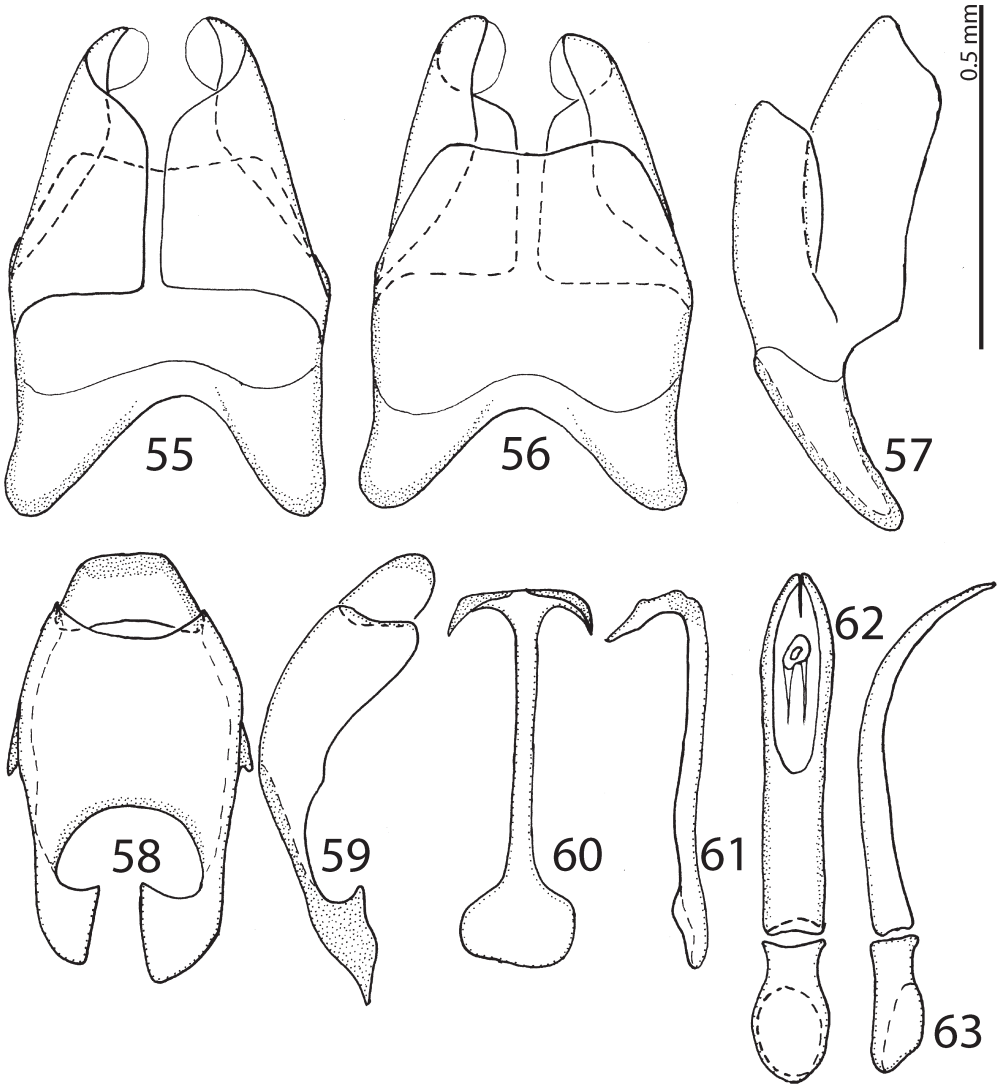
The type of *S. curtus* was found in mid-19th century 'Hungary'. This vague locality could refer to anywhere in the former Hungarian monarchy, which stretched south to the Adriatic Sea. It is possible that this species will be discovered in countries of the former Yugoslavia. It is a rather rare and seldom-collected species apparently spread around the Mediterranean Sea. Its rarity and slight morphological differences regarding dorsal punctation or course of carinal prosternal striae probably account for its numerous synonymies.

Hypocaccus (*Nessus*) *controversus* (G. Müller, 1937)

(Figs 45, 55–63)

Hypocacculus controversus G. Müller, 1937: 115 (original description).
Hypocacculus (*Nessus*) *controversus*: Kryzhanovskij & Reichardt (1976): 204, 212 (keyed, redescription); Mazur (1984): 89 (catalogue); Mazur (1997): 252 (catalogue); Mazur (2004): 93 (catalogue).
Hypocaccus (*Nessus*) *controversus*: Mazur (2011): 208 (catalogue); Lackner et al. (2015): 117 (catalogue).

Type material examined. *Hypocacculus controversus*. Lectotype (present designation): ♀ (Fig. 45), mounted on a triangular mounting card, right metatarsus missing, '♀ [written] // Banat 1909 / Herkulesbad / leg. M. Hilf / Coll. O. Leonhardt [printed] // sbsp. / controversus [written] // TYPUS [light-ochre label, printed] // scat. / Hist. 6 [yellow label, written] // Hypocacculus / (Nessus) / controversus / G. Müller, 1937 / LECTOTYPE / des. T. Lackner 2017 [red label, written]' (CST). Paralectotypes: 1 ♀, side-mounted on a triangular mounting point, left meso- and metatarsus missing, 'Athen / Phaleron [written] // Da Scat. / 6 [yellow label, written] // Hypocacculus (Nessus) / controversus Müll. / Det. T. Lackner 2017 [printed-written] // Hypocacculus / (Nessus) / controversus / G. Müller, 1937 / PARALECTOTYPE / des. T. Lackner 2017 [red label, written]' (CST).1 ♀, 'Saloniki / Schatzmayr [written] //



Figs 55–63. Male genitalia of *Hypocaccus* (*Nessus*) *controversus* (Müller, 1937). 55 – VIII sternite and tergite, ventral view; 56 – ditto, dorsal view; 57 – ditto, lateral view; 58 – IX and X tergites, dorsal view; 59 – ditto, lateral view; 60 – IX sternite (spiculum gastrale), ventral view; 61 – ditto, lateral view; 62 – aedeagus, dorsal view; 63 – ditto, lateral view.

Da Scat. / 6 [yellow label, written] // Hypocacculus (Nessus) / controversus Müll. / Det. T. Lackner 2017 [printed-written] // Hypocacculus / (Nessus) / controversus / G. Müller, 1937 / PARALECTOTYPE / des. T. Lackner 2017 [red label, written]' (CST).

Additional material examined. CYPRUS: Cyprus, no further data, 1 spec. (probably a male, genitalia lost), Baudi, (MFNB). **GREECE:** Greece, 1 ♂ (genitalia lost, sexed by the protarsi), 1 ♀, Emge lgt., C. & O. Vogt coll. (1 ♀ in CTLA, 1 ♂ in MSNG); Greece, 1 ♂, (MFNB). **Attica:** Attica, no further data, 2 ♀♀ (MFNB). **Crete:** Lerapetra E, 0–20 m, 17.–23.iv.2000, 1 ♀, A. Kopetz ltg. (MSNG). **Ionian Islands:** Zante [=Zakynthos], Kalamaki, 1909, 1 ♂, M. Hilf lgt., Coll. O. Leonhard (MNFB). **JORDAN: Irbid:** 5 km NE of El Karama, 31.iii.1994, 31.58°N, 35.36°E, 200 m, 1 ♀, S. Bečvář jun. & sen. lgt. (dubious identification) (MSNG); Toten Meer [= Dead Sea], 10.v.1963, 1 ♀, J. Klapperich lgt. (dubious identification) (MSNG). **ROMANIA: Banat:** Banat, Orşova, 1909, 1 ♀, M. Hilf lgt., coll. O. Leonhard (MFNB). **TUNISIA: Djerba:** Rass Taguernes, 10.–20.ii.1997, 1 ♀, Egger Manfred lgt. (dubious identification) (MSNG). **TURKEY: Izmir:** Smyrna? [=Izmir], no further data, 1 ♂ (MFNB).

Diagnostic description. This species is externally rather similar to the preceding species and therefore here we provide only the diagnostic description outlining the differences between the two taxa. Body (Fig. 45) somewhat more round and more flattened, light to dark brown, with light bronze hue (never with greenish hue). PEL: 2.00–2.30 mm; APW: 1.00–1.10 mm; PPW: 1.50–1.70 mm; EW: 1.65–1.90 mm; EL: 1.25–1.50 mm. Frontal disc more finely punctate than the one of *H.* (*N.*) *curtus*; pronotum medially almost impunctate. The first dorsal elytral stria is only slightly longer than the second (apically both striae 1–2 surpass slightly elytral half), never reaching ¾ of the elytral length apically (in *H. curtus* the first dorsal elytral stria is substantially longer, occasionally surpassing ¾ of elytral length apically). Sutural elytral stria always connected basally with fourth dorsal elytral stria (in *H. curtus* these two striae are joined only in specimens that belong to the '*cribellaticollis*' form), can occasionally be shortened apically. Carinal prosternal striae strongly convergent apically, their apices very approximate, stopping posterad of united lateral prosternal striae; their united apices not forming a 'loop' as in *H. curtus*. Müller (1937) mentioned another character: the mesoventral punctation is supposed to be denser and coarser in '*controversus*'

than in '*puncticollis*' (= *H. curtus*). According to our observations, this is a valid, but not entirely stable character, since even among the few '*controversus*' specimens we were able to examine we saw a specimen with only weak mesoventral punctation; the majority of specimens had their mesoventrite densely punctate. Male genitalia (Figs 55–63) are generally similar to the preceding species, the aedeagi differ most markedly: the one of *H.* (*N.*) *curtus* is sub-parallel and blunted apically, while the one of *H.* (*N.*) *controversus* is shorter, stouter, slightly dilated in apical third with acutely pointed apex (compare Figs 53 and 62).

Note. The two female specimens from Jordan as well as the female from Tunisia are generally somewhat narrower, and their frons is adorned with coarse elongate rugae in place of dense punctures that are present at the type specimens. Therefore we identified these specimens with doubts as *H.* (*N.*) *curtus*.

Distribution. Romania, Greece (including Zakynthos Island and Crete), Montenegro, Spain, Morocco, Jordan(?), Turkey, and Saudi Arabia (Lackner et al. 2015). Newly reported from Cyprus and from Tunisia (with doubt).

Biology. According to Kryzhanovskij & Reichardt (1976) this species is found on sandy banks of rivers and seas. The examined specimens did not bear any ecological data.

Remarks. This species was described from the following localities, but the number of specimens from each locality was not specified: Romania, Banat: Băile Herculeane; Greece: Thessaloniki; Phaleron near Athens; Parnass (= Mount Parnassus?), and Zakynthos Island: Kalamaki. We were able to examine the specimens from Romania, Thessaloniki, Zakynthos Island: Kalamaki and Phaleron near Athens. We chose the best-preserved female specimen from Romania as the lectotype, since it was the only specimen bearing a "type" label and the remaining three specimens as the paralectotypes, respectively. The remaining specimen(s) from Parnass (= Mount Parnassus?) should qualify as paralectotype(s), but their depository is unknown to us.

The specimen from Zakynthos Island: Kalamaki was labelled by the MFNB staff as '*Hypocacculus rufipes* Payk.', since it was placed among other specimens of *H.* (*N.*) *rufipes* originating from the collections of Schmidt and Bickhardt. Although Müller (1937) mentioned that he examined specimen(s) from Zakynthos Island, we cannot be sure that this very specimen can be attributed a paralectotype for the following reasons: Reichardt (1932: 124) already mentioned a series of five specimens with the same label data (Greece, Zante [=Zakynthos] Island, Kalamaki, 1909, Hilf lgt., coll. Leonhard); at least one of these specimens was examined also by Müller. According to Reichardt (1932), two of these were identified by Müller as *H.* (*N.*) *puncticollis* (= *H. curtus*); two were deposited in Schmidt's collection and identified as *H.* (*N.*) *curtus* var. *aenescens* Schmidt in litt.; and a single specimen was deposited in Schmidt's collection and identified as *H.* (*N.*) *rufipes* Payk. The five specimens were supposedly divided between MFNB and Deutsches Entomologisches Institut, Müncheberg, Germany. According to Reichardt, who examined the whole lot, the five specimens doubtlessly belonged to the same species, albeit Reichardt was not sure to which, and placed them as 'near to *rufipes* or transitional forms between *rufipes* and *curtus*, or even hybrids of the two species'. The specimen from Zakynthos we were able to examine is most likely the one that was identified as '*rufipes*' in Schmidt's collection, currently housed in MFNB and therefore probably not examined by Müller, when he described *H.* (*N.*) *controversus*. Albeit the specimen cannot be ascribed a paralectotype status this is the only male specimen of *H.* (*N.*) *controversus* we have seen and we therefore depict its genitalia here.

Reichardt (1932) expressed his frustration with a couple of specimens of *Hypocaccus* (*Nessus*) *curtus* from North Africa, which look externally as *Saprinus revisus* but the aedeagus is different and similar to another species, *Hypocaccus* (*Nessus*) *emendatus* (Peyerimhoff, 1917) occurring in Algeria, Libya, Tunisia, and Egypt (Lackner et. al. 2015). Without examination of the type of *H.* (*N.*) *emendatus*, we are unable to solve this riddle and opt for keeping the status quo.

Acknowledgements

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