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Ground-Beetles of the Subgenus *Cryptophonus* Brandm. et Z. Brandm., Genus *Harpalus* Latr. (Coleoptera, Carabidae)

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Abstract–A taxonomic review of ten species of the subgenus *Cryptophonus* Brandmayr et Zetto Brandmayr, 1982, the genus *Harpalus* Latreille, 1802 is given. In addition to nine Palaearctic species, the Ethiopian *H. agnatus* Reiche, 1849 is also included in *Cryptophonus*. *Harpalus cyrenaicus* Koch, 1939, stat. n. from Libya, which was originally described as a subspecies of *H. litigiosus* Dejean, 1829, is treated as a distinct species. *Harpalus tenebrosus* Dejean, 1829 is treated as a polytypical species with two subspecies: *H. t. tenebrosus* (West Palaearctic) and *H. t. paivanus* Wollaston, 1867, stat. n. (Cabo Verde). A new substitute name *H. melancholicus reicheianus* nom. n. is proposed to replace the objective homonyms *H. reichei* Jacobson, 1907 (non Desbrochers des Loges, 1867) and *H. ovalis* Reiche, 1861 (non Motschulsky, 1844). Lectotypes are designated for *H. tenebrosus* Dejean, 1829, *H. paivanus* Wollaston, 1867, *H. litigiosus* Dejean, 1829, *H. agnatus* Reiche, 1849, *H. fulvus* Dejean, 1829, *H. melancholicus* Dejean, 1829, and *H. ineditus* Dejean, 1829. The status and diagnosis of *Cryptophonus* are discussed and a key to all the species of this subgenus is provided. Data on distribution of each species are provided. The following species are recorded for the first time: *H. tenebrosus* from Afghanistan, *H. grilli* Kataev, 2002 from India (Uttarhand), *H. agnatus* Reiche, 1849 from Tanzania, and *H. fulvus* Dejean, 1829 from Portugal.

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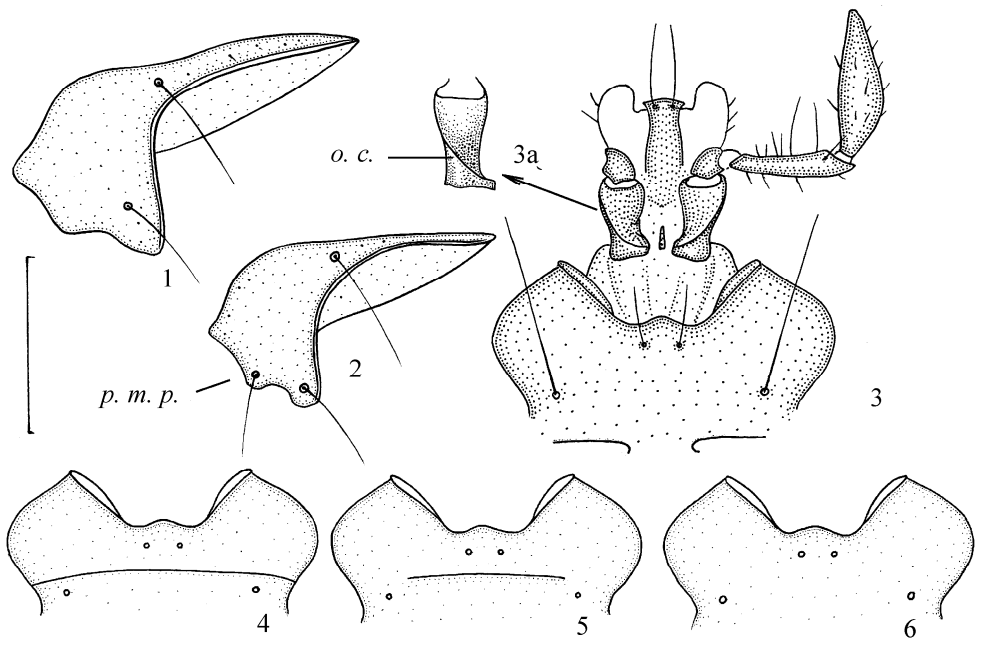
Cryptophonus Brandmayr et Zetto Brandmayr, 1982 has been established as a subgenus of the genus *Ophonus* Dejean, 1821 for four West Palaearctic species of *Harpalus* Latreille, 1802 (*H. tenebrosus* Dejean, 1829, *H. litigiosus* Dejean, 1829, *H. melancholicus* Dejean, 1829, and *H. fulvus* Dejean, 1829) despite their typical "harpaloid" appearance and absence of the pubescence on dorsum typical for *Ophonus*. Such treatment was based on the "ophonoid"-type of larval features of *H. tenebrosus* (larvae of three other species are unknown), in particular of presence of two pronounced teeth on anterior margin of clypeus characteristic of *Ophonus* (Brandmayr et al., 1980; Brandmayr and Zetto Brandmayr, 1982). In addition, some peculiar imaginal features of these species, first of all the presence of reduced pubescence on the dorsal surface of tarsi, were also taken into account. In the former classifications (Jeannel, 1942; Antoine, 1959), all the mentioned species were treated as a natural group of uncertain rank within *Harpalus* based mainly on their aedeagi lacking distinct apical capitulum. Sciaky (1987) in his revision of the West Palaearctic *Ophonus* treated *Cryptophonus* as a separate genus because this taxon, in his opinion, distinctly differs from *Ophonus* in characters of both external morphology and the structure of male genitalia, but unfortunately he did not indicate these differences. Sciaky (l. c.) added three Atlantic island species (*Harpalus schaumii* Wollaston, 1864, *H. janinae* Jeanne, 1984 and *H. paivanus* Wollaston, 1867) to *Cryptophonus* and suggested that this genus should also include some more Asian and African species described within *Harpalus*. Kataev (in Kryzhanovskij et al., 1995) indicated some additional distinctive characters for *Cryptophonus* and ranked it as a species group within the genus *Harpalus*; the genus *Ophonus* was treated by him as distinct from *Harpalus* on the basis of imaginal morphology. More recently (1997, 2002) he included two Himalayan species (*H. idiotus* Bates, 1889 and *H. grilli* Kataev, 2002) into *Cryptophonus*. Based on the morphological, caryological and mitochondrial cytochrome-oxidase data, Martíinez-Navarro et al. (2003, 2005) considered *Cryptophonus* as a separate taxon well differentiated either from *Harpalus* and *Ophonus*. However, this opinion is based on data derived from a very restricted number of species and,



Figs. 1–6. *Harpalus tenebrosus* Dej. (1, 6), *H. agnatus* Reiche (2), *H. grilli* Kataev (3), *H. litigiosus* Dej. (4, 5): (1, 2) left metacoxa; (3) labium; (3a) labial basal palpomere; (4–6) mentum and submentum; *o.c.*, oblique carina; *p.m.p.*, posteromedial pore. Scale = 1 mm.

apparently, much more species of these three taxa should be investigated to justify this conclusion.

While *Ophonus* and *Harpalus* are clearly distinguished by both larval and imaginal morphological characters (Kataev, 1995; Kataev in Kryzhanovskij et al., 1995), it is extremely difficult to separate *Cryptophonus* from *Harpalus* on the basis of distinct imaginal features due to very wide morphological variety within the latter genus. Judging from the imaginal features (particularly, paraglossae setose at margins, mental epilobes rather narrow, metacoxae lacking posteromedial setigerous pores in most species, and elytra glabrous), it seems most reasonable to treat *Cryptophonus* as a subgenus of *Harpalus* at the moment (Kataev et al., 2003). Some distinctive features, for example, the presence of oblique carina on labial basal palpomere and of reduced pubescence on tarsi, are common in *Cryptophonus* and *Ophonus*, but these characters also occur in other *Harpalus* (for example, in some *Pseudoophonus* Motschulsky, 1844 and *Megapangus* Casey, 1914; dense tarsal pubescence is a characteristic of several species of *Harpalus* s. str.). Although epilobes of *Cryptophonus* are slightly wider than those of most other *Harpalus* and their margin is slightly angularly curved before the apex, they are quite distinct from those of *Ophonus* and, for example, *Acinopus* Dejean, 1821, which are much wider and with more pronounced curvation than in *Cryptophonus*. Posteromedial setigerous pore, characteristic of all *Ophonus*, occurs among *Cryptophonus* only in *H. agnatus* Reiche, 1849 (Figs. 1, 2). Although this setigerous pore is absent in most *Harpalus*, it is also always present in some species of *Harpalus* s. str. (for example, in the Palaearctic *H. salinus* Dejean, 1829, and the Afrotropical *H. frater* Chaudoir, 1876 and *H. kibonoti* Alluaud, 1926). Meanwhile, such a considerably important distinctive feature of the genus *Harpalus* as setae at the margins of the paraglossae is present in all the species of *Cryptophonus*.

Within *Harpalus* the adults of *Cryptophonus* are recognized by combination of several characters, most of which are not specific to this taxon. In addition to the plesiomorphic condition of aedeagus lacking prominent apical capitulum, *Cryptophonus* also demonstrate such apomorphic character, unique to Harpali, as mentum and submentum fully fused (Figs. 3, 6). This feature is characteristic of all the species of *Cryptophonus* except for *H. litigiosus* (condition of mentum and submentum in *H. cyrenaicus* Koch, 1939 was not examined). It is interesting that this character in *H. litigiosus* varies individually, and within one population there are specimens having mentum and submentum separated by a complete suture (Fig. 4), as well as specimens having mentum and submentum fused laterally (Fig. 5). Specimens of *H. litigiosus* with fully fused mentum and submentum are unknown to

me. Special attention should be paid to this character because the fact of fusion of mentum and submentum in *Cryptophonus* as well as in *Harpalus* is noted here for the first time.

Cryptophonus seems to be an ancient taxon which evolved rather early from other *Harpalus* members. This fact mostly explains the mosaic set of characters in *Cryptophonus* with each of these being usually typical of different, younger, more specialized groups. It is well known that wide variation of basal diagnostic features is a characteristic of taxa located at the basis of large phylogenetic branches (Mamkaev, 1968, 1979). The geographical distribution of *Cryptophonus* including two species endemic to Canary Islands, two species endemic to the western part of the Himalayas and one endemic to East Africa, also favors the ancient nature of this group.

The goal of this paper is to clarify the diagnosis of *Cryptophonus* and provide a taxonomic review of all the included species, data on their distribution, and a key for identification of species.

MATERIALS AND METHODS

More than 1050 adults of the subgenus *Cryptophonus* were examined.

The following abbreviations are used for the depositories of the specimens examined: AUE, Atatürk University, Erzurum, Turkey; BMNH, The Natural History Museum, London, United Kingdom; FMNH, The Field Museum of Natural History, Chicago, U. S. A.; ISEN, The Institute of Systematics and Ecology of Animals, Siberian Branch, Russian Academy of Sciences, Novosibirsk, Russia; MNHN, Muséum national d'Histoire naturelle, Paris, France; MPU, Moscow Pedagogical University, Moscow, Russia; MZLU, Museum of Zoology, Lund University, Lund, Sweden; NHMB, Naturhistorisches Museum, Basel, Switzerland; NHMW, Naturhistorisches Museum, Wien, Austria; NME, Naturkundemuseum Erfurt, Germany; NRM, Naturhistoriska Riksmuseet, Stockholm, Sweden; OÖLL, Oberösterreichisches Landesmuseum, Linz, Austria; TMB, Természettudományi Múzeum (Hungarian Natural History Museum), Budapest, Hungary; ZIN, Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia; ZMB, Museum für Naturkunde, Berlin, Germany; ZMUN, Zoological Museum, University of Oslo, Norway; cAK, Coll. A.G. Koval, St. Petersburg, Russia; cAN, Coll. A.V. Anichtchenko, Riga, Latvia; cBL, Coll. I.A. Belousov, St. Petersburg, Russia; cDED, Coll. S.V. Dedyukhin, Izhevsk, Russia; cFD, reference collection of D.N. Fedorenko at A.N. Severtsov Institute of Ecology and Evolution, Russian Academy of Sciences, Moscow, Russia; cFNC, Coll. R. Fencl, Plzen, Czech Republic; cGRK, Coll. V. Gurko, Chernovtsy, Ukraine; cIKB, Coll. I.I. Kabak, St. Petersburg, Russia; cIL, Coll. E.V. Iljina, Makhachkala, Daghestan, Russia; cISL, Coll. I.A. Solodovnikov, Vitebsk, Belarus; cJN, Coll. C. Jeanne, Langon, France; cKLSH, Coll. M.Yu. Kalashyan, Erevan, Armenia; cKM, Coll. E.V. Komarov, Volgograd, Russia; cKZL, Coll. A.E. Kozlov, Novosibirsk, Russia; cKZM, Coll. V.O. Kozminykh, Perm, Russia; cMEL, Coll. F. Melyakh, Ekaterinburg, Russia; cMKH, Coll. V.A. Mikhailov, Tsyurupinsk, Ukraine; cMTS, Coll. V.A. Matsyuk, Tiraspol, Pridnestrovian Moldavian Republic; cOV, Coll. S.V. Ovchinnikov, Bishkek, Kyrgyzstan; cPCH, Coll. A.V. Puchkov, Kiev, Ukraine; cPNV, Coll. L. Penev, Sofia, Bulgaria; cSCH, Coll. J. Schmidt, Marburg, Germany; cSHL, Coll. V.G. Shilenkov, Irkutsk, Russia; cSUM, Coll. A.M. Sumarokov, Dnepropetrovsk, Ukraine; cVB, Coll. V.V. Belov, Maplewood, New Jersey, U. S. A.; cVR, Coll. A.G. Voronin, Perm, Russia; cWR, Coll. D.W. Wrase, Berlin, Germany; cZM, Coll. A.S. Zamotajlov, Krasnodar, Russia; cZR, Coll. V. Zieris, Pardubice, Czech Republic.

The body length was measured from the anterior margin of clypeus to elytral apex, the length and width of metepisterna were measured along their inner and anterior margins, respectively.

TAXONOMY

Subgenus ***Cryptophonus*** Brandmayr et Zetto Brandmayr, 1982

Cryptophonus Brandmayr et Zetto Brandmayr, 1982: 81 (as a subgenus of *Ophonus*). Type species: *Harpalus tenebrosus* Dejean, 1829, by original designation.

Diagnosis. Body and tarsi glabrous dorsally, occasionally tarsi covered with scarce setae on some tarsomeres. Temples glabrous. Antennae pubescent beginning from antennomere 3. Mentum and submentum fully fused in most species, rarely (in *H. litigiosus*)

either fused laterally only or separated by complete transverse suture. Epilobes of some species slightly widened anteriorly and with small angular prominence on inner margin. Labial basal palpomere with oblique carina ventrally. Dorsal side of ligular sclerite either glabrous or with few short preapical setae. Pronotum with one lateral seta on each side (in *H. schaumii* additionally with several much shorter setae in apical angles). Basal pronotal margin completely bordered. Elytra each with one discal setigerous pore on interval 3 and with only few secondary setigerous pores among primary pores of marginal series of interval 9. Elytral subapical sinuation shallow or moderately deep. Last visible sternite and tergite without pronounced sexual dimorphism. Metacoxae in most species without posteromedial setigerous pore, only in *H. agnatus* with such pore. Protibia with one ventroapical spine in most species (usually with two spines in *H. melancholicus*) and three preapical spines on outer margin. Male mesotarsomere 1 usually without adhesive vestiture ventrally, rarely (in *H. melancholicus reicheianus* nom. n.) with a pair of small adhesive scales ventroapically. Median lobe of aedeagus without apical capitulum or the latter very small, almost indistinct; apical orifice shifted to the left; internal sac with two or one macrospines, and additionally in most species with one or several small spiny patches.

Larva (described for *H. tenebrosus* and *H. schaumii* only) with two pronounced teeth on anterior margin of clypeus (nasale), highly reduced sensorial appendage on antennomere 3 and two short preapical setae on antennomere 2.

Composition and distribution. The subgenus comprises nine Palaearctic species distributed mostly in the Ancient Tethyan Region, predominantly in the Mediterranean, and one Ethiopian species (*H. agnatus*) ranging over the northeastern Africa. Among the Palaearctic species, four species (*H. tenebrosus*, *H. litigiosus*, *H. melancholicus* and *H. fulvus*) are widely distributed (*H. tenebrosus* and *H. melancholicus* are polytypical, each with two subspecies) and five species are more local: *H. idiotus* Bates, 1889 occurs in West Himalaya; *H. grilli* Kataev, 2002 is distributed in the western portion of Central Himalaya; *H. schaumii* and *H. janinae* are endemic to Canary Islands; and *H. cyrenaicus* Koch, 1939, stat. n. is known only from North Libya.

Bionomics. Adults of the subgenus occur in arid and semiarid landscapes, in open habitats covered with sparse vegetation, usually on sandy soil.

A Key to Species of Cryptophonus

1. Pronotal apical angles with one or several rather long marginal setae (Fig. 17). Elytral striae distinctly punctate. Aedeagus as in Figs. 37–40 .... *H. schaumii.*

—Pronotal apical angles without marginal setae (occasionally with very short, hardly noticeable hairs). Elytral striae smooth, at most with very fine punctures recognized on bottom of striae in basal half of each elytron. Aedeagus not as above ..... 2.

2. Elytra with short row of punctures at apex of interval 8 (sometimes only one or two punctures present) ..... 3.

—Elytra without punctures at apex of interval 8 ..... 6.

3. Two penultimate abdominal sternites each in addition to two obligate setae also with numerous long setae. Metafemur with at least ten setigerous pores along posterior margin. Pronotum widest at base. Aedeagus as in Figs. 56–59 .... *H. melancholicus* (4).

—Two penultimate abdominal sternites without additional setae, only with two obligate setae each. Metafemur with four to six setigerous pores along posterior margin. Pronotum widest about the middle. Aedeagus not as above ..... 5.

4. Prosternal medial process short, not produced posteriad (Fig. 25). Male mesotarsomere 1 with pair of adhesive scales ventrally .... *H. melancholicus melancholicus.*

—Prosternal medial process strongly produced posteriad and acute at apex (Fig. 26). Male mesotarsomere 1 without adhesive scales ventrally .... *H. melancholicus reicheianus* nom. n.

5. Aedeagus (Figs. 43, 44) slender, rather strongly curved and with longer terminal lamella. Pronotum widest at the middle, punctate along almost entire base, at most with narrow smooth area between shallow basal foveae ..... *H. litigiosus.*

—Aedeagus (Figs. 52–55) robuster, less strongly curved and with shorter terminal lamella. Pronotum widest slightly before middle, punctate in and around deeper basal foveae .... *H. cyrenaicus* stat. n.

6. Two penultimate abdominal sternites each with few rather long setae in addition to two obligate setae. Color paler, at least femora brownish-yellow. Aedeagus as in Figs. 50, 51 ..... *H. fulvus.*

—Two penultimate abdominal sternites without additional setae, each only with two obligate setae (in *H. janinae* with two setae on each side). Color darker, at least femora black or dark brown. Aedeagus not as above ..... 7.

7. Pronotal basal edge ciliate. Aedeagus with one macrospine in internal sac ..... 8.

—Pronotal basal edge glabrous. Aedeagus with two macrospines in internal sac ..... 10.

8. Median lobe of aedeagus (Figs. 27–31) more strongly curved and with longer terminal lamella; internal sac with lateromedial group of small spines ..... *H. tenebrosus* (9).

—Median lobe of aedeagus (Figs. 35, 36) less strongly curved and with shorter terminal lamella; internal sac without lateromedial group of small spines .... *H. idiotus.*

9. Metepisterna very long, about 1.5–2.0 times as long as wide. Aedeagus as in Figs. 27, 28 .... *H. tenebrosus tenebrosus.*

—Metepisterna shorter, 1.3–1.4 times as long as wide. Aedeagus as in Figs. 29–31 .... *H. tenebrosus paivanus* stat. n.

10. Pronotum densely punctate basally and with at least scattered punctures along apical and lateral margins. Aedeagus as in Figs. 32–34 ..... *H. grilli.*

—Pronotum punctate basally only. Aedeagus not as above ..... 11.

11. Metacoxa with additional posteromedial setigerous pore (Fig. 2). Basal margin of pronotum shorter than elytral base between humeral angles. Aedeagus as in Figs. 46–49 ..... *H. agnatus.*

—Metacoxa without additional posteromedial setigerous pore (Fig. 1). Basal margin of pronotum slightly longer than elytral base between humeral angles. Aedeagus as in Figs. 41, 42 ..... *H. janinae.*

Harpalus tenebrosus Dejean, 1829
(Figs. 1, 6–9, 21, 27–31, 60, 61)

Harpalus tenebrosus Dejean, 1829 : 358. Type locality: "Paris," France (restricted here based on designation of lectotype).

Description. Length 8.2–11.8 mm. Body coloration black or dark brown, often with light bluish or violet tinge on dorsum. Palpi and antennae brownish, antennomeres more or less strongly infuscate; legs dark brown, usually with paler tarsi; tibiae occasionally also slightly paler than femora.

Microsculpture on head fine, slightly obliterate, consisting of isodiametric meshes; pronotum with microsculpture consisting of weakly transverse, occasionally obliterate meshes on disc and of more distinct, isodiametric meshes on lateral intervals; elytra throughout with distinct isodiametric meshes.

Mentum and submentum fully fused (Fig. 6); median tooth of mentum very short and wide. Pronotum (Figs. 7–9) widest in middle or just before it; pronotal sides rounded anteriorly, arcuately or almost rectilinearly converging posteriad, with one setigerous pore slightly before middle; basal margin slightly shorter than base of elytra between humeral angles, with distinct cilia along basal edge; surface fairly densely punctate along base. Elytron with impunctate striae, without row of setigerous pores at apex of interval 8, but occasionally with short row of such pores at apices of intervals 5 and 7; all intervals apically very narrow and strongly convex. Prosternal medial process short, not produced posteriad (as in Fig. 25). Metepisternum long, very strongly narrowed posteriad. Two penultimate abdominal sternites glabrous, only with two obligate setae each. Metacoxa without additional posteromedial setigerous pore (Fig. 1). Metafemur with five to seven setigerous pores along posterior margin. Male mesotarsomere 1 without adhesive scales ventrally.

Apical stylomere short, strongly curved, with wide base (Figs. 60, 61).

Aedeagus (Figs. 27–31) rather strongly, arcuately curved in lateral aspect, with apical portion distinctly bent to the right in dorsal aspect; terminal lamella in dorsal aspect moderately long and slender, narrowed basally, forming just at tip a tiny denticle prominent ventrad; internal sac with following sclerotic elements: one strongly curved macrospine, medial group of small spines and usually also apical spiny patch on right side (occasionally this spiny patch absent as in Figs. 30 and 31).

Larva with two pronounced teeth on anterior margin of clypeus, highly reduced sensorial appendage on antennomere 3 and two short preapical setae on antennomere 2 (Brandmayr et al., 1980; Brandmayr, Zetto Brandmayr, 1982; Arndt, 1991).

Distribution. This species is widely distributed over the West Palaearctic from Madeira, North West

Africa and Iberian Peninsula in the west to Tien Shan and Hissar–Darvaz Mountains in the east. It has been described from the series collected in France, Spain, Germany, Austria, Croatia ("Dalmatie") and North Africa ("la cote de Barbarie"). According to our data, the populations from Cabo Verde Islands, described as a separate species *H. paivanus* Wollaston, 1867, should be assigned to *H. tenebrosus* as its subspecies.

Bionomics. Termophilous species, occurring in various dry, open habitats; most common near coasts.

Comparative remarks. *Harpalus tenebrosus* is very similar to *H. idiotus* in many characters including the male genitalia; both species are separated from other members of *Cryptophonus* by having the pronotal basal edge distinctly ciliate and the internal sac of aedeagus with one macrospine.

Harpalus tenebrosus is treated here as a polytypic species with two subspecies: *H. t. tenebrosus* and *H. t. paivanus*, stat. n.

Harpalus tenebrosus tenebrosus Dejean, 1829
(Figs. 7, 8, 27, 28)

Harpalus tenebrosus Dejean, 1829 : 358. Type locality: "Paris," France (restricted here based on designation of lectotype).

Harpalus solieri Dejean, 1831 : 841. Type locality: "midi de la France."

Harpalus femoralis Chaudoir in Chaudoir et Hochhuth, 1846 : 177 (non Stephens, 1828). Type locality: "Environs de Lenkoran," Azerbaijan.

Harpalus chaudoiri Motschulsky, 1850 : 27 (substitute name for *H. femoralis* Chaud.).

Harpalus wollastoni Dawson, 1854 : 144. Type locality: "at Slapton Ley, Devonshire," Great Britain.

Harpalus litigiosus sensu Wollaston, 1854 : 51 (non Dejean, 1929).

Harpalus transcaspicus Tschitschérine, 1898 : 181. Type locality: "Aschabad," Turkmenistan.

Harpalus (*Amblystus*) *debdouensis* Obenberger, 1918 : 58. Type locality: "Debdou," Morocco.

Harpalus tenebrosus centralis Schauberger, 1929 : 193. Type locality: "N. Osterr.: Wien; Burgenland: Neusiedler See; Mahren," Austria.

Harpalus tenebrosus centralis ab. *reductepunctatus* Schauberger, 1929 : 194 (unavailable name). Type locality: "Wien," Austria.

Harpalus tenebrosus centralis ab. *kulatai* Kult, 1944 : 6, 10 (unavailable name). Type locality: "Umg. Prag: Hlubocepy," the Czech Republic.

Body length 8.2–11.8 mm. Metepisterna very long and narrow, about 1.5–2.0 times as long as wide (Fig. 21). Aedeagus as in Figs. 27, 28.

Type material. Lectotype of *Harpalus tenebrosus* (present designation; recognized, but not published by J. Serrano): ♂, labeled "♂," "Paris c. D." [Dejean's handwriting], "*tenebrosus* Dej." [Dejean's handwriting], "Lectotype" [printed], "*Harpalus tenebrosus* Dejean, 1829 designato por J. Serrano" [printed] (MNHN).

Holotype of *Harpalus transcaspicus*: ♀, labeled "Askhabad, 3.V.88. A. Semenov" [in Cyrillic], "*Harpalus transcaspicus* m., typ" [Tschitschérine's handwriting], "Holotypus," "(*H. transcaspicus* Tschit.) = *H. tenebrosus* Dej., Z. Mlynář det., 1976" (ZIN).

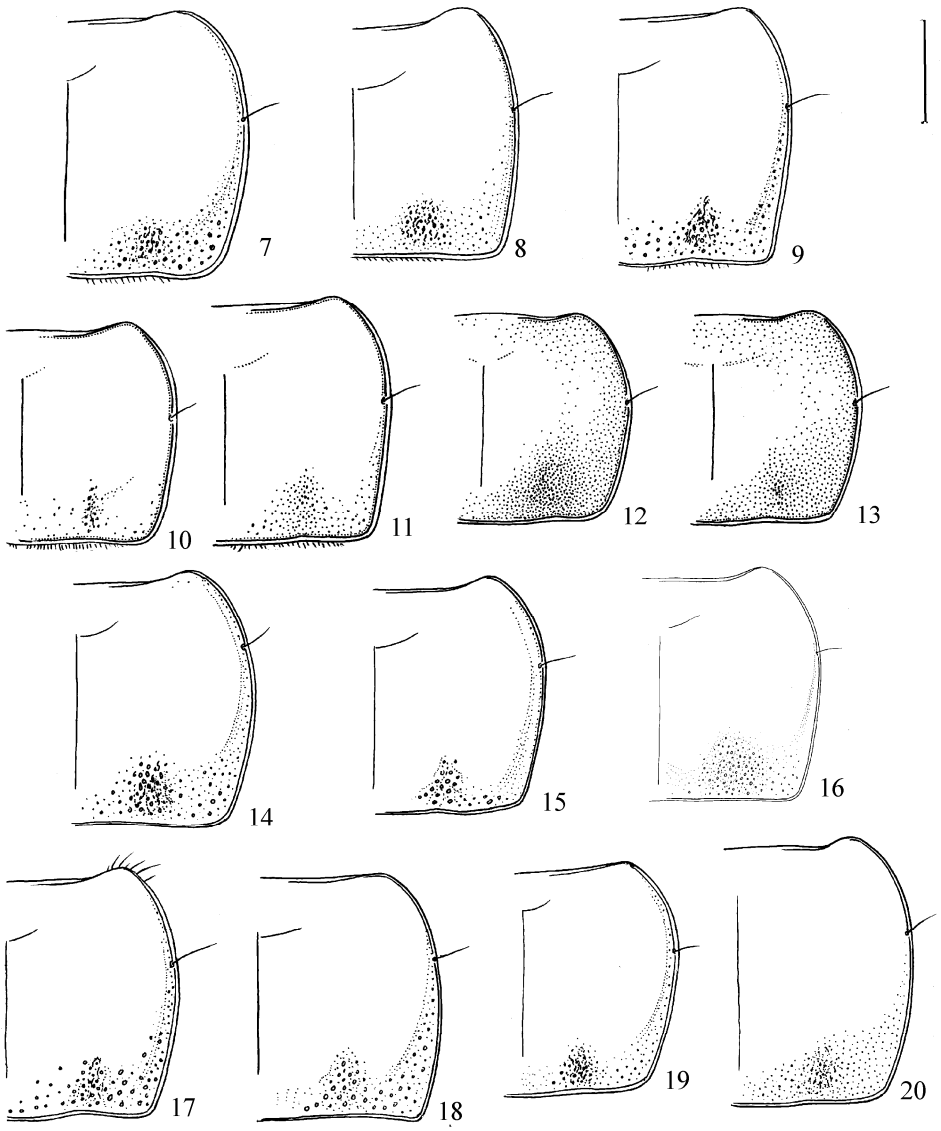
Additional material. **Morocco.** 1 spm., "Maroc, Karakeel, H. W. Waldén" (MZUL); 7 ♂, 6 ♀, "Tanger / ex coll. Glasunov" (ZIN); 1 ♀, Haut Atlas, Asni, 1000 m, 14.V.1983, Szél & Korsos leg. (TMB); 3 ♂, 6 ♀, Rabat, 25.IV.1992, V. Biža & Z. Koštál leg. (cZR, ZIN); 1 ♂, Ifrane, 17.IV.1992, V. Biža & Z. Koštál leg. (cZR); 4 ♂, 2 ♀, Tetuan, 15.IV.1992, V. Biža & Z. Koštál leg. (cZR, ZIN); 1 ♀, Moulay–Bousselham, 22.V.1995, S. Kadlec leg. (cZR); 2 ♀, Agoz, 12.V.1992, B. Makovsky leg. (cZR); 1 ♂, 1 ♀, Larache env., Loukos River, 35°12′39″N, 06°08′03″E, 13.IV.2010, V. Zieris leg. (cZR). **Tunisia.** 1 ♀, "Tunise, Kairouan" (ZIN); 1 ♂, 1 ♀, "Kairouan, Tunis, Exp. Obenb." (ZIN); 1 ♀, "Tunesia, Reitter" (ZIN); 1 ♀, "Carhagene" (ZIN); 1 ♂, "Insula Djerba, in Dünen," 16.IX.1991, H. J. Bremer leg. (ZMB); 2 ♂, 2 ♀, Kasserine, 570 m, 25.IX.1991, H. J. Bremer leg. (ZMB, ZIN); 1 ♀, "N ufer des Schott, el Fajaj p. Menzel el Habib," 25.IX.1991, H. J. Bremer leg. (ZMB); 15 spms. (♂ and ♀), Boughara, 3–11.IV.1977, S. Mahunka leg. (TMB, ZIN); 2 spms., Menzel, Chaker, Hadj Kacem, 6.IV.1977, S. Mahunka leg. (TMB); 1 spm., Degache, 15.IV.1977, S. Mahunka leg. (TMB); 1 spm., Plage Chaffar, Nakta, 7.IV.1977, S. Mahunka leg. (TMB); 2 spms., 10 km from Alchichine, 10.IV.1977, S. Mahunka leg. (TMB); 1 spm., Oued Esmara between Mahares Gabes, 59 km S from Sfax, 10.IV.1977, S. Mahunka leg. (TMB); 2 spms., 15 km from Sfax, 4.IV.1977, S. Mahunka leg. (TMB); 1 spm., Thyna, 12 km on the Gafsa road, 6.IV.1977, S. Mahunka leg. (TMB); 5 spms., Skanés,

8 km of Monastir, 11–14.IX.1977, S. Mahunka leg. (TMB, ZIN); 1 spm., Monastir, 3 km W of village, 15.IX.1977, S. Mahunka leg. (TMB); 1 spm., Khenis, 10 km S of Monastir, 20.IX.1977, S. Mahunka leg. (TMB). **Algeria.** 2 ♂, 1 ♀, "Algeria" (ZIN); 1 ♂, "Alger, A. Strauch" (ZIN); 1 ♂, "Batna" (ZIN); 1 ♂, 2 ♀, "Tilaton, Djabel, Qureo, Alg." (ZMUN); 1 ♂, "Oran" (ZMUN). **Egypt.** 1 ♂, 1 ♀, "Egypte, Unter-Agypten, Umg. Burg El-Arab," 10–16.X.1990, E. Doehring & H.J. Bremer leg. (ZMB); 1 ♀, "Bamleb, 18.5.12," "Coll. Alfieri, Egypte" (FMNH). **Portugal.** 1 ♀, "Portugal, Coimbra, ex coll. Natwig" (ZMUN); 1 ♀, "Coimbra / ex coll. Tschitschérine" (ZIN); 1 spm., "Ribatego, Benavenre" (MPU); 1 ♂, "Albufaira, 20.V.1977" (ZIN); *Madeira*: 1 ♀, Porto Santo (Mad.), 6–12.VII.1957, Lindberg leg. (MNHN); 1 ♂, Serra d'Agua, 16–19.VII.1957, Lindberg leg. (MNHN). **Spain.** 1 ♀, "S. Ildefonsa, Spanien" (ZIN); 1 ♂, 1 ♀, Madrid, Tres Cantos, 22.VIII.–5.IX.2001, A. Anichtchenko leg. (cAN); *Majorka*: 1 ♀, "I. Baleares, Mallorca, Puerto de Audraitx," 22–31.V.1972, S. Mahunka leg. (TMB); 1 ♂, 1 ♀, "Rabassa, Mallorka, Breit / ex coll. Glasunov" (ZIN); 1 ♀, "Sa. Burguesa, Mallorka, Breit" (ZIN); *Canary Islands*: 1 spm., "Las Palmas-Agaete, Gran-Canaria" (NRM); 1 spm., "Fuerteventura, Puerto de Cabras-Tulneje-Pajara" (NRM); 2 ♀, Fueteventure, Betancuria, 12.IV.1974, P. Orami leg. (FMNH); 3 ♂, Tenerife, Teno mts., Erios env., 900–1100 m, 3.XII.2004, Z. Koštál leg. (cZR, ZIN). **France.** 1 ♂, "Chanturques pres Clermont-FD, Puy de Dome, sous les pierres, 30.IV.1951, G. Colas Rec." (MNHN); 1 ♂, "SW France, Carcassonne" (ZMUN); 1 ♀, "Gallia, Savoie, Evel" (ZIN); 1 ♀, "Gall., Nurger" (ZIN); 2 ♂, "Fr. mer." (ZIN); 1 ♀, "Nitsa, 1901, G.B. Olsufjev" (ZIN); *Corsica*: 1 ♂, "Corsica" (ZMUN); 1 ♂, 1 ♀, "Corsica, Portovecchio, 27.IV.1962, ex coll. Kurnakov" (ZIN). **Italy.** 1 ♂, "Lago d'Iseo (Lomb. sept.), Pisoque, Oglio, 13.IV.1906, coll. Glasunov" (ZIN); *Sardinia*: 2 ♀, "Sardinia, U Lostis" (ZMUN). **Great Britain.** 1 spm., Plymonth, Devon, 7–26.V.1954, C. Lindroth leg. (MZLU); 4 ♂, "Dodman P. Cornwall," 26.VII.1978, T. Kvamme leg. (ZMUN); 1 ♂, 1 ♀, St. Albans Head Dorzet, 28.VII.1978, T. Kvamme leg. (ZMUN). **Austria.** 1 ♀, "Austria, Wien" (ZMUN). **Hungary.** 1 ♂, "Märiabesnyö, Dr. J. Fodor leg." (TMB); 1 ♂, "Kalocsa, Speiser" (TMB). **Croatia.** 1 ♂, Dubrovnik, Meereskulste, 16.VIII.1967, S. Horvatovich leg. (TMB); 1 ♀, "Dalm." (ZIN). **Macedonia.** 1 ♂, Tetovo Prov., Mts. Šar Planina, Popova Šapka, 1800 m, 29.V.1998, A. Podlussany leg. (TMB). **Bulgaria.** 1 ♂, Albena, at light, 22.VII.1999, A. Bibilov leg. (ZIN); 1 ♀, Montana env., Cibrica River, at light, 27.VI.2005, V. Zieris leg. (cZR); 1 ♀, Srebarna, 20.VIII.1989, N. Kodjabachev leg. (ZIN); 1 ♂, SE of Blagoevgrad, Strula River, 19.X.1985, O. Kryzhanovskij leg. (ZIN); 1 spm., "Zlatograd" (cPNV); 1 spm., "Srebarna" (cPNV). **Greece.** 2 ♂, 1 ♀, Athens, V.1919, L. Sheljuzhko leg. (ZIN); 1 spm., Siderocastro, Phéa Petra, Lindberg leg. (MZLU); 1 spm., "Korfu, Korission" (MZLU); 1 spm., Korfu, Kerkyra, Palm leg. (MZUL); 1 spm., Kos, Bellegitto, Palm leg. (MZUL); 1 spm., Kos, Ammos, Palm leg. (MZUL); 1 spm., *Crete*: "Kreta, Sitia, Lindberg leg." (MZLU). **Cyprus.** 1 spm., Akrotiri, H.W. Waldén leg. (MZLU). **Moldova.** 1 spm., Stranenskii Distr., Gidigikh, at light, Matsyuk leg. (cMTS); 2 spms., Kagul Distr., Roshu environs, A. Matalin leg. (MPU, cISL); 1 ♀, Purkari, 12.IV.1911, Chernavin leg. (ZIN); 1 ♀, Kitskany, 4.VIII.1968 (ZIN); 2 ♂, 1 ♀, Kishinev environs, at light, 28.VII–1.VIII.1983, A. Koval leg. (ZIN). **Ukraine.** *Odessa Prov.*: 1 ♀, Odessa environs, Khadzhibeili, garden, 15.VIII.1921, D. Znojko leg. (ZIN); 1 ♂, 1 ♀, Odessa, 28.VII.1920, D. Znojko leg. (ZIN); *Dnepropetrovsk Prov.*: 1 ♂, Dnepropetrovsk, IX.2008, A. Shukhenko leg. (ZIN); 1 ♀, *Lugansk Prov.*: Melovskoi Distr., Krinichnoe environs, Streletskaya Steppe, 24–30.VII.2010, V.A. Tkach leg. (cPCH); *Kherson Prov.*: 1 ♂, Anan'evo Distr., 23.IV.1921, D. Znojko leg. (ZIN); 1 spm., Askania-Nova, steppe (ZIN); *Krymskaya Prov.*: 1 ♂, Lake Alma, 11.VI.1907, A. Iljin leg. (ZIN); 1 spm., Krasnye Pechery (cISL); 1 ♂, 2 ♀, Evpatoria, Zaozernoe, at light, 4–7.VII.1998, I. Solodovnikov leg. (cISL); 1 ♀, Verkhnyaya Kutuzovka environs, 26.VII.2004, Martynov leg. (cPCH); 1 ♂, 2 ♀, Agarmysh, Staryi Krym environs, 29.VI.1905 and 22.VI.1906, A. Kiritshenko leg. (ZIN); 1 ♀, Staryi Krym, 8.VII.1904, D. Glazunov leg. (ZIN); 4 ♂, 1 ♀, Simferopol, 26.VI.–3.IX.1906 and 15–27.VI.1907, A. Kiritshenko leg. (ZIN); 1 ♀, Simferopol, Dzhalman, 22.IX.1906 (ZIN); 1 ♂, Bakhchisarai, 26.V.1913, V. Pliginskij leg. (ZIN); 1 ♀, Alsu, Sevastopol environs, 22.VIII.1908, V. Pliginskij leg. (ZIN); 1 ♀, Sevastopol, V. Pliginskij leg. (ZIN); 1 ♂, 1 ♀, Sudak, 26.VI.1904 and 20.VII.1907, D. Glazunov leg. (ZIN); 1 ♀, Sudak Distr., Privetnoe environs, 31.VII.1997, A. Legalov leg. (ISEN); 1 ♀, Kara Dag, at light, 27.VI.1987, S. Sinev leg. (cBL); 1 ♀, Kerch, 2–19.VIII.2005, A.V. Prokoshin leg. (cISL); 1 ♀, "Kerch, 7.III.1902, coll. Kiritshenko" (ZIN); 1 ♂, Semisatip, at light, 17.VII.1999, V. Kuzmin leg. (cISL). **Russia.** *Rostov*

Prov.: 1 ♀, Olginskaya, at light, 26.VII.1963, Minoranskij leg. (ZIN). *Krasnodar Terr.:* 1 spm., Krasnodar, A. Zamotajlov leg. (cZM); 1 ♂, Kanevskoe Distr., Novoderevyankinskaya environs, pitfall, 4–25.VIII.2005, O.A. Tsymbalyuk leg. (cAK); 1 ♂, Armavir, at light, 22.VII.1977, L. Kryazheva leg. (ZIN); 1 ♂, Armavir, 20.IV.1911, Volnukhin leg. (ZIN); *Kabardino-Balkaria*: 1 ♂, 1 ♀, Nalchik environs, Nalchik Valley, 15.VI. and 2.VII.1909, D. Glazunov leg. (ZIN); *Stavropol Terr.*: 3 ♂, 1 ♀, Stavropol, V. Lutshnik leg. (ZIN); 1 ♂, 2 ♀, Pyatigorsk environs, Mashuk mountain, 28.VI–6.VII.1947, V. Kurnakov leg. (ZIN); *Chechnya*: 1 ♀, "Chir-Yurt, coll. V. Lutshnik" (ZIN); *Daghestan*: 1 ♀, Kizlyar Distr., Paraboch, 18.VII.1927, A. Kiritshenko leg. (ZIN); 1 ♂, Kizlyar Distr., Starogladovskaya, 8.VII.1927, A. Kiritshenko leg. (ZIN); 2 ♀, Sarykum, 23.IV.1992, V. Prasolov leg. (ZIN); 1 spm., same locality, at light, 7.VII.2010, E. Iljina leg. (cIL); 1 ♂, Manas, 5.VII.1999, M. Ismailova leg. (cIL); 1 ♂, 1 ♀, Makhachkala environs, 4.VI.1999, E. Iljina leg. (cIL); 1 spm., Makhachkala, Talgi, 1.VII.2010, E. Iljina leg. (cIL); 4 ♂, 1 ♀, NE environs of Makhachkala, Karaman-2, at light, 14.VI.2009, 16.VI.2010 and VIII.2011, E. Iljina leg. (cIL); 2 ♂, 1 ♀, Lake Papas, 17.VI.2004, E. Iljina leg. (cIL); 1 spm., Terminlik (MPU); 1 ♂, Derbent Distr., Berikey environs, 29.VI.1982, B. Kataev leg. (ZIN). **Georgia.** 2 ♂, 1 ♀, Tbilisi, 26.V.1968, V. Kurnakov leg. (ZIN); 1 ♂, 1 ♀, "Tiflis, 13.V.1879–1.VII.1880 / coll. G. Sievers" (ZIN); 1 ♀, Tbilisi environs, 2.VIII.1918 (ZIN); 3 ♂, 3 ♀, 25 km NE of Tbilisi, 13.VII.1977, V. Dolin leg. (ZIN); 1 ♂, 1 ♀, Tskhneti, 1–25.VIII.1865 (ZIN); 1 ♂, Gori, 1890, D. Glazunov leg. (ZIN); 4 ♂, 2 ♀, "Kori, 24.V.1881 / coll. G. Sievers" (ZIN); 2 ♂, 1 ♀, "Martkobi, 16–7.VI.1879 / coll. G. Sievers" (ZIN); 2 ♂, 2 ♀, "Manglisi, 1878–1880 / coll. G. Sievers" (ZIN); 1 ♂, 1 ♀, Kodzhory, 12–18.VI.1916, Andrievskij leg. (ZIN); 1 ♀, "Kodjori, 1886" (ZIN); 1 ♂, "Tiflis Gub., Karaul," 5.IV.1902, N. Sakharov leg. (ZIN); 1 ♀, Akhaltsykhe, 10.VI.1964, Ya. Dzhambazishvili leg. (ZIN); 2 ♂, 2 ♀, Akhaltsikhe, Uraveli, 25.VII.1964, Ya. Dzhambazishvili leg. (ZIN); 1 ♀, Akhaltsikhe, Tsikubani, 6.V.1981, I. Belousov leg. (cBL); 1 spm., Vashlovan Nature reserve (MPU); 1 ♀, Batumi, at light, 1.VIII.1971, A. Zagulajev leg. (ZIN). **Armenia.** 2 ♂, 2 ♀, Vedi, 27.X.1981 and 8.X.1982, I. Belousov leg. (cBL); 1 ♀, Shikhozor, 3400 m, 1.IX.1929 (ZIN); 1 ♀, Kotaykovskii Distr., 4 km S of Khatsavan, at light, 22–23.VI.2004, M. Kalashyan leg. (cKLSH); 1 ♀, Ararat Distr., 2 km N of Surenavan, 12–13.VII.2007, M. Kalashyan leg. (cKLSH); 1 spm., Tumanyan (cKZL); 1 spm., Byurakan (cIKB); 1 spm., Sevan (cIKB); 1 ♂, Kafan Distr., Kizildash, 14.VI.1955, A. Zagulajev leg. (ZIN). **Azerbaijan.** 1 ♂, Zakataly, 8.VII.1986, G. Davidian leg. (cBL); 1 ♂, 1 ♀, Baku, Mashtagi, at light, 15.VI. and 16.IX.1982, I. Belousov leg. (ZIN); 1 ♀, Baku, Khurdalan, 28.IV.1930, A. Bogachev leg. (ZIN); 2 ♂, 3 ♀, Slavyanka, 20.VII.1966, Milay leg. (ZIN); 1 ♀, "Geok-Tapa, Caucasus, Schelkovnikov" (ZIN); 1 ♀, Kusarchay, at light, 14.VII.1982, I. Belousov leg. (ZIN); 1 ♀, Talysh, Lerik Distr., Mastail, 6.VII.1983, I. Belousov leg. (cBL); 1 ♀, Talysh, Zuvant, Mistan–Galabyn, 6–7.VII.1983, I. Belousov leg. (cBL); 1 ♀, Talysh, Peshtasar Mt. R., Vasharu River, 700 m, Dashtatuk environs, 9–14.VIII.1995, K. Dovgailo leg. (cISL). **Turkey.** 1 spm., Büyükdere, 26.V.1938, G. Jarring leg. (MZUL); 1 ♂, "Asia Minor, Burna, v. Bodemeyer" (ZIN); 1 ♂, 1 ♀, "Amasia, ex coll. Staudinger" (ZIN); 1 ♀, 5–7 km SE of Torul, 6.VI.2003, B. Korotyaev leg. (ZIN); 1 ♂, 2 ♀, 14 km E Cerkes, env. Susuz, 1400 m, 40.8390° N, 33.0321° E, 4–27.V.2011, J. Hron, S. Murzin leg. (cIKB); 2 ♂, "Caucas, Artv[in]" (ZIN). **Iran.** 1 ♀, Teheran, 1903, E. Walter leg. (ZIN); 1 ♂, 1 ♀, mouth of Kara-su, 8–10.II.1916, B. Iljin leg. (ZIN); 1 ♂, "Persia I., m. Caspi, Hassankiadeh," 1.X.1915, B. Iljin leg. (ZIN); 1 ♀, Birdzhand-Kain, SE of Khorasan, 21–26.VI.1896, N. Zarudny leg. (ZIN); 1 ♂, 3 ♀, "Kerman: Sargad," 3–4.V.1901, N. Zarudny leg. (ZIN); 1 ♀, "env. Isfagan and Dzhulfa," 3.XII.1903, N. Zarudny leg. (ZIN); 1 ♀, "26.XII.1903," N. Zarudny leg. (ZIN); 2 ♀, "28.XII.1903," N. Zarudny leg. (ZIN); 1 ♂, "29–30.XII.1903," N. Zarudny leg. (ZIN); 1 ♀, "31.XII.1903," N. Zarudny leg. (ZIN); 1 ♀, "Zagros, Dopolan, 25 v. of Serkhun, 11.IV.1904," N. Zarudny leg. (ZIN); 2 ♂, 1 ♀, "Perse, chaine bordiere s.-o. de suse a Isparan (Alt. 60–4500 m), J de Morgan, 1904" (MNHN); 1 ♀, "Gorgan, 10.VIII.–25.IX.1968" (TMB); 1 ♀, Fars Prov., 5 km NW Ardakan (Sepidan), road Ardakan–Yasaj, 30°16.89′N, 51°56.58′E, 4.VII.2001, M. Kalabza leg. (cZR). **Iraq.** 2 ♀, Wasit, Zurbatiye, on lamp, 4–5.X.1977, Topäl & Zilany leg. (TMB). **Jordan.** More than 30 spms. (♂ and ♀), E Jordan, Amman, 800 m, at light, 13.IV.1958, J. Klapperich leg. (and other dates) (TMB). **Kazakhstan.** *Alma-Ata Prov.*: 1 spm., Kyrbaltabay (cIKB); 1 ♀, Kaskelen, 4.VIII.1907, A. Jacobson leg. (ZIN); 5 spms., Lake Biylikul, 24.VI.1999, A. Klimenko leg. (cIKB, ZIN). **Kyrgyzstan.** 3 ♂, Chuya Valley, W and NW of Teulok, 560 m, at light, 20.VI.1999, S. Ov-

chinnikov leg. (cIKB); 2 spms., Frunze [= Bishkek] environs, 12.VII.1978 (cVR, cMEL); 1 spm., Sary-Chelek, Khodzha-Ata River, S. Ovchinnikov leg. (cOV); 1 spm., Sary-Chelek, Arkit (cVB); 2 ♂, Namangan, Padsha-Ata, Toste, 4–20.VI.1908, B. Grigorjev leg. (ZIN); 1 ♀, Dzhelalabad, at light, 20.VII.2000, V. Dubatolov leg. (cIKB); 2 ♂, 1 ♀, Dzhelalabad Distr., Ak-Terek, 15–17.VII.1947, "B." (ZIN); 1 ♂, Fergana Mt. R., Suzak, 10 km W of Dzhelalabad, at light, 16.VIII.1998, A. Klimenko leg. (cIKB); 1 spm., Fergana Mt. R., upper Kara-Ungur River, 15 km upper Kyzyl-Ungur, 2400 m, 20–29.VII.1999, S. Ovchinnikov leg. (cIKB); 1 spm., Turkestan Mt. R., Sarkan River, 15 km S of Kek-Tash, 1800 m, VI.1996, A. Puchkov leg. (cPCH); 1 spm., Osh Prov., Laylak, watershed of Orgorysh and Birkam rivers, 2800 m, VI.1996, A. Puchkov leg. (cPCH); 1 ♂, "Alai" [Lyangar environs], 4.VI.1889, B. Grombchevsky leg. (ZIN); 2 ♂, 1 ♀, Gulcha environs, 22.VI.1928, A. Reichard leg. (ZIN); 1 ♂, Narym River, Tash-Kumyr, 3.VII.2000, A. Subankulov leg. (cIKB). **Uzbekistan.** 1 ♀, Tashkent, 25.IV.1925, F. Dobrzhansky leg. (ZIN); 4 ♂, 3 ♀, Tashkent, P.I. Khomutov leg. (ZIN); 1 ♀, Pskem River bank, 130 km of Tashkent, 17.IV.1980 (cSUM); 1 ♀, Pskem Mt. R., 40 km E of Brichmula, Koksu River, 2400 m, 1.VI.1997, A. Puchkov leg. (cPCH); 1 ♂, 1 ♀, SW Ugam Mt. R., Nauvalisay River, NE of Sidzhak, 1000 m, 8.V.1994, I. Kabak leg. (cIKB); 1 ♂, Dzhizak, 1892, D. Glazunov leg. (ZIN); 1 ♀, "Samarkand, 1892, Hertz leg." (ZIN); 1 ♂, 1 ♀, Zeravshan Mt. R., Kshtut, Artuch, 1892, D. Glazunov leg. (ZIN); 1 ♀, Kshtut, 24.VIII.1908 (ZIN); 1 ♂, "Buchara, Kainar," 1892, D. Glazunov leg. (ZIN); 1 ♂, "Fergana Prov., Kugart River, 6800′," 5.VIII.1895, Korzhin leg. (ZIN); 1 ♀, Kashka-Dariya Prov., Khantakhta, 35 km of SE of Kamashi, 13.V.1982, G. Medvedev leg. (ZIN); 1 spm., Nurata Nature Reserve, Khayat, Baskakova leg. (MPU); 1 ♂, Turkestan Mt. R., Ukhum, 1892, D. Glazunov leg. (ZIN). **Tajikistan.** 1 ♀, Fan Mountains, Sarymat River, 26.IV.1992, V. Grebennikov leg. (ZIN); 1 spm., Hissar Mt. R., Es River gorge, 1400–1700 m (cVB); 1 ♂, S slopes of Hissar Mt. R., Karatag Vill. environs, 31.III.1983, T. Vereschagina leg. (ZIN); 7 spms., Varzob, Kondara, 1100 m, 23–30.VIII.1937, V. Gussakovskij leg. (ZIN); 1 spm., Varzob River gorge, tributary of Dushanbinka River (MPU); 1 spm., Zeravshan Valley, near Novabad, Schulke & Wrase leg. (cWR); 1 spm., Karategin Mt. R., lower Sarbo River, near Komarou River, 20.VII.1975, G. Medvedev leg. (ZIN); 1 ♀, Darvaz Mt. R., 12.VII.1889, B. Grombchevsky leg. (ZIN); more than 10 spms. (♂ and ♀), "Fergh. [Darvaz] 11.VII.1888," B. Grombchevsky leg. (ZIN); 2 ♂, 1 ♀, Kala and Vamar, Rushan, 2.VIII.1897, A. Kaznakov leg. (ZIN); 1 ♂, Yazgulem Mt. R., 8 км of Rushan, Bartang Valley, 2100 m, 1.VIII.1989, L. Egorov leg. (ZIN); 1 ♀, Badakhshan, Kurgovat, 6.VII.1960, I. Lopatin leg. (ZIN); 2 ♀, Khorog, Shugnan, 11.VI.1901, B. Fedchenko leg. (ZIN); 1 spm., 8 km W of Dusti, at light, 1989, Kononenko leg. (ISEN); 1 ♂, Kalai-Khumbey, Nulvand, 7.VI.1976, V. Mikhailov leg. (cMKH); 1 ♂, Aruk-Tau Mt. R., Gandzhino, 11.VII.1970, V. Mikhailov leg. (ZIN); 1 ♂, Gandzhino, 17–22.VII.2000, O. Legezin leg. (cIKB); 1 ♂, Pyandzh River, Barushan environs, 25.VII.1973, V. Mikhailov leg. (ZIN); 1 spm., Khozratishokh Mt. R., left bank of Obi-Khingou River, Ezgand (cSHL). **Turkmenistan.** 1 ♀, "Eylandt / coll. G. Sievers" (ZIN); 1 spm., Kyzyl-Atrek, VI.1989, S. Cherkasov leg. (cIKB); 1 ♂, "Sumba River (trib. of Atrek), 1894, Hertz leg." (ZIN); 1 ♂, 1 ♀, West Kopetdagh, 6 km SE of Tersakan (junction of Sumbar and Tersakan rivers), 14.V.1984, G. Medvedev leg. (ZIN); 1 spm., 10 km SE of Karakala, 1993, D. Logunov leg. (ISEN); 1 ♀, Ashkhabad, 7.VIII.1906, V. Pelts leg. (ZIN); 1 ♂, SE of Ashkhabad, Kelpechinar, 2.IX.1935, K. Arnoldi leg. (ZIN); 1 ♂, Khodzhakala, 3.V.1971, G. Medvedev leg. (ZIN); 1 ♂, 1 ♀, Firyuza, 22.V.1971, E. Gurjeva leg. (ZIN); 1 spm., 12 km SE of Annau (ISEN); 1 spm., Kopetdagh, Bakharden, Almadzhik, 700 m (cPCH); 1 spm., Dushak, 25.X.1981, E. Komarov leg. (cKOM); 1 spm., Kugitang, Khodzhalil, 1020 m (cPCH). **Afghanistan.** 1 ♂, Paghman, NW Kabul, 2500 m, 27.VII.1965, Kasy & Vartian leg. (cWR); 1 ♀, 30 km SW of Makhtap, 10.VII.1970, O. Kabakov leg. (ZIN).

Distribution. The nominotypical subspecies of *H. tenebrosus* has been recorded from North Africa (Morocco, Tunisia, Algeria, Egypt), Portugal (including Madeira), Spain (including Canary and Balearic islands), France (including Corsica), Belgium, Great Britain, Germany, Poland, Austria, Czech Republic, Hungary, Italy (including Sicilia and Sardinia), Albania, Croatia, Bosnia and Herzegovina, Serbia, Montenegro, Greece with Crete, Cyprus, Macedonia, Bulgaria, Romania, Moldova, southern Ukraine with the Crimea, southwestern Russia (the southern part of the European plain, the North and East Caucasus), Turkey, Syria, Iran, Iraq, Israel, Jordan, Georgia, Armenia, Azerbaijan, southern Turkmenistan, southern Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan, and North West China (Kryzhanovskij et al., 1995; Kataev et al.,



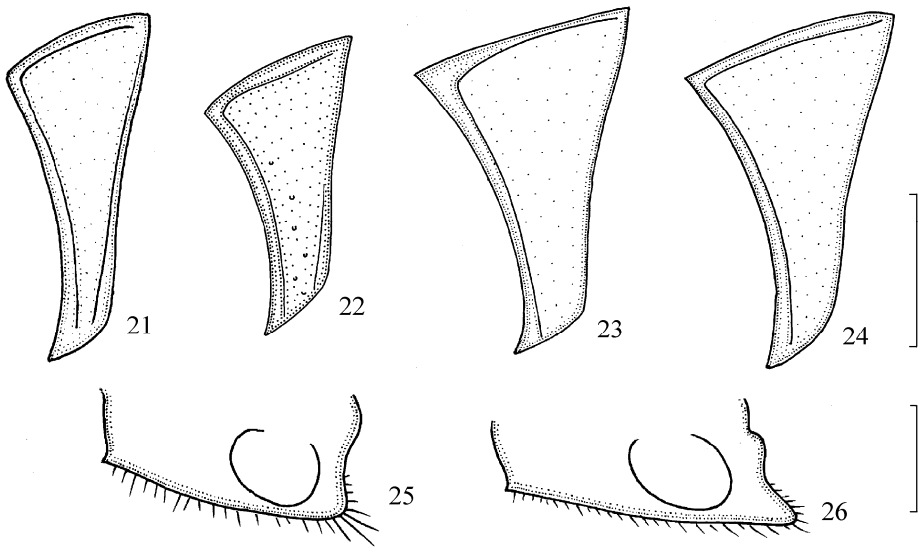
Figs. 7–20. *Harpalus* Latr., right half of pronotum; *H. tenebrosus* Dej. (7–9), *H. idiotus* Bat. (10, 11), *H. grilli* Kataev (12, 13), *H. litigiosus* Dej. (14), *H. fulvus* Dej. (15), *H. cyrenaicus* Koch (16), *H. schaumii* Woll. (17), *H. melancholicus* Dej. (18), *H. agnatus* Reiche (19, 20): (7) Tunis; (8) Cabo Verde, lectotype of *H. paivanus* Woll.; (9) Ashkhabat, holotype of *H. transcaspicus* Tschitsch.; (10) Harbu; (11) Zadzhi-lu; (12) holotype; (13) Thali-Bheri, paratype; (19) lectotype; (20) holotype of *H. germanus* Chaud.. Scale = 1 mm.

2003). It is recorded here from Afghanistan for the first time. The record from Pakistan (Hieke and Wrase, 1988) needs confirmation, because *H. tenebrosus* is replaced there by a very close species *H. idiotus*. The record from Yemen (Britton, 1948) evidently refers to *H. agnatus* (see below).

Variation. Adults of the nominotypical subspecies demonstrate geographical, evidently clinal, variation in the shape of pronotum from west to east. The adults from the west populations are characterized by the pronotum (Fig. 7) widest usually at the middle and more clearly rounded at the sides; the basal angles in most specimens are rather widely rounded. Most adults examined from the eastern populations have pronotum (Fig. 9) widest before the middle, with the sides almost rectilinearly converging posteriad and with the basal angles more narrowly rounded or only blunt at apex.

Harpalus tenebrosus paivanus Wollaston, 1867, stat. n. (Figs. 8, 29–31)

Harpalus paivanus Wollaston, 1867 : 26. Type locality: "The Cape Verde Is., St. Nicolas," Republic Cabo Verde (restricted here based on designation of lectotype).



Figs. 21–26. *Harpalus* Latr., left metepisternum (21–24), ventral side of prosternum, view from the left side (25, 26): (21) *Harpalus tenebrosus* Dej.; (22) *H. idiotus* Bat.; (23) *H. fulvus* Dej.; (24, 25) *H. melancholicus melancholicus*; (26) *H. m. reicheianus* nom. n. Scale = 1 mm.

? *Harpalus paivanus meirai* Mateu, 1958 : 151. Type locality: "El Corralillo, Isla de Santiago, Archipiélago de Cabo Verde," Republic Cabo Verde.

Description. Body length 8.6–10.0 mm. Metepisterna shorter than those in the nominotypical subspecies, 1.3–1.4 times as long as wide. Aedeagus as in Figs. 29–31.

Type material. Lectotype of *Harpalus paivanus* (present designation): ♂, labeled "*Paivanus*, Woll." [Wollaston's handwriting], "Type" [printed, on round piece of white paper with red edging], "The Cape Verde Is., St. Nicolas, T.V. Wollaston Voll., BM(NH) 1867–82" [printed], "Syntype, *Harpalus paivanus* Woll." [printed] (BMNH). Paralectotypes: 2 ♂, labeled "The Cape Verde Is., St. Nicolas, T.V. Wollaston Voll., BM(NH) 1867–82," "Syntype *Harpalus paivanus* Woll." [both printed] (BMNH); 1 ♂, labeled as the preceding and with the additional handwritten label "Original card w red marken R covuer — = St Vincent. C. Verde Isles. C. M. F. von Hayek" (BMNH).

Distribution. Endemic to the Cabo Verde archipelago (San Nicolau, San Vicente and Santo Antao islands).

Discussion. Described as a distinct species, but, in my opinion, should be treated at most as a subspecies of *H. tenebrosus*, differing from the latter almost exclusively by shorter metepisterna. The structure of male genitalia is very similar in both taxa. It should be pointed out only that all the males examined from Cabo Verde are characterized by lack of the apical spiny patch in the internal sac of aedeagus, which is, as a rule, present in the males of *H. tenebrosus tenebrosus*. This difference is not constant since the males lacking such spiny patch are known from scattered localities throughout the geographical range of the nominotypical subspecies.

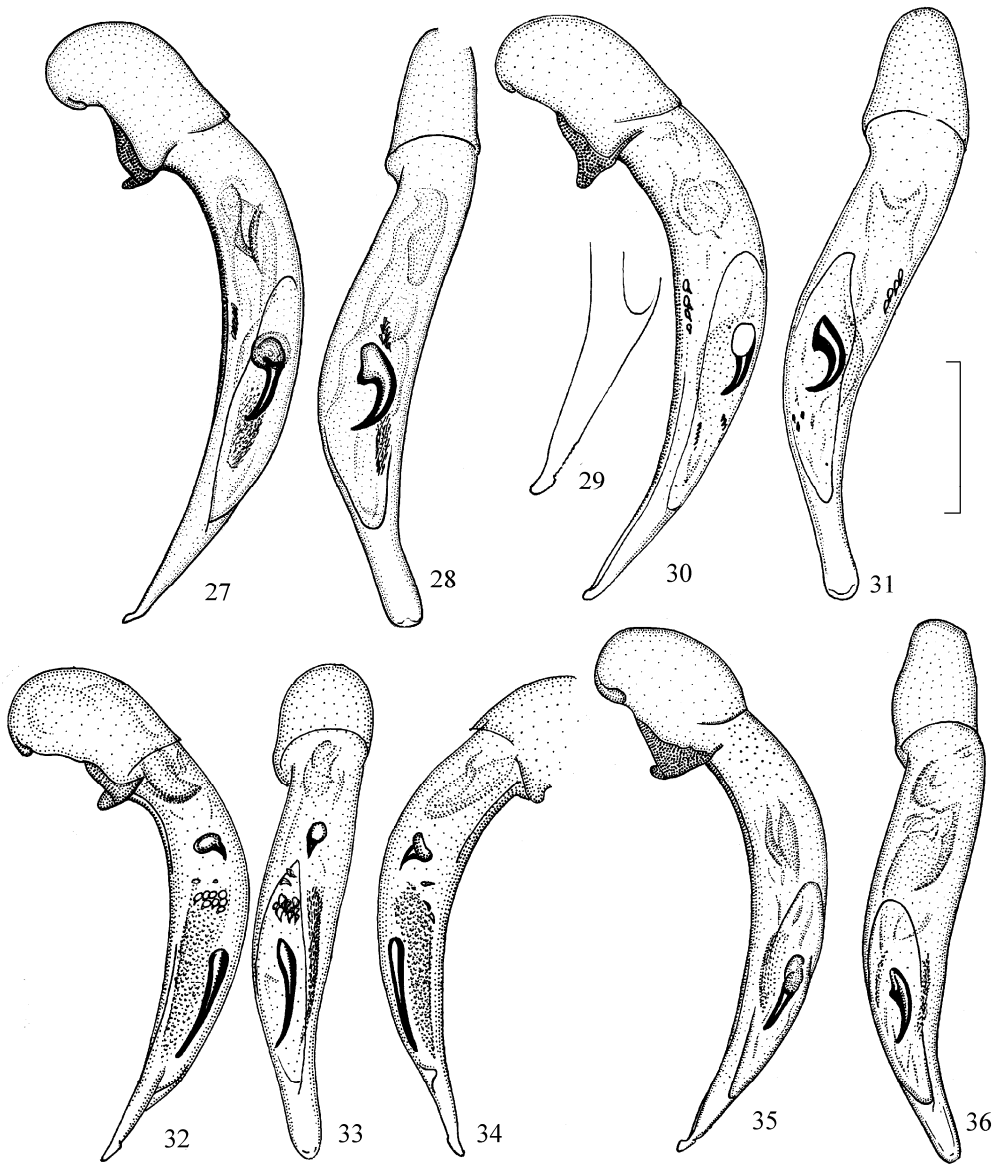
Harpalus paivanus meirai is known to me only from the original description. It has been described from Santiago Island belonging to the southern group of islands of the Cabo Verde archipelago. According to Mateu (1958), it differs from *H. paivanus* distributed over the northern group of islands (San Nicolau, San Vicente and Santo Antao) in having a body larger and wider, pronotum more strongly rounded at the sides and aedeagus with longer, widened apically, terminal lamella. Status of this taxon is obscure.

Harpalus idiotus Bates, 1889
(Figs. 10, 11, 22, 35, 36)

Harpalus idiotus Bates, 1889 : 213. Type locality: "Goorais Valley," Jammu and Kashmir, India.

Selenophorus quadricollis Redtenbacher, 1844 : 502 (non Dejean, 1831). Type locality: "Caschmir."

Description. Body length 8.2–10.4 mm. Very similar in color and structural features to *H. tenebrosus.*



Figs. 27–36. *Harpalus* Latr., median lobe of aedeagus: (27, 28) *H. tenebrosus tenebrosus* Dej. (Transcaucasus); (29–31) *H. t. paivanus* Mateu (lectotype); (32–34) *H. grilli* Kataev (holotype); (35, 36) *H. idiotus* Bat. (lectotype); (27, 29, 30, 32, 35) view from the left side; (28, 31, 33, 36) dorsal view; (34) view from the right side. Scale = 1 mm.

Microsculpture on head and pronotum slightly more distinct, usually not obliterate. Mentum with very small, often indistinct median tooth. Pronotum widest slightly before middle, with sides in posterior half in most specimens almost rectilinearly converging and in some specimens very widely rounded (Figs. 10, 11). Elytron without rows of setigerous pores at apex of intervals 5 and 7; intervals apically wider and less convex than those in *H. tenebrosus*. Metacoxa normally without additional setigerous pore (but with such pore in one examined specimen). Both species are more clearly distinguished from each other by the male genitalia: median lobe of aedeagus in *H. idiotus* (Figs. 35, 36) with shorter terminal lamella and without medial group of small spines in the internal sac; in addition, terminal lamella not narrowed basally, with sides slightly converging to apex.

Type material. Lectotype of *Harpalus idiotus* Bates [designated by Kataev (1997 : 156)]: ♂, labeled "Goorais Valley, May 1887, J. H. Leech" and "*idiotus* B" (MNHN); 2 paralectotypes, ♂ and ♀, labeled as the lectotype (MNHN).

Holotype of *Selenophorus quadricollis* Redtenbacher: ♀, with small round piece of green paper and labels "Hugel, 52," "*Quadricollis* Rdt., Caschm.,"

"Holotypus," and "*Harpalus* (s. str.) *quadricollis* Redt. (= *idiotus* Bat.), det. Kirschenhofer" (NHMW).

Additional material. **India.** *Jammu and Kashmir*: 1 ♀, "India, val de Sind, Gunda–Sonnamay, exp. Fr. de l'Himalaya, 1936, J. Leninger" (MNHN); 2 ♂, "Dono Nyil a Gomboro, Exp. de l'Gomboro, 1936, J. Leninger" (MNHN); 3 ♂, Sonamarg, upp. Sind River, 5.VII.1910, Trubetskoj leg. (ZIN); 1 ♀, Sonamarg, Sind Valley, 2400 m, 10.VI.1912, A. Jacobson leg. (ZIN); 1 ♂, 1 ♀, env. Sonamarg, Sind River, 2400–3000 m, 10.XI.1912, A. Jacobson leg. (ZIN); 4 ♂, 2 ♀, Baltal, Sind River, before Zadzhi-lu Pass, 2560 m, 11.VI.1912, A. Jacobson leg. (ZIN); 11 ♂, 1 ♀, Kharbu Vill., Dras River, 18.VI.1912, A. Jacobson leg. (ZIN); 6 ♂, 11 ♀, Kharbu, 2500 m, 19.VI.1912, A. Jacobson leg. (ZIN); *Himachal Pradesh*: 1 ♀, 50 km N of Manau, between Rohtang Pass and Khoksar, alpine meadows, 3000–3800 m, 19.VI.1996, K. & B. Březina leg. (ZIN); 10 ♂, 1 ♀, "Lahoul, Sumdeo (Himalaya), G. Babault, VI.1914" (MNHN); 3 ♂, "Lahoul, Sisu (Himalaya), G. Babault, VI.1914" (MNHN); 1 ♂, "Lahoul, Patseo, VI.1914" (MNHN); 1 ♂, "vallee du Rotang (Himalaya), G. Babault VI.1914" (MNHN); 14 ♂, 12 ♀, Sissu Ville, 32°28.1′N, 77°01.9′E, 3150–3500 m, 8–10.V.1999, Yu. Marusik leg. (FMNH); 1 ♂, 1 ♀, Keylong City, 32°34′N, 77°01′E, 3100–3400 m, 12–17.VI.1999, Yu. Marusik leg. (FMNH); 1 ♀, Tandi Ville, 5 km S of Keylong, 2700 m, 11.VI.1999, Yu. Marusik leg. (FMNH); 1 ♀, Jahalman Ville, 32°38.44′N, 76°51.8′E, 3000–3100 m, 13.VI.1999, Yu. Marusik leg. (FMNH). **Pakistan.** *Azad Jammu and Kashmir*: 2 ♂, 1 ♀, between Naran and Nuri Pass, NW of Junkar, 3500 m, 1–10.VII.2003, V. Gurko & S. Ovchinnikov leg. (cGRK); 7 ♂, 9 ♀, env. Naran, 3000 m, 1–10.VII.2003, V. Gurko & S. Ovchinnikov leg. (cGRK); *North-West Frontier Province*: 1 ♂, 1 ♀, Indus-Kohistan, Kaghantal, Naran, 2400–3000 m, 3–13.VI.1977, de Freina leg. (cWR); 2 ♂, Dir, 18.VII.2008, Chr. Reuter leg. (cSCH). *Punjab*: 2 ♂, "Kashmir, Rawalpindi," 8.V.1912, A. Jacobson leg. (ZIN); 3 ♂, 1 ♀, Islamabad, SW of Garni, 1500 m, 5–15.VII.2003, V. Gurko & S. Ovchinnikov leg. (cGRK). **Afghanistan.** *Nuristan*: 1 ♀, "Nuristan (Kunar), Parun," 2600 m, 35°15′55″N, 70°54′02″E, 26.VI.2006, Chr. Reuter leg. (cSCH); *Kunar*: 1 ♂, "Nuristan, 25 km N of Barikot," 1800 m, 12–17.VII.1963, Kasy & Vartian leg. (cWR).

Distribution. *Harpalus idiotus* occurs in the West Himalaya within North India (Jammu and Kashmir, Himachal Pradesh), North Pakistan (Azad Jammu and Kashmir, Punjab, North-West Frontier Province) and Afghanistan (Nuristan and Kunar). It is a West Himalayan vicariant of the West Palaearctic *H. tenebrosus* (Kataev, 1997). The boundary between these species runs to the south and south-west of Hindu Kush.

Comparative remarks. In the aggregate of characters, including the cilia on the pronotal basal edge, *H. idiotus* is very similar to *H. tenebrosus* differing mainly in the structure of aedeagus (Figs. 35, 36): the median lobe less curved, with shorter terminal lamella and lacking lateromedial group of small spines in the internal sac (Kataev, 1997).

Discussion. It is possible that *H. idiotus* and *H. tenebrosus* are linked by intermediate populations in the Hindu Kush. A single male of *H. tenebrosus* examined from the southern slopes of the Hindu Kush ("Paghman, NW Kabul") has terminal lamella slightly shorter than that of other males of this species and only slightly longer than that of *H. idiotus*. Additional material from the Hindu Kush and adjacent territories is needed to verify the status of *H. idiotus*, but it is not unlikely that this taxon should be considered a subspecies of *H. tenebrosus*.

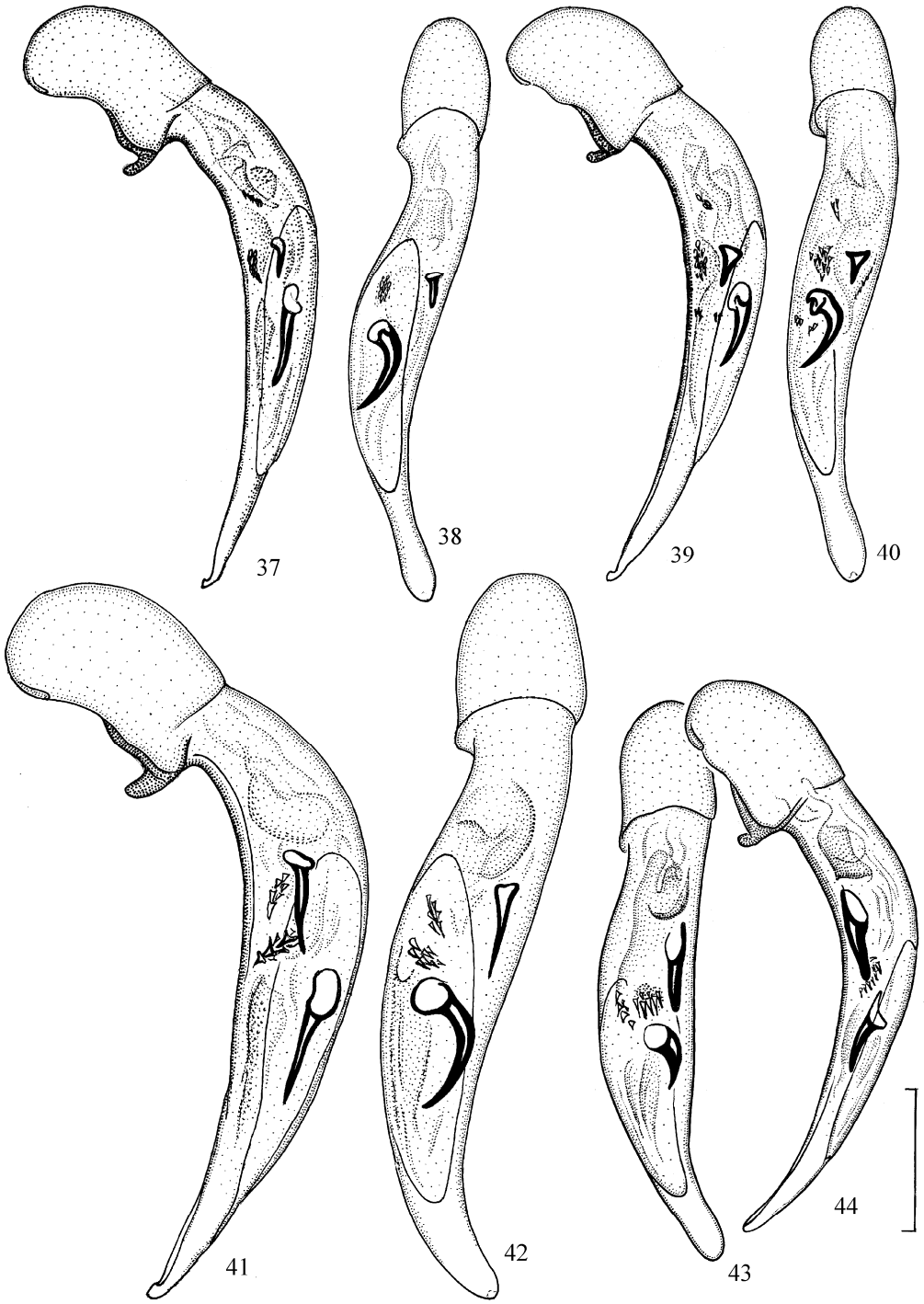
Harpalus grilli Kataev, 2002
(Figs. 3, 12, 13, 32–34)

Harpalus grilli Kataev, 2002 : 373. Type locality: "Juphal-Tripurakot, Thali-Bheri shore, 29°01′N, 82°47′E, 2059 m, Dolpa Distr.," Nepal.

Description. Body length 8.8–10.4 mm. Color black; palpi, antennomeres 1 and 2, knees and tarsi usually paler, brown or brownish yellow.

Microsculpture on head strongly obliterate, with more or less distinct isodiametric meshes laterally behind supraorbital setae; pronotum with microsculpture recognizable only along margins, consisting of isodiametric or weakly transverse meshes; elytra throughout with distinct isodiametric meshes.

Mentum and submentum (Fig. 3) fully fused [erroneously illustrated by Kataev (2002 : fig. 90) as being separated by complete transverse suture], median tooth of mentum very wide and short. Pronotum widest usually at middle (Figs. 12, 13), occasionally just before middle; pronotal sides with one setigerous pore slightly before middle, roundly or almost rectilinearly converging in posterior half; basal margin slightly shorter than elytral base between humeral angles, gla-



Figs. 37–44. *Harpalus* Latr., median lobe of aedeagus: (37–40) *H. schaumii* Woll. (37, 38, Gomera; 39, 40, Gran Canaria); (41, 42) *H. janinae* Jeanne (holotype); (43, 44) *H. litigiosus* Dej. (Daghestan); (37, 39, 41, 44) view from the left side; (38, 40, 42, 43) dorsal view. Scale = 1 mm.

brous on basal edge; surface rather densely punctate along base and more sparsely punctate along sides and apex where at least few punctures present. Elytron with impunctate striae, without rows of setigerous pores at apices of intervals 5, 7 and 8; all intervals moderately convex apically. Prosternal medial process short, not produced posteriad (as in Fig. 25). Metepisternum long, at least 1.5 times as long as wide, strongly narrowed posteriad. Two penultimate abdominal sternites glabrous, each with two obligate

setae only. Metacoxa without additional posteromedial setigerous pore (as in Fig. 1). Metafemur usually with four, occasionally five or six setigerous pores along posterior margin. Male mesotarsomere 1 without adhesive scales ventrally.

Apical stylomere strongly curved, with wide base (as in Figs. 60, 61).

Aedeagus (Figs. 32–34) arcuate in lateral aspect, with apical portion slightly curved to the right; terminal lamella in dorsal aspect about twice as long as wide, more or less parallel-sided, narrowly rounded at apex, with slightly oblique apical capitulum (see from lateral side); internal sac with one very long, moderately curved distal macrospine, one shorter proximal macrospine, medial group of small spines, and large, elongate apical spiny patch on right side.

Type material. Holotype: ♂, labeled "Nepal, Karnali Prov., Dolpa Distr., Juphal-Tripurakot, Thali-Bheri shore, 29°01′N, 82°47′E, 2050 m, 31.V.1997, E. Grill leg." and "Holotypus, *Harpalus grilli* sp. n., B. Kataev, 2001" (NME). Paratypes (all from Nepal): 1 ♀, same data as holotype (ZIN); 1 ♂, Karnali zone, Pina Churchi Lagna, 2600 m, 1.VII.1995, Ahrens & Pommeranz leg. (cSCH); 1 ♀, Humla Distr., 500 m W Simikot, 29°58′N, 81°49′E, 3000–3200 m, terrace fields, 16–17.VI.2001, A. Kopetz leg. (NME); 1 ♀, Humla Distr., 500 m W Simikot, 29°58′00″N, 81°48′48″E, 3100–3200 m, terrace fields–coniferous forest, 17.VI.2001, A. Weigel leg. (NME); 7 ♂, 1 ♀, 20 km W Simikot, env. Chala, 30°00′35″N, 81°37′12″E, 3750 m, 23.VI.2001, A. Kopetz leg. (NME, ZIN).

Additional material. **Nepal.** *Karnali*: 1 ♂, Chala, SW Hochtal, 30°00.14′N, 81°35.24′E, 4200–4400 m, 25.VI.2001, J. Weipert leg. (NME). **India.** *Uttarakhand*: 1 ♂, 1 ♀, Uttarkashi Distr., env. Dharali, forest *Cedrus* + *Pinus* + *Picea*, 31°02′12.0″N, 78°47′11.4″E, 2700 m, 26–29.IV.2012, I. Melnik leg. (ZIN).

Distribution. The western part of Central Himalaya. Known only from Karnali Province (West Nepal) and Uttarakhand State (North East India). This is the first record from India.

Variation. Pronotum of specimens from India is more strongly narrowed basad and less widely punctate than that of specimens from Nepal.

Comparative remarks. Similar in habitus to *H. idiotus* but differing in the following characters: pronotal basal edge glabrous, microsculpture on head and pronotal disc reduced, and aedeagus with two macrospines in internal sac. In addition, punctation on pronotum in *H. grilli* is more widely distributed, at least a few punctures are present at apical margin.

Harpalus litigiosus Dejean, 1829
(Figs. 4, 5, 14, 43, 44)

Harpalus litigiosus Dejean, 1829 : 361. Type locality: "midi de la France" (restricted here based on designation of lectotype).

Description. Body length 7.9–11.2 mm. Black, in some specimens with very light bluish or violet tinge on dorsum. Palpi and antennae paler, brownish yellow; legs black or dark brown, usually with paler tarsi; tibiae occasionally also partly paler.

Microsculpture on head fine, slightly obliterate, isodiametric; pronotum with microsculpture consisting of fine, weakly transverse meshes in central portion and of more distinct, isodiametric meshes along margins; meshes on elytra isodiametric; microsculpture in male everywhere finer than that in female.

Mentum and submentum separated by transverse suture either completely (Fig. 4) or only medially (Fig. 5), never being fully fused as in other species of the subgenus; median tooth of mentum very small, often only suggested. Pronotum widest usually at middle (Fig. 14); pronotal sides with one setigerous pore slightly before middle, roundly or almost rectilinearly converging in posterior half; basal margin slightly shorter than or equal to elytral base between humeral angles, glabrous on basal edge; surface rather coarsely punctate basally. Elytron with short row of setigerous pores at apex of interval 8, without such pores at apices of intervals 5 and 7; all intervals very narrow and strongly convex apically; striae either smooth throughout or very finely punctate in basal half. Prosternal medial process short, not produced posteriad (as in Fig. 25). Metepisternum very long, about 1.7–2.0 times as long as wide, strongly narrowed posteriad. Two penultimate abdominal sternite glabrous, each with two obligate setae only. Metacoxa without additional posteromedial setigerous pore (as in Fig. 1). Metafemur with four to seven setigerous pores along posterior margin. Male mesotarsomere 1 without adhesive scales ventrally.

Apical stylomere short, strongly curved, with wide base (as in Figs. 60, 61).

Aedeagus (Figs. 43, 44) rather evenly arcuate in lateral aspect, with apical portion clearly curved to the

right; terminal lamella in dorsal aspect moderately long and narrow, with sides evenly converging apicad; internal sac with two similar-sized macrospines (distal and proximal), and one or two medial groups of small spines.

Type material. Lectotype (present designation; recognized, but not published by J. Serrano): ♂, labeled "♂," "*litigiosus* in Gal. mer." [Dejean's handwriting], "Lectotype" [printed], "*Harpalus litigiosus* Dejean, 1829 designato por J. Serrano" [printed] (MNHN).

Additional material. **Portugal.** 1 ♂, "Portugal" (ZIN). **Spain.** 1 ♀, "Murcia, Ex coll. Natwig" (ZMUN). **France.** 1 ♂, 1 ♀, "Gallia m., 380, Miller" (ZIN). **Croatia.** 1 ♂, "Dalmatia, Plason" (ZIN); 1 ♂, 1 ♀, "Dalmatie" (ZIN); 2 ♂, 1 ♀, "Dalmatia" (FMNH). **Montenegro.** 1 ♂, "Podgorica, 1900, Führer leg." (ZIN). **Bulgaria.** 1 spm., "Kojuch" (cPNV). **Greece.** 1 spm., Serre's Orini, Lindberg leg. (MZLU); 1 ♂, "Morea, Hagios, Wlassis," Brenske leg. (ZIN); 1 spm., Kos, Kardamena, Palm leg. (MZLU); 1 spm., "Korfu, Korission" (MZLU). **Cyprus.** 1 spm., "Phasoute" (MZLU). **Turkey.** 1 ♀, "Skutari" (ZMUN); 1 ♂, "Asia Minor, Ak-Chehir, v. Bodemeyer" (ZIN); 1 ♂, "Asia Minor, Sultan Dagh, v. Bodemeyer" (ZIN); 1 ♀, "Asia Minor, Burna, v. Bodemeyer" (ZIN); 1 ♀, "Amasia, ex coll. Staudinger" (ZIN); 1 ♂, 3 ♀, Adana, 24 km NNE of Pozanti, Ala Dağlar, 4 km W of Karanfil Mt., 1400–1800 m, 37°36.5′N, 35°00′E, 30.IV.2009, Dudko, Lyubechanskij, Stekolnikov leg. (ISEN); 1 ♀, Denizli, Pamukkale, 15.VII.2010, R. & E. Dudko leg. (ISEN); 1 ♂, Konya, Gökcimen Köyö, Beysehir, F. Aydin leg. (AUE); 2 ♂, 5–7 km SE of Torul, 6.VI.2003, B. Korotyaev leg. (ZIN); more than 20 spms. (♂ and ♀), "Caucas, Artvin" (ZIN). **Ukraine.** *Odessa Prov.*: 1 ♂, "Odessa" (ZMUN); *Krymskaya Prov.*: 1 ♂, Evpatoria, at light, 4.VII.1997, I. Solodovnikov leg. (cISL); 1 spm., Sevastopol, 23.VII.1973 (ISEN); 4 ♂, Sevastopol, Delagarda khutor, 24.II and 13.III.1908, 5.III.1909, V. Pliginskij leg. (ZIN); 1 ♂, Belbek, 3.III.1913, B. Iljin leg. (ZIN); 1 ♀, Gurzuf, VI.1990, Tselichkovskij leg. (ZIN). **Russia.** 1 ♂, "Saratov, 90" (ZIN); 1 ♀, "Sarepta, Becker" (ZIN). *Daghestan*: 1 ♀, sea shore near Sulak, 2.VI.2005, E. Iljina leg. (cIL); 1 ♂, NE Makhachkala, Karaman, at light, 25–30.VI.2009, E. Iljina leg. (cIL); 2 ♂, 3 ♀, Lake Papas, 17.VI.2004, E. Iljina leg. (cIL); 7 ♂, 4 ♀, Derbent Distr., Berikey Ville environs, 27–29.VI.1982, B. Kataev leg. (ZIN); 2 ♂, Derbent, 20.VII.1917, Olsufjev leg. (ZIN). **Armenia.** 1 ♂, Ararat Prov., 2 km N of Surenavan, 12–13.VII.2007, M. Kalashyan leg. (cKLSH). **Azerbaijan.** 1 ♂, Saljyany, Biondoran, 1–3.VII.1984, I. Belousov leg. (cBL); 1 ♂, 14 km of Kilyazy, 21–22.V.1983, I. Belousov leg. (cBL); 1 ♀, Kobustan, 18.IV.1984, Kh. Aliev leg. (cBL); 1 ♀, Baku, 8.VI.1933, A. Bogachev leg. (ZIN); 2 ♂, Baku (ZIN); 1 ♂, Baku, airport, 29.VII.1978, Mikheevich, Belov leg. (ZIN); 5 ♂, 2 ♀, Baku, botanical garden, 24.VII.1953, E. Arens leg. (ZIN); 1 ♂, Baku, Khurdagan, 28.IV.1930, A. Bogachev leg. (ZIN); 1 ♂, 6 ♀, "env. Baku, Transcaucasia, ex coll. Lutshnik" (ZIN); 2 ♂, 3 ♀, Baku environs, Shobandag, 23.III.1990, A. Bogachev leg. (ZIN); 1 ♂, "Kubinskii uezd, Bakinskoi gub., VI.1997, Satunin" (ZIN); 1 ♀, "Caucasus, Kreis-Nucha, E. Koenig" (ZIN); 1 ♂, "Karadonly, Arax shore, Bakinsk. g.," 16.VI.1911, P. Schmidt leg. (ZIN); 2 ♀, "Lenkoran" (ZIN); 1 ♂, "Lenkoran, Bakinsk. g., Becker, [18]72" (ZIN); 1 ♂, Lenkoran Distr., Alekseev leg. (cIKB); 1 ♂, 2 ♀, Talysh, Lerik Distr., Mastail, 6.VII.1983, I. Belousov leg. (cBL, ZIN); 1 ♀, NE of Mingechaur, Guranchay, 300 m, 6.VII.2008, Plyutsch leg. (cPCH). **Iran.** 1 ♂, "Persia" (ZIN); 1 spm., "6.IV.1904, N. Zarudny" (ZIN); 1 ♂, Isfagan and Dzhulfa environs, 3.XII.1903, N. Zarudny leg. (ZIN); 3 ♂, 3 ♀, "23–25.XII.1903," N. Zarudny leg. (ZIN); 1 ♂, 1 ♀, "Perse, chaine bordiere s.-o. de suse a Isparan (Alt. 60–4500 m), J. de Morgan, 1904" (MNHN); 1 ♀, "Museum Paris, Perse, Ancher 16–40" (MNHN). ? **Syria.** 1 ♀, "Ourbach, Syria" (ZIN); 1 ♀, "Dr. F. Leuthner, Djebelakrab, 85, N. Syrien" (ZIN). **Israel.** 1 ♀, Haifa, 2–15.V.1914, Pastukhov leg. (ZIN). **Turkmenistan.** 1 ♀, Kyzyl-Atrek, 10.VI.1989, S. Cherkasov leg. (cIKB); 2 spms., Bolshoj Balkhan, 5 km E of Nebit-Dagh, S. Ovtchinnikov leg. (cOV); 1 ♂, West Kopetdagh, 6 km of Tersakan, junction of Sumbar and Tersakan rivers, 14.V.1984, G. Medvedev leg. (ZIN); 1 ♂, West Kopetdagh, Khodzhakala, 3.V.1971, G. Medvedev leg. (ZIN); 2 ♂, West Kopetdagh, 3 km NW of Karakala, Parkhay, at light, 7.VI.1989, D. Fedorenko leg. (cFD, ZIN); 1 ♀, northern slope of Syunt Mt., 6.V.1974, G. Medvedev leg. (ZIN).

Distribution. Described from Central France and Croatia ("Dalmatia"). Widely distributed over the Mediterranean Region, east to West Kopetdagh: Iberian Peninsula (Portugal, Spain), South France (including Corsica), south of Italian Peninsula, Sicilia, Balkan Peninsula (Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, Macedonia, Bulgaria, Greece

and Turkey), Cyprus, southernmost Ukraine (Odessa Prov., the Crimea), Daghestan, Azerbaijan, Georgia, Armenia, Turkey, Syria, Israel, Iran, southwestern Turkmenistan (Bolshoi Balkhan, West Kopetdagh), and North Africa (Algeria, Egypt) (Kataev et al., 2003; Reck and Chaladze, 2004). Records from the Middle and Lower Volga ("Saratov" and "Sarepta") need to be confirmed by additional material from there.

Bionomics. Occurs on sandy soil with sparse vegetation, predominantly near sea coasts and river banks.

Comparative remarks. *Harpalus litigiosus* is a single species of *Cryptophonus* known to me having mentum and submentum separated by transverse suture at least medially (Figs. 4, 5); in all the other species of this subgenus, mentum and submentum are fully fused. *Harpalus litigiosus* is similar to sympatric *H. tenebrosus* in habitus, glabrous abdominal sternites and long metepisterna, but easily distinguished from the latter by having setigerous punctures at apex of elytral interval 8 and glabrous, not ciliate, pronotal basal edge. Besides, armature of internal sac of aedeagus in *H. litigiosus* includes two macrospines instead of one macrospine in *H. tenebrosus*. By the presence of setigerous pores at apex of elytral interval 8, *H. litigiosus* reminds *H. melancholicus* and *H. cyrenaicus*, but it differs from the former in having glabrous abdominal sternites and much longer metepisterna, and from the latter in having much longer terminal lamella of aedeagus and strongly convex elytral intervals apically.

Harpalus schaumii Wollaston, 1864
(Figs. 17, 37–40)

Harpalus consentaneus sensu Brullé, 1839 : 57 (non Dejean, 1829 : 302).

Harpalus schaumii Wollaston, 1864 : 58. Type locality: "El Hierro" [restricted by Machado (1992) based on designation of lectotype], the Canary Islands, Spain.

Harpalus schaumii var. β. *teneriffae* Wollaston, 1864 : 59. Type locality: "montibus supra Ycod el Alto," Tenerife, Canary Islands, Spain.

Harpalus schaumi grancanariensis Emden, 1928 : 281. Type locality: "B[arran]co. de Azuaje," Gran Canaria, the Canary Islands, Spain.

Description. Body length 9.5–12.2 mm. Black; male strongly shiny on dorsum, female slightly shiny on head and pronotum, and mat on elytra. Palpi, antennae and legs brown or dark brown; basal antennomeres, tarsi, occasionally also tibiae, reddish brown.

Microsculpture in male on head, pronotal disc and elytra highly reduced; in female microsculpture more distinct: head with fine, slightly obliterate isodiametric meshes; pronotum with fine, weakly transverse meshes in central portion and with more distinct, isodiametric meshes along margins; elytra throughout with distinct isodiametric meshes.

Mentum and submentum fully fused (as in Fig. 6), median tooth of mentum absent. Pronotum (Fig. 17) widest at middle; pronotal sides rounded in anterior half and nearly rectilinearly converging in posterior half, with one setigerous pore slightly before middle and with one or several shorter setae in apical angles; basal angles rather sharp, only slightly blunt at apex; basal margin slightly shorter than elytral base, glabrous on basal edge; surface coarsely punctate basally. Elytron with clearly punctate striae, without setigerous pores at apex of interval 8, but with such pores at apex of interval 7 and occasionally also of interval 5; all intervals very narrow and strongly convex apically. Prosternal medial process short, not produced posteriad (as in Fig. 25). Metepisternum long, strongly narrowed posteriad. Abdominal sternites with additional rather long setae. Metacoxa without additional posteromedial setigerous pore (as in Fig. 1). Metafemur with four to seven setigerous pores along posterior margin. Male mesotarsomere 1 without adhesive vestiture ventrally.

Apical stylomere short, strongly arcuate, with wide base (as in Figs. 60, 61).

Aedeagus (Figs. 37–40) bent ventrad before middle of median lobe, with apical portion notably curved to the right; terminal lamella in dorsal aspect long and narrow, slightly constricted basally, curved slightly ventrad just at apex forming there a small denticle, internal sac with two large macrospines (distal one much bigger than proximal one) and with several small spines in medial portion of median lobe.

Larva with two rather big teeth on anterior margin of clypeus and highly reduced sensorial appendage on antennomere 3 (Machado, 1992).

Material. **Spain.** *Canary Islands*. 1 ♂, 1 ♀, "*Schaumi* W.," "*Schaumii* Wollast. J. Canaries, Wollast." (Chaudoir's collection: MNHN). *Hierro*: 1 ♂, 1 ♀, eastern seashore, Hotel Parador Nacional, at light, 11–16.X.1993, Z. Korsós leg. (TMB). *Tenerife*: 1 ♂,

1 ♀, Santiago del Teide, 1000 and 1300 m, 13. and 19.II.1960, W. Heinz leg. (TMB); 2 ♂, 4 ♀, "Lomo de Masca bei Santiago d. T., ca 1600 m, 28.I.1964" (TMB); 1 ♂, 1 ♀, Monte de los Silos, 27.VI.1954, J. Mateu leg. (cJN); 1 ♀, Barranco Bufadero, 22.IV.1955, J. Mateu leg. (cJN); 1 ♂, Barranco de Tahodio, 12.VIII.1956, J.-M. Fernandez leg. (cJN); 1 ♀, Los Carrizales, 30–31.III.1994, S. Kadlec leg. (cZR); 2 ♂, 1 ♀, Bajamar, 13.XII.1959, Morales leg. (ZIN); 1 ♀, San Isidro, 150 m, VII.1972, M. Zunino leg. (ZIN); 2 ♂, "Tenerife, 19–23.IV.1962, Barr. S. Andres leg." (ZIN); 2 ♂, Teno mts, Erios env., 900–1100 m, 3.XII.2004, Z. Koštál leg. (cZR, ZIN). *La Palma*: 1 ♂, 4 km ENE of El Paso, Sandgrube, 28.II.1993, Hieke & Wendt leg. (ZMB). *Gomera*: 1 ♂, 1 ♀, "I. Gomera, roque de Agando," 1150 m, 19.III.1979, C. Jeanne leg. (cJN, ZIN); 1 ♀, "I. Gomera, Bosque del Cedro, Campamento," 925 m, 6.II.1980, C. Jeanne leg. (cJN); 1 ♂, Los Acevinos, 24.I.2006, Z. Koštál leg. (cZR). *Gran Canaria*: 1 ♂, Los Pechos, 1800–1900 m, 14.II.1994, A. Podlussány leg. (TMB); 1 ♂, Monte Cueva, Corcho, 1420 m, 27.II.1986, C. Jeanne leg. (ZIN); 1 ♀, "Cruz de Tejeda, foret N," 1500 m, 14.III.1978, C. Jeanne leg. (cJN); 1 ♂, "Bco de Tejeda," 960 m, 1.III.1986, C. Jeanne leg. (cJN); 1 ♀, "Pinos de Galdar," 1350 m, 27.II.1986, C. Jeanne leg. (cJN).

Distribution. Endemic to the Canaries: Hierro, Gomera, La Palma, Tenerife, and Gran Canaria islands.

Bionomics. Rather polytopic species occurring from semideserts to laurel forest zone; most common in forests and meadows at middle elevations (Machado, 1992).

Comparative remarks. Adults of this species are easily distinguished from adults of other species of *Cryptophonus* by having one or few rather long marginal setae in apical angles of pronotum (Fig. 17) and distinctly punctate elytral striae.

Harpalus janinae Jeanne, 1984
(Figs. 41, 42, 45)

Harpalus janinae Jeanne, 1984 : 137. Type locality: "Barranco de Gallegos," La Palma, Canary Islands, Spain.

Description. Body length 11.5–12.5 mm. Dark brown or black; palpi, antennae and tarsi reddish brown.

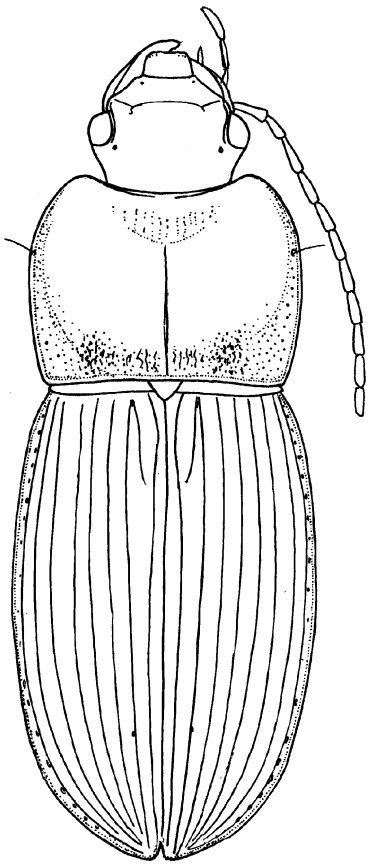


Fig. 45. *Harpalus janinae* Jeanne, general view.

Dorsal microsculpture throughout fine, consisting of isodiametric meshes.

Median tooth of mentum absent or only suggested. Pronotum (Fig. 45) widest at middle or just behind middle; pronotal sides with one setigerous pore slightly before middle, roundly converging in posterior half; basal margin slightly longer than elytral base between humeral angles, glabrous on basal edge; surface basally punctate irregularly and fairly coarsely, but much finer than so in *H. schaumii*. Elytra without setigerous pores at apices of intervals 5, 7 and 8; striae very finely, almost indistinctly punctate. Prosternal medial process short, not produced posteriad (as in Fig. 25). Metepisternum long, about 1.7–1.8 times as long as wide, strongly narrowed posteriad. Abdominal sternites glabrous, but two penultimate sternites with two long setae on each side near posterior margin. Metacoxa without additional posteromedial pore (as in Fig. 1).

Apical stylomere not examined.

Aedeagus (Figs. 41, 42) comparatively robust, bent ventrad between basal bulb and middle of median lobe, with apical portion rather strongly curved to the right; terminal lamella in dorsal aspect moderately long, somewhat evenly narrowed to rounded tip and bent ventrad just at apex forming there a small acute denticle; internal sac with two large macrospines (distal one much bigger than proximal one) and with two small groups of small spines in middle portion of median lobe.

Type material. Holotype: ♂, labeled "Canaries, I. La Palma, C. Jeanne," "Barranco de los Gallegos, 800 m, 22.2.1983," "Holotypus," "*Harpalus janinae* m. C. Jeanne det. 83" (cJN).

Distribution. Endemic to La Palma Island (the Canaries).

Bionomics. According to Machado (1992), *H. janinae* occurs in relict laurel forests at middle elevations (500–800 m).

Comparative remarks. The species may be recognized by big body size and flat pronotum with basal margin slightly longer than elytral base; all other species of *Cryptoptophonus* have pronotum with basal margin usually shorter than elytral base or, rarely, equal in length to it. In structure of aedeagus, *H. janinae* is most similar to *H. litigiosus* and *H. schaumii*, but distinctly distinguished from both by the median lobe robuster and more strongly curved to the right.

Harpalus agnatus Reiche, 1849
(Figs. 2, 19, 20, 46–49)

Harpalus agnatus Reiche, 1849 : 275. Type locality: "Abyssinie."

Harpalus asphaltinus Roth, 1851 : 217. Type locality: "Tigré in N. Abyssinie," Ethiopia.

Harpalus germanus Chaudoir, 1876 : 343. Type locality: "Hauts plateaux de l'Hamacen, Abyssinie," Eritrea.

Description. Body length 9.1–10.7 mm. Black; palpi, basal antennomeres (1–3) and tarsi paler, brown or reddish brown.

Dorsal microsculpture similar to that of *H. tenebrosus*, but slightly finer.

Mentum and submentum fully fused (as in Fig. 6), median tooth of mentum very short and wide. Pronotum widest at middle or slightly before middle; pronotal sides with one setigerous pore before middle, roundly or almost rectilinearly converging in posterior half (Figs. 19, 20); basal margin slightly shorter than elytral margin between humeral angles, glabrous on basal edge; surface basally punctate almost throughout. Elytron with impunctate striae (occasionally with extremely fine, almost indistinct punctures on bottom of striae), without of setigerous pores at apices of intervals 5, 7 and 8; all intervals narrow and moderately convex apically. Prosternal medial process short, not produced posteriad (as in Fig. 25). Metepisternum long, about 1.7–2.0 times as long as wide, strongly narrowed posteriad. Two penultimate abdominal sternites glabrous, each with two obligate setae only. Metacoxa with additional posteromedial setigerous pore (Fig. 2). Metafemur with four setigerous pores along posterior margin. Mesotarsomere 1 in male without adhesive scales ventrally.

Apical stylomere short, strongly curved, with wide base (as in Fig. 60, 61).

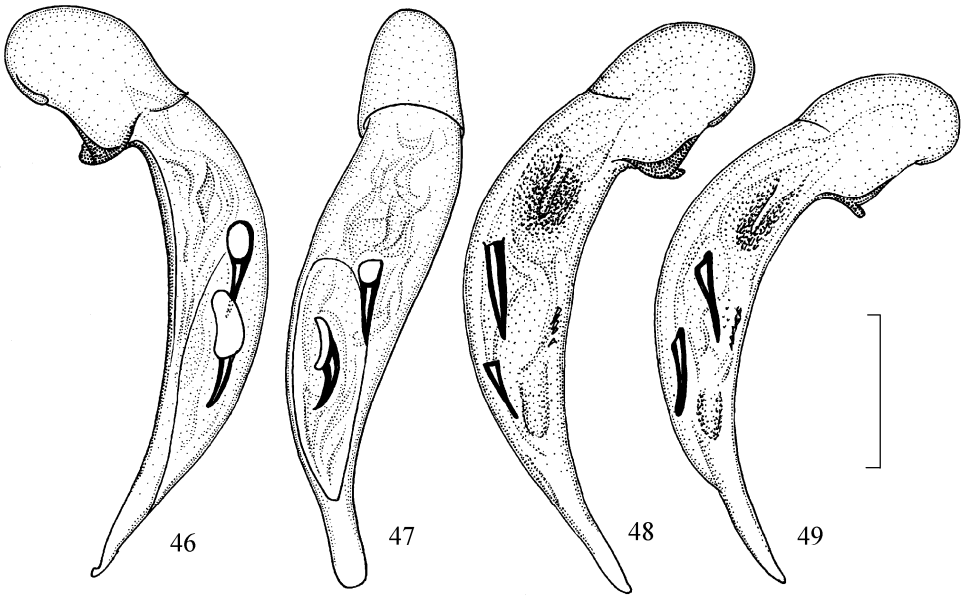
Aedeagus (Figs. 46–49) evenly arcuate in lateral aspect, with apical portion notably curved to the right; terminal lamella in dorsal aspect at least twice as long as wide, nearly parallel-sided, rounded at apex, curved just at tip ventrad; internal sac with two large, similar-sized macrospines (distal and proximal) and a group of small spines in middle portion of median lobe.

Type material. Lectotype of *Harpalus agnatus* (present designation): ♂, with pinned labels "*Harpalus*," "*agnatus* Reiche" [both L. Reiche's handwriting], "Ex Musaeo Chaudoir," "Type" and bottom label "[*Harpalus*] *agnatus* Reiche, Abyssinie, C. Reiche" [Chaudoir's handwriting] (collection of M. Chaudoir: MNHN).

Holotype of *Harpalus germanus*: ♂, with pinned labels "Abyss., Raffray," "Type," "Ex Musaeo Chaudoir" and bottom label "*germanus* Chaudoir, Abyssinie, Hamacen, Raffray" [Chaudoir's handwriting] (collection of M. Chaudoir: MNHN).

Additional material. **Ethiopia.** 1 ♂, "Ethiopia, Adis-Abeba, Abessinia mer., Sason—1899" (ZIN). **Eritrea.** 2 ♂, 1 ♀, "Erithrea, Asmara" (TMB); 1 ♀, "Asmara, 2.III.1913, Dr. Klatt leg." (ZMB); 1 ♂, "Semafa, 14.III.1913, Dr. Klatt leg." (ZMB); 3 ♂, "Anseba," "Schaufuss," "715" (ZIN). **Tanzania.** 1 ♀, Tanzania, "Afr. or., Moschi" (ZMB).

Distribution. Northeast Africa south of Sahara. This species was known from Ethiopia, Eritrea and



Figs. 46–49. *Harpalus agnatus* Reiche, median lobe of aedeagus: (46, 47) Addis Ababa; (48) holotype of *H. germanus* Chaud.; (49) lectotype; (46) view from the left side; (47) dorsal view; (48, 49) view from the right side. Scale = 1 mm.

Somali (Basilewsky, 1951); it is recorded here from Tanzania for the first time. The record of the Palaearctic *H. tenebrosus* from Yemen ("Jebel Sumara, 9800 ft., 2.I.1938, 63 ex.") (Britton, 1948) seems to be based on wrong determination and should be referred to *H. agnatus*, because most harpalines known from Yemen belong to the Ethiopian fauna. Both species are very similar in habitus to each other and might be misidentified.

Comparative remarks. *Harpalus agnatus* is a single species of *Cryptophonus* distributed in the Ethiopian Region. The species is easily recognized by having an additional posteromedial setigerous pore on metacoxa (Fig. 2). In appearance, it is very similar to *H. tenebrosus*, differing, except for chaetotaxy of metacoxae, in having glabrous pronotal basal edge and less convex elytral intervals.

Harpalus fulvus Dejean, 1829
(Figs. 15, 23, 50, 51, 62, 63)

Harpalus fulvus Dejean, 1829 : 323. Type locality: "Egypte."

Harpalus littoralis Rambur, 1838 : 128. Type locality: "Malaga," Spain.

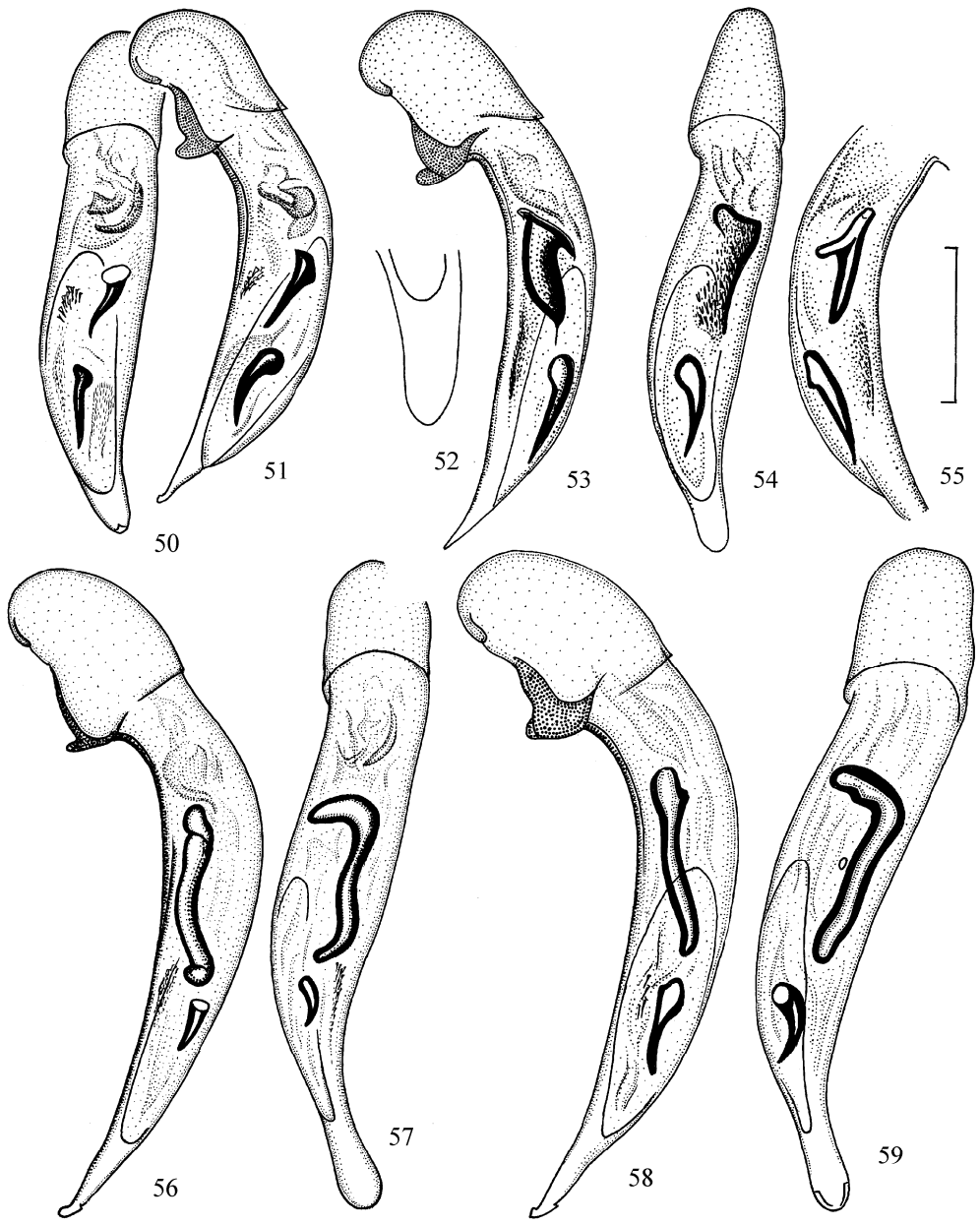
Harpalus fulvus ab. *septimanus* Antoine, 1959 : 402 (unavailable name). Type locality: not indicated.

Description. Body length 8.4–10.2 mm. Dorsum reddish brown or dark brown; ventral side, palpi, antennae and legs brownish yellow or light reddish brown.

Microsculpture on dorsum in both sexes distinct, consisting of more or less isodiametric meshes.

Mentum and submentum fully fused (as in Fig. 6); median tooth of mentum absent. Pronotum widest at middle or just before middle; pronotal sides with one setigerous pore slightly before middle, nearly rectilinearly converging in posterior half (Fig. 15); basal margin slightly shorter than elytral base between humeral angles; basal edge with very short, poorly recognizable hairs; punctation usually restricted to basal foveae and narrow area along sides. Elytron with very thin, impunctate striae, without setigerous pores at apex of interval 8, but occasionally with short row of such pores at apex of interval 7; all intervals apically narrow, moderately convex. Prosternal medial process short, not produced posteriad (as in Fig. 25). Metepisternum (Fig. 23) about 1.4 times as long as wide, strongly narrowed posteriad. Two penultimate abdominal sternites each, except two obligate setae, with additional setae and hairs. Metacoxa without additional posteromedial setigerous pore (as in Fig. 1). Metafemur with four to seven setigerous pores along posterior margin. Male mesotarsomere 1 without adhesive scales ventrally.

Apical stylomere (Figs. 62, 63) elongate, moderately strongly curved, and with moderately wide base.



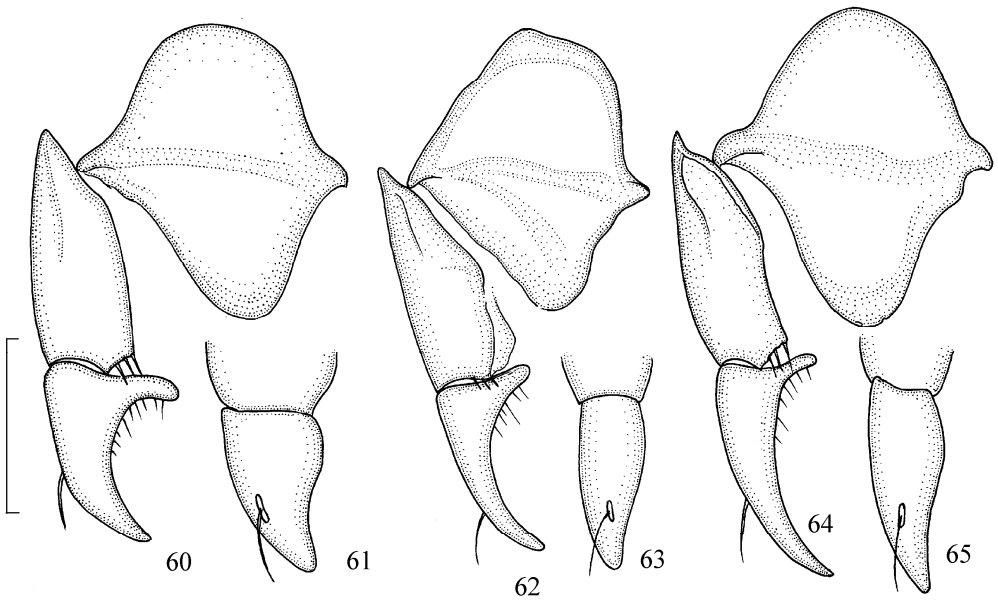
Figs. 50–59. *Harpalus fulvus* Dej. (50, 51), *H. cyrenaicus* Koch (52–55), *H. melancholicus melancholicus* Dej. (Daghestan) (56, 57), *H. melancholicus reicheianus* nom. n. (Corsica) (58, 59): (50, 51, 53–59) median lobe of aedeagus; (52) terminal lamella; (50, 52, 54, 57, 59) dorsal view; (51, 53, 56, 58) view from the left side; (55) view from the right side. Scale = 1 mm.

Aedeagus (Figs. 50, 51) robust, arcuate in dorsal aspect, with apical portion curved to the right and almost not curved ventrad; terminal lamella rather short, with sides rather evenly converging to rounded apex; internal sac with two macrospines similar to each other (distal and proximal) and a small group of small spines in middle portion of median lobe.

Type material. Lectotype of *Harpalus fulvus* (present designation): ♂, labeled "♂," "*fulvus* m. in Aegypt" [Dejean's handwriting], "*badius* Clug. D. Klug." (MNHN). Paralectotype: ♀, labeled "♀" and "Schüppel" (MNHN).

Syntype of *Harpalus fulvus* ab. *septimanus*: ♀, labeled "Casablanca (Maroc) Antoine," "Type," "*littoralis* ab. *septimanus* m. Antoine det." (MNHN).

Additional material. **Morocco.** 1 ♂, Bouznika, IV.1985, F. Bajet leg. (ZIN); 2 ♀, 35 km S of Agadir, env. Ait-Bella, 150 m, 2.IV.1989, de Freina leg. (ZIN); 1 ♂, "Rabat" (cFNC); 10 ♂, 2 ♀, Rabat, 25.IV.1992,



Figs. 60–65. *Harpalus* Latr., female genitalia: (60, 61) *H. tenebrosus* Dej.; (62, 63) *H. fulvus* Dej.; (64, 65) *H. melancholicus* Dej.; (60, 62, 64) laterotergite and stylus, ventral view; (61, 63, 65) apical stylomere, lateral view. Scale = 1 mm.

V. Biža & Z. Koštál leg. (cZR, ZIN); 2 ♀, Tetuan, 15.IV.1992, V. Biža & Z. Koštál leg. (cZR); 2 ♂, Moulay-Bousselham, 22.V.1995, S. Kadlec leg. (cZR); 1 ♂, Lac Sidi Ali, Timhadite env., 20 m, 11.V.1995, S. Kadlec leg. (cZR). **Algeria.** 1 ♂, "Alger" (ZIN); 1 ♂, 2 ♀, "Algerie" (ZIN); 1 ♂, 1 ♀, Cherchell, sea beach, 13.X–19.XI.1984, S. Kazantsev leg. (ZIN); 11 ♂, 3 ♀ "Oran (Alg.), P. Mathien, [18]99" (ZIN). **Tunisia.** 1 spm., "Tunisien, Sousse" (MZUL); 5 ♂, Skanés, 8 km of Monastir, 11.IX.1977, L. & S. Mahunka leg. (TMB); 1 ♂, "Mahdia, 10.VI.1974" (ZIN). **Portugal.** 1 ♂, 1 ♀, Praia de Mira, 6–11.IX.1984, H. Barrios leg. (ZIN). **Spain.** 1 ♀, "Noya (dint. Santiago)," 24.VII.1973, M. Zunino leg. (ZIN); 1 spm., "Marbella" (MZLU); 2 ♂, 2 ♀, Malaga, San Rogue, dunes near Torra Nueva, 2.VI.1991, D.W. Wrase leg. (ZIN); 2 spms., "Hispan" (NRM); 1 ♀, "Hisp., 131" (ZIN); 1 ♀, "Espagne" (ZIN); 1 ♂, "Mallorca, Cala Millor, 1.VII.1978" (ZIN). **Italy.** 1 ♀, "Sicilia" (ZIN). ? **Syria.** 1 ♀, "Goffa / Syrien" (ZIN); 1 ♂, "Syria" (ZIN).

Distribution. *Harpalus fulvus* is widely distributed over the Mediterranean Region, predominantly along shores of the Mediterranean Sea. It was known from the Iberian Peninsula (Spain), the Canary (Lanzarote) and the Balearic islands, Sardinia, Sicilia, Morocco, Algeria, Tunisia, Egypt, Israel, Syria and Iraq (Kataev et al., 2003). The species is recorded here from Portugal for the first time.

Bionomics. Occurs in sandy habitats, usually on littorals.

Comparative remarks. Easily distinguished from all the other species of *Cryptophonus* by combination of the following characters: legs pale, pronotal basal edge very finely ciliate, abdominal sternites with additional setae, apical stylomere elongate and terminal lamella of aedeagus short.

Harpalus cyrenaicus Koch, 1939, stat. n.
(Figs. 16, 52–55)

Harpalus litigiosus cyrenaicus Koch, 1939 : 237. Type locality: "Bengasi, Cirene," Libya.

Description. Length of one examined syntype 9.4 mm. Body black; palpi and antennomeres light brown, legs black or dark brown, with paler tarsi.

Very similar in external structural characters to *H. litigiosus*, differing as follows.

Pronotum (Fig. 16) more strongly narrowed to base, shallower emarginate apically and almost not flattened at basal angles; punctation restricted to areas in and around basal foveae, which are deeper than those in *H. litigiosus*. Elytron with flattened intervals and more coarse microsculpture; interval 8, as in *H. litigiosus*, with row of apical setigerous pores.

Aedeagus (Figs. 52–55) notably differing from that of *H. litigiosus*: median lobe robust, slightly arcuate,

with apical portion curved slightly to the right and ventrad; terminal lamella (Fig. 52) comparatively short, about twice as long as wide, with sides slightly converging to rounded apex; internal sac with two large, similar-sized macrospines (proximal one with much wider base) and rather wide spiny patch in middle portion of median lobe.

Type material. Syntype: ♂, labeled "Cirene (Lyb.), IV.38. G. Frey," "Type," "*Harpalus litigiosus cyrenaicus* Koch, det. C. Koch" (NHMB).

Distribution. Found only in North Libya (Cyrenaica), from where other species of *Cryptophonus* are unknown.

Discussion. Treated here as a separate species. It has been described from the series collected in Bengasi and Cyrene (= Shahhat) as a subspecies of *H. litigiosus*, because both taxa have an allopatric distributions and are very similar in some characters of external morphology, including the presence of a row of setigerous pores at apex of elytral interval 8. However, close relationship of these taxa is not supported by a sufficiently different structure of their male genitalia (Figs. 52–55 and Figs. 43, 44). As compared to the aedeagus of *H. litigiosus*, the median lobe of *H. cyrenaicus* is robuster and less strongly curved, with terminal lamella flat and much shorter, and with greater macrospines in the internal sac. Based on the structure of aedeagus, *H. cyrenaicus* is very similar and apparently closely related to *H. fulvus* (Figs. 50, 51), and markedly separated from other members of *Cryptophonus.* In addition, both these taxa share such characters as distinct dorsal microsculpture and pronotum narrowed basad and with punctation restricted to the region of basal foveae. *Harpalus cyrenaicus* differs from *H. fulvus* in dark coloration, more convex pronotum, a presence of setigerous pores at apex of elytral interval 8 and some details of aedeagus structure: terminal lamella more clearly curved ventrad, internal sac with robuster proximal tooth and with additional wide medial spiny patch lacking in *H. fulvus*. Thus I think *H. cyrenaicus* should be treated as a distinct species allied to *H. fulvus*.

Harpalus melancholicus Dejean, 1829
(Figs. 18, 24–26, 56–59, 64, 65)

Harpalus melancholicus Dejean, 1829 : 359. Type locality: "environs de Paris," France (restricted here based on designation of lectotype).

Description. Body length 8.3–11.5 mm. Color black or dark brown; usually palpi, antennae, tarsi and occasionally tibiae paler, brown or reddish brown.

Microsculpture on head fine, slightly obliterate, consisting of isodiametric meshes; pronotum with microsculpture slightly more distinct, usually also consisting of isodiametric meshes, occasionally meshes weakly transverse, more or less obliterate in central portion; elytra throughout with distinct isodiametric meshes.

Mentum and submentum fully fused (as in Fig. 6); median tooth of mentum very short, occasionally only suggested. Pronotum (Fig. 18) widest either slightly behind middle or just at base; pronotal sides rounded in posterior half, with one setigerous pore slightly before middle; basal margin slightly shorter than elytral base between humeral angles, glabrous on basal edge; surface distinctly and irregularly punctate along base and sides. Elytron with shallow, impunctate striae and with a short row of setigerous pores at apex of interval 8, but without such pores at apices of intervals 5 and 7; lateral intervals apically moderately wide, weakly convex. Prosternal medial process either short (Fig. 25) or rather long, produced posteriad (Fig. 26). Metepisternum (Fig. 24) about 1.4–1.5 times as long as wide, strongly narrowed posteriad. Abdominal sternites, except for obligate setae, with numerous additional setae and hairs. Metacoxa without additional posteromedial setigerous pore (as in Fig. 1). Metafemur with 10–20 setigerous pores along posterior margin. Mesotarsomere 1 in male either without adhesive scales ventrally or with one pair of such scales ventroapically.

Apical stylomere (Figs. 64, 65) moderately curved, rather long and narrow.

Aedeagus (Figs. 56–59) arcuate in lateral aspect, with apical portion markedly curved to the right; terminal lamella in dorsal aspect moderately long and narrow, constricted basally, narrowly rounded at apex and curved just at tip ventrad forming there a very small denticle; internal sac with two macrospines (proximal and distal) and a small apical spiny patch; proximal macrospine much longer than distal one, tube-shaped, slightly winging.

Distribution. The species has been described from the environs of Paris and Berlin. It is widely distributed over southern and north-western Europe, also in westernmost Asia; it was also recorded (Bedel, 1898) from North Africa (Algeria).

Bionomics. Occurs in sandy habitats, often in dunes on beaches.

Comparative remarks. The most separate species within *Cryptophonus*, characterized by several unique distinctive characters: pronotum widened basally (Fig. 18), metafemur with numerous setigerous pores along posterior margin, apical stylomere in female long and fairly narrow (Figs. 64, 65) and aedeagus in male with peculiar, tube-shaped proximal macrospine in the internal sac (Figs. 56–59). In the presence of the apical row of setigerous pores on elytral interval 8, *H. melancholicus* is similar to *H. litigiosus* and *H. cyrenaicus*, but distinctly distinguished from them, in addition to the unique features mentioned above, by having numerous setae on abdominal sternites, shorter metepisterna and rather flat elytral intervals apically.

Discussion. *Harpalus melancholicus* forms two subspecies differing mainly in the shape of prosternal medial process and in the presence or absence of adhesive scales on the ventral side of male mesotarsomere 1. Male genitalia are very similar in both subspecies.

Harpalus melancholicus melancholicus Dejean, 1829 (Figs. 25, 56, 57)

Harpalus melancholicus Dejean, 1829 : 359. Type locality: "environs de Paris" (restricted here based on designation of lectotype).

Harpalus ineditus Dejean, 1829 : 362. Type locality: "Fontainebleau," France.

Harpalus decolor Fairmaire et Laboulbène, 1854 : 138. Type locality: "Cap Ferret! au bassin d'Arcachon," France.

Description. Prosternal medial process short, obtuse, not produced posteriad (Fig. 25). Male mesotarsomere 1 with a pair of adhesive scales ventroapically. Pronotum with microsculpture consisting of weakly transverse meshes in central portion and of isodiametric meshes along margins. Aedeagus as in Figs. 56 and 57.

Type material. Lectotype of *Harpalus melancholicus* (present designation; recognized, but not published by J. Serrano): ♀, labeled "♂" [sic], "*melancholicus* m. Paris" [Dejean's handwriting], "coll. Oberthur," "Lectotype," "*Harpalus melancholicus* Dejean, 1829 designato por J. Serrano" and "♀" (MNHN).

Lectotype of *Harpalus ineditus* (present designation): ♂, labeled "♂," "*ineditus* m. P." [Dejean's handwriting] (MNHN).

Additional material. **Spain.** 1 spm., "Spanien bor., Zarauz, Palm leg." (MZLU). **France.** 3 ♂, "A'Bonnoire, Fontainebleau" (ZIN); 1 ♂, "Süd Frankreich" (ZIN); 1 ♀, "La Teste," "*decolor* Fairmaire," "Ex Coll. Bellier" (MNHN); 1 ♀, "La Teste," "Ex coll. Gambey, 1892" (MNHN); 1 ♀, "SW France / Landes / ex coll. Breit" (ZIN). **Sweden.** 1 spm., "Skain" (MZLU); 1 spm., "Skain, Vitemölla" (MZLU); 1 spm., "Skain, Ahus" (MZLU); 1 spm., "Skain, Haväg" (MZLU). **Hungary.** 1 ♀, Agasegyháza, 21–28.VII.1952, Bunday leg. (TMB); 1 ♀, Kéleshalom, VI.1955, Dr. Lenci leg. (TMB); 1 ♀, Orkeny, 21.VII.2004, V. Zieris leg. (cZR). **Montenegro.** 1 ♂, Ada-Bojane, Ulcinj env., 28–29.VII.2002, V. Zieris leg. (cZR); 1 ♂, 1 ♀, "Montenegro, Hope" (ZIN). **Bulgaria.** 1 spm., "Nessebar" (MZLU); 2 ♀, Bjala, VII.1984, H. Wachtl leg. (cZR). **Greece.** 1 spm., Kos, Tigaki, Palm leg. (MZLU). **Ukraine.** *Odessa Prov.*: 6 ♂, 4 ♀, Odessa, Peresyp', Kuyalnitskii liman, 1.VII.1920 and 4.VI–19.VII.1921, D. Znojko leg. (ZIN); 2 ♀, Odessa, Sortirovochnaya Station, 19.VII.1920 and 15.V.1921, D. Znojko leg. (ZIN); *Zaporozhskaya Prov.*: 1 spm., 12 km N of Melitopol, Mirnoe (cISL); *Dnepropetrovsk Prov.*: 2 spms., Dnepropetrovsk Distr., Popova Balovka, A. Sumarokov leg. (cSUM); *Poltava Prov.*: 1 ♂, Poltava, 1.X.1925, F.K. Lukjanovich leg. (ZIN); 2 ♂, 1 ♀, "Poltava gub., Pereyaslavskij uezd, Rudakovo," 4.VIII.1894, V.N. Rodzyanko leg. (ZIN); *Kiev Prov.*: 1 spm., Misailovka, Ros' River bank (MPU); *Donetsk Prov.*: 1 ♂, Artem Distr., "Bakhmut uezd, Ivanovskoe, 1895" (ZIN); *Kharkov Prov.*: 3 ♂, Spasov Skit, sands, 14.VIII.1912, B. Iljin leg. (ZIN); 2 ♂, Osnova, 9.VIII.1912 and 17.VII.1913, B. Iljin leg. (ZIN); *Nikolaev Prov.*: 3 ♂, 2 ♀, Rybakovka, Tuzlovskii liman, sands, 16–25.VIII.1967, S. Blinshtein leg. (ZIN); 4 ♂, 1 ♀, Nikolaev, 2.IX.1902, M. Semenov leg. (ZIN); 2 ♂, Nikolaev, 6.VI.1896, G. Sumakov leg. (ZIN); 1 ♀, Chernomorskii Nature Reserve, 19.V.1974, Petrusenko leg. (cPCH); *Kherson Prov.*: 1 spm., Bol'shie Kopani, Makoedov leg. (cVR); 4 ♂, 1 ♀, "Aleshki" [= Tsyurupinsk], lower Dnepr, 20.VII.1926, 27.V and 8.IX.1927, P. Egorov leg. (ZIN); *Krymskaya Prov.*: 3 ♂, "Tauria / ex coll. G. Sievers" (ZIN); 1 ♀, Saki, 7.VII.1908, V. Pliginskij leg. (ZIN); 22 ♂, 21 ♀, Evpatoria, 18.II and 9.VII.1898, 4.III.1901, 13.VI.1902, 2–6.VII.1904,

V.E. Jakovlev leg. (ZIN); 2 ♂, Evpatoria, Olsufjev leg. (ZIN); 2 ♀, "Eupatoria, VII.1914 / ex coll. Artobolevskij" (ZIN); 2 ♂, "Evp. / ex coll. Kiritshenko" (ZIN); 1 spm., Alushta environs (cKM); 1 ♂, "Kersch, Krim, Breit" (ZIN). **Russia**. *Voronezh Prov.*: 1 ♀, "Voronege" (ZIN); *Volgograd Prov.*: 3 spms., Volgograd, at light, 23.VI.1981, E. Komarov leg. (cVB); 1 ♂, Volgograd, Grigorova balka, 8.V.1995, I. Melnik, E. Shankhiza leg. (MPU); *Rostov Prov.*: 1 ♀, Tarasov Distr., Aleksandrovka environs, 14–18.VI.1999, D. Kasatkin leg. (MPU); *Krasnodar Terr.*: 1 spm., Anapa (cVR); 1 spm., Anapa, spit between Vityazevskii liman and sea (cVR); 1 ♂, 1 ♀, Adler, Psou, coast, 17–23.VIII.2008, S. Dedyukhin leg. (cDED); *Stavropol Terr.*: 1 ♂, Izobilny, 21.VIII.1998, V. Kozminykh (cKZM); *Daghestan*: 1 ♀, Kizlyar environs, Yaman-aul, sands, 16.VII.1927, Kiritshenko leg. (ZIN); 1 ♂, Talgi, 18.VI.1998, E. Iljina leg. (cIL); 1 ♂, NE of Makhachkala, Karaman, at light, 1–10.VIII.2009, E. Iljina leg. (cIL); 2 ♂, Sarykum, 4.VI.2007, E. Iljina leg. (cIL); 1 ♀, Lake Papas, 9.V.2004, E. Iljina leg. (cIL); 1 spm., Samur forest, S. Kurdyukova leg. (cIL); 4 ♂, 2 ♀, Derbent Distr., Berikey environs, 26–27.VII.1982, B. Kataev leg. (ZIN); 1 ♂, 3 ♀, Khunzakh Distr., Akhalchi environs, 26.VI and 3.VIII.1982, B. Kataev leg. (ZIN); *Astrakhan Prov.*: 1 ♂, "Des. Kirgise, Plutschevsk" (ZIN). **Abkhazia**. 1 ♂, Gagry, near coast, 4.IV.1960, O. Kabakov leg. (ZIN); 1 ♂, Sukhum, 16.V.1932, V. Belezin leg. (ZIN). **Azerbaijan**. 1 ♂, 1 ♀, Baku, Mardanjany, 28.V.1930, A. Bogachev leg. (ZIN); 2 ♀, Talysh, Lenkoran environs, Hircanian forest, 22.VI.1932, D. Znojko leg. (ZIN); 1 ♂, Lenkoran Distr., Avrora, 28.IV.1996, A. Zagulajev, Pastukhov leg. (ZIN). **Turkmenistan**. 1 ♂, "Turkmen, Ashabad" (FMNH).

Distribution. The geographical range of the nominotypical subspecies occupies most part of the species range and covers Spain (Atlantic coast), southern England, southern Sweden, France, Belgium, Holland, Germany, Poland, Latvia, Austria, Czech Republic, Hungary, Croatia, Bosnia and Herzegovina, Montenegro, Bulgaria, Greece (the northern part of the mainland, the Rhodes and Kos islands), Romania, Moldova, Ukraine (including the Crimea), south-west of Russia (south of the European part, Ciscaucasia, Daghestan), Georgia, Abkhazia, Armenia, Azerbaijan, Turkey, Iran, and southern Turkmenistan (Kataev et al., 2003; Reck and Chaladze, 2004; Farkač, 2005; Barševskis and Anichtchenko, 2008; Wrase, 2009; Arnd et al., 2011).

Harpalus melancholicus reicheianus nom. n.
(Figs. 26, 58, 59)

Harpalus ovalis Reiche, 1861 : 201 (non Motschulsky, 1844). Type locality: "Corsica, ... Sicile et á Rome, ... dans les marais de Saint-Florent."

Harpalus reichei Jacobson, 1907 : 382 (substitute name for *H. ovalis* Reiche; non Desbrochers des Loges, 1867).

Description. Prosternal medial process long, produced posteriad and acute and apex (Fig. 26). Male mesotarsomere 1 without adhesive scales ventrally. Pronotum with microsculpture consisting of more or less isodiametric meshes on disc. Aedeagus as in Figs. 58 and 59.

Type material. ? Syntype of *Harpalus ovalis*: ♀, labeled "Ajaccio," "*ovalis* Reiche" [hand-written], and "Ex coll. Bellier" (MNHN).

Additional material. 2 ♂, 1 ♀, "*melancholicus* v. *ovalis* Rch., coll. Tschitschérine" (ZIN). **Spain.** 1 ♀, Catalonia, Centellas, 2.VIII.1914, Mas de Xaxars leg. (OÖLL); 1 ♂, "Gironde, Vauloge, Poiute du Sud, 8.87" (OÖLL); 1 spm., "Mallorca, Maravillas, Holm leg." (MZLU); 1 spm., "Mallorca, Aleudia, 1977, Palm leg." (MZLU). **France.** *Corsica*: 1 ♂, "Ajaccio," "Ex coll. Bellier" (MNHN); 1 ♂, "Corse," "Ex Coll. Bellier" (MNHN); 1 ♂, "Corse, *ovalis*" (ZIN); 1 ♂, "Corse," "*melancholicus* v. *ovalis* Rch., coll. Tschitschérine" (ZIN); 1 ♀, "Corse," "19 Db," "*Harpalus ovalis* Rche, Corsica, 93" (ZIN); 1 ♀, "Mu[?]e 93, *H.* v. *ovalis*, Corsica. Po[?] Vecek" (ZIN); 1 ♀, "Corsica" (FMNH). **Italy.** 3 spms., Lido di Roma, Palm leg. (MZLU); 3 spms., Verbicaro-Lao, Palm leg. (MZLU); 1 ♂, "Roma, 1899, Münster" (ZMUN). **Croatia.** 1 ♂, "Dalmatien" (OÖLL); 1 ♀, "Dalmatia" (ZIN). **Greece.** 1 ♀, "Corfu," "954," "Bowring 63.47*" (OÖLL).

Distribution. The subspecies *reicheianus* nom. n. ranges over the northern coast of the Mediterranean Sea; its geographical range covers the eastern part of Iberian Peninsula, Balearic Islands (Formentera and Majorca), Corsica, Italy (including Sardinia and Sicilia), southern Croatia (Dalmatia), and Greece (the eastern part of the mainland, Peloponnesus, the Ionian Islands) (Kataev et al., 2003; Casale, 2005; Wrase, 2009; Arnd et al., 2011).

Discussion. Both subspecies of *H. melancholicus* are connected by populations with intermediate

characteristics at least in the western part of the species range. On the one hand, the examined adults of the nominotypical subspecies from south-west France ("Landes"), including those from the Arcachon basin ("La Teste"), the type locality of *H. decolor*, are characterized by a slightly longer prosternal medial process, but not as long as that in the subspecies *H. m. reicheianus* nom. n. On the other hand, the single examined female of the subspecies *reicheianus* from the north-west of Spain ("Catalonia, Centellas") is distinguished from other specimens of this subspecies by a slightly shorter prosternal medial process.

Both the names *H. ovalis* and *H. reichei* are primary homonyms; therefore, a new substituted name *H. melancholicus reicheianus* nom. n. is proposed for this taxon.

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