

Review of the Genus *Hedyphanes* Fischer von Waldheim, 1820 (Coleoptera: Tenebrionidae: Helopini) of Kazakhstan, Middle Asia, Iran and Afghanistan¹

M. V. Nabozhenko^{a, b}

^aCaspian Institute of Biological Resources, Daghestan Scientific Centre, Russian Academy of Sciences, 367000 Russia

^bDaghestan State University, Makhachkala, 367000 Russia

e-mail: nalassus@mail.ru

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Abstract—A taxonomic revision of the tenebrionid-beetle genus *Hedyphanes* Fischer von Waldheim, 1820 from Kazakhstan, Middle Asia, Iran and Afghanistan is presented. The history of the classification of this genus is described; the descriptions, synonymy, bibliography, data on the distribution and ecology, and a key to 19 species are given. Four new species are described: *H. kadleci* **sp. n.** (Iran: Ardabil Province), *H. igori* **sp. n.** (Iran: Semnan Province), *H. aalbui* **sp. n.** (Iran: Qum Province), and *H. afghanicus* **sp. n.** (Afghanistan: Herat Province). *Hedyphanes tuxeni* Kaszab, 1959 is recorded for Iran and *H. kiritshenkoi* is recorded for Uzbekistan for the first time. The following new synonymies are established: *Hedyphanes besseri* Faldermann, 1837 = *H. parvicollis* Seidlitz, 1896, **syn. n.**; *Hedyphanes seidlitzii* Reitter, 1914 = *H. albertus* Reitter, 1922, **syn. n.**, and *Hedyphanes bodemeyeri* Reitter, 1914 = *H. gebieni* Reitter, 1914, **syn. n.** *Hedyphanes kuschkensis* Kaszab, 1960 is interpreted as a subspecies: *H. seidlitzii kuschkensis* **stat. n.** Lectotypes of *Hedyphanes koltzei* Heyden, 1892, *H. europis* Reitter, 1914, and *H. bodemeyeri* Reitter, 1914 are designated.

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Hedyphanes Fischer von Waldheim, 1820 is a rather small tenebrionid genus of the tribe Helopini (subfamily Tenebrioninae), which comprises 34 species distributed in xerophytic landscapes from the eastern part of the Mediterranean Region to Afghanistan.

The genus was distinguished by Fischer von Waldheim (1820) based on the image of the species *Tagenia coerulescens*; the description of this species was published one year later (Fischer von Waldheim, 1821). The first review of the genus was made by E. Ménériés (1832) who described five species from Baku and Zuvand based on the material of the first Caucasian expedition. Later, Faldermann (1837) also described several species from Transcaucasia and Iran. Since many representatives of this genus demonstrate a wide variability, a considerable part of the taxa described by Ménériés and Faldermann have been considered subsequently merely morphs and synonymized. Motschulsky (1845), Allard (1876, 1877), and Heyden (1892) described within *Hedyphanes* a number of taxa from Asia Minor and the Caucasus. Baudi di Selve (1876) included *Hedyphanes* in the

genus *Helops* as its subgenus, which was not supported by the subsequent researchers. Some taxa from Crete were included in the genus during the XIX century (Lucas, 1854; Marseul, 1879); their taxonomic position remains unclear (Nabozhenko and Löbl, 2008), as no species of *Hedyphanes* have been found on Crete but members of the closely related genus *Raiboscelis* Allard, 1876 are abundant there. Koch (1948) also believed that the species of *Hedyphanes* described by P. Lucas belong to other genera, but he did not consider improbable distribution of this genus on Crete. A. Schuster (1915) noted that the species staying in the Berlin collection under the name *Hedyphanes cribripennis* Lucas, 1854 was actually *Catomus consentaneus* (Küster, 1851) and that, judging by the original descriptions, *H. cribripennis* might be a synonym of *Raiboscelis corvinus* (Küster, 1850), while the description of *H. helopioides* Lucas, 1854 (the valid name is *H. helopinus* Gemminger, 1870) fitted well *Probatiscus mori* (Brullé, 1832). The third species from Crete, *Hedyphanes angustus* (Marseul, 1879), was originally described in the genus *Apolites* Jacquelin du Val, 1861 (the valid name is *Ceratanisus* Gemminger, 1870, the tribe Ceratanisini) and subsequently synonymized with *Hedyphanes upioides* Faldermann, 1837, which in its turn was reduced to a

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synonym of *H. tagenoides* Faldermann in Ménétriés, 1832 (Nabozhenko, 2002).

The genus *Hedyphanes* was first revised by Seidlitz (1896) who included in it, in addition to the nominotypical subgenus, the subgenera *Catomidius* Seidlitz, 1896 and *Stenomacidius* Seidlitz, 1896. The species of the genus *Catomus* Allard, 1876 s. str. were included in *Catomidius*. The subgenus *Stenomacidius* was proved to be composite and was synonymized with *Cylindrinotus* Faldermann, 1837 after examination of its type species. The other species included in this subgenus during the next 100 years were distributed between the genera *Eustenomacidius* Nabozhenko, 2006 and *Odocnemis* Allard, 1876 (Nabozhenko, 2006).

Reitter (1914, 1922) repeatedly revised the genus *Hedyphanes* and described a great number of species from Iran, Middle Asia, and the Caucasus. He synonymized the name *Catomidius* with *Catomus* Allard, 1876 and transferred the subgenus *Stenomacidius* to the genus *Catomus*. Thus, the genus *Hedyphanes* was interpreted by Reitter in the strict sense, in line with Ménétriés (1832) and Faldermann (1837).

The classification of the genus *Hedyphanes* was discussed by Iablokoff-Khuzorian (1957, 1964) who reasonably considered the genera *Hedyphanes* and *Entomogonus* Solier, 1848 to be very closely related and advocated uniting them. The subgenus *Coelophanes* Iablokoff-Khuzorian, 1964 described by him for the species with humeral prominences of the elytra was reduced to a synonym of the nominotypical subgenus (Nabozhenko, 2005a).

Six species from Afghanistan (Kaszab, 1959, 1960), Middle Asia (Bogatshev, 1963; Medvedev, 1978), and Iran (Medvedev, 1976) were described within the genus *Hedyphanes* during the XX century. Ecological and faunistic studies and keys to the species from Transcaucasia, Middle Asia, and Kazakhstan were also published (Bogatshev, 1934, 1938a, 1938b; Skopin, 1961, 1964, 1968; Tadzhibaev, 1972; Nepesova, 1980; Abdurakhmanov and Medvedev, 1994; Abdurakhmanov and Nabozhenko, 2009, 2014; Ivanov, 2012; Egorov and Rakhimov, 2015).

Further improvement of the taxonomy of this genus is associated with the study of the fauna of the Caucasus and the Near East (Nabozhenko, 2002, 2005a, 2008a, 2008b, 2013; Abdurakhmanov and Nabozhenko, 2011; Nabozhenko and Lillig, 2013). As the

result of these studies, many taxa described by Faldermann, Ménétriés, and Motschulsky were synonymized, lectotypes were designated, the new subgenus *Granulophanes* was described for two species from Western Anatolia (Nabozhenko, 2013), the monotypical subgenus *Microhedyphanes* was erected for *H. chikatunovi* from the Sinai Desert (Nabozhenko and Lillig, 2013), and a number of new species were described. The morphological characteristic of the genus, the main evolutionary trends, adaptations to the arid environment, and trophic associations are additionally considered in other papers of Nabozhenko (2005b, 2006, 2007). *Hedyphanes roznerorum* (Nabozhenko, 2008), erroneously described initially in the genus *Pseudoprobaticus* Nabozhenko, 2008 and known earlier only from Denizli Province of Turkey (Nabozhenko, 2008a, 2013), was found near the Mediterranean coast in Turkey (Turkey, Muğla Prov., Olüdeniz, Babadağ Mt., h = 800 m, 8.V.2012, leg. A. Azarov, 1 ♀)—this is apparently the westernmost record for the genus *Hedyphanes*.

In the present study, the taxonomy of the Kazakhstan, Middle Asian, Iranian, and Afghanian representatives of the genus is revised, four new species are described, and three new synonyms are established. Thus, 35 species are known now in the genus *Hedyphanes*.

Since the greatest diversity of *Hedyphanes* is observed in Iran (14 species, 8 of them endemic), this territory should probably be considered the center of origin of the genus. Out of the seven species distributed in Middle Asia and Kazakhstan (five of them endemic to the region), one is common with the Iranian fauna, and one, with Afghanistan. In Afghanistan, three species are known, including an endemic one. In the Caucasus, four species are recorded, including two endemics. In Anatolia, five species (three endemics) are recorded. One species is described from Iraq, and one, from the Sinai Peninsula. The majority of the representatives of the genus *Hedyphanes* inhabit dense clay or stony soils in the mountains or plains of semi-deserts and deserts. Two species, *H. coerulescens* and *H. besseri* Faldermann, 1837, also frequently occur on various types of sands. Only one species, *H. muminovi* (Bogatshev, 1963), is a highly specialized psammophil. Similarly to many Helopini, the species of this genus are characterized by the early-spring seasonal activity. In contrast to most of the representatives of the tribe, which show the evening or night activity, the species of *Hedyphanes* mainly occur in the morning

and evening hours. Skopin (1961) recorded night activity for *Hedyphanes coerulescens*. Though the trophic associations of this group are poorly known, a number of the Caucasian and Middle Asian species are found to be phytophagous, and this implies a similar diet of the rest congeners, which distinguishes them, along with *Entomogonus*, *Raiboscelis* Allard, 1876, and *Adelphinus* Fairmaire et Coquerel, 1866, from the lichenophagous majority of Helopini. The species of *Hedyphanes* most frequently feed on saltworts (according to the labels, primarily on *Salsola*) but also occur on *Haloxylon*, *Calligonum*, and *Tamarix*.

MATERIALS AND METHODS

Material from the following institutions, museums, and private collections was used in the study: the Zoological Institute, Russian Academy of Sciences (ZIN, St. Petersburg, Russia), the Zoological Museum of Moscow State University (ZMMSU, Moscow, Russia), the Zoological Museum of Moscow State Pedagogical University (ZMMSPU, Moscow, Russia), Institute of Zoology of the National Academy of Sciences of Armenia (IZAr, Yerevan, Armenia), Institute of Zoology of the National Academy of Sciences of Azerbaijan (IZAz, Baku, Azerbaijan), Institute of Zoology of the National Academy of Sciences of Georgia (IZG, Tbilisi, Georgia), the Hungarian Natural History Museum (HNHM, Budapest, Hungary), Deutsches Entomologische Institut (DEI, Müncheberg, Germany), Staatliche Museum für Tierkunde Dresden (SMTD, Dresden, Germany), the Zoological Museum of University of Copenhagen (ZMUC, Copenhagen, Denmark), the Natural History Museum, London (NHML, London, United Kingdom), Muséum National d'Historie Naturelle (MNHP, Paris, France), Národní Muzei v Praze (NMP, Prague, the Czech Republic), Staatliches Museum für Naturkunde Stuttgart (SMNS, Stuttgart, Germany), and private collections of P. Brignoli (CB, Roma, Italy), M.V. Nabozhenko (CN, Makhachkala), and A. Azarov (Moscow).

Genus **HEDYPHANES** Fischer von Waldheim, 1820

Type species *Tagenia coerulescens* Fischer von Waldheim, 1821, by monotypy.

Fischer von Waldheim, 1820 : plate 15; 1821 : 13 (*Tagenia*); 1822 : 171–172; Faldermann, 1837 : 80; Lacordaire, 1859 : 453; Jacquelin du Val, 1861 : 323; Baudi di Selve, 1876 : 268 (*Helops* subgen.); Allard, 1876 : 4; 1877 : 18, 224; Seidlitz, 1896 : 678, 789,

794; Reitter, 1914 : 184; 1922 : 7, 15; Iablokoff-Khnzorian, 1957 : 165; 1964 : 304, 309; Medvedev, 1965 : 361, 379; 1987 : 97; Kryzhanovsky, 1965 : 180; Medvedev and Nepesova, 1985 : 151; Nabozhenko, 2002 : 684–685; 2013 : 3; Abdurakhmanov and Nabozhenko, 2011 : 43, 148; Nabozhenko and Lillig, 2013 : 189.—*Coelophanes* (subgen.) Iablokoff-Khnzorian, 1964 : 304.

A brief morphological characteristic of the adults. Body medium-sized to large (9–18 mm), cylindrical, elongate, black, occasionally with bluish tint, rarely brown. Integument with matte or greasy luster, occasionally matte, with metallic sheen in two species. Mouthparts of open type (mentum not filling entire gular emargination; cardo and stipes not concealed by margins of mentum) (Fig. 1a). Eyes strongly transverse, obliquely situated (Figs. 3a, 9c). Anterior margin of head straight (except for the subgenus *Microhedyphanes* with anterior margin of head emarginate in its only species). Antennae usually long, with 3–4 apical antennomeres extending beyond base of pronotum, less frequently short and only reaching base of pronotum. Ultimate antennomere asymmetrical, rhombic or irregularly oval; its apex strongly slanting, elongate in male (Figs. 2c, 4b, 5b, 7b, 7d, 8b, 10b), very short in female. Humeral elytral angles not pronounced, except for a few species (Figs. 5a, 7a, 7c). Base of elytra, entirely or in middle (in species with humeral angles), without vertical margin fitting base of pronotum (Figs. 4a, 5c, 6a, 8d, 9a, 10a, 11a, 11d, 12a, 13b). Interstriae usually with fine, rarely with coarse punctation. Species of the subgenus *Granulophanes* with small granules on interstriae. Epipleura reaching elytral apices and noticeably widened there; their upper side forming flattened apical plate (Figs. 1c, 3e). Elytra fused (sutural margin of left elytron concealing right elytron from within) (Fig. 3e), glabrous, sparsely pubescent only apically (Fig. 6a). In some species, entire body covered with recumbent or subrecumbent hairs (Figs. 5c, 13a). Pro- and mesotarsi of male widened, each with dense hair brush on sole surface (Figs. 1d, 1e, 3c). Aedeagus heavily sclerotized; parameres with rigid short spines (Figs. 4d, 10h, 11c, 12f) directed posteriorly. Ventral processes of parameres fused, elongate, concealing basal part of aedeagus ventrally along its entire length. Penis with sharp apex, 2 heavily sclerotized baculi, and 2 longitudinal sclerotized stripes medial to baculi. Spiculum gastrale heavily sclerotized, with straight branches fused apically; lobe of spiculum gastrale with process

on outer side. Sternite VIII of male heavily sclerotized, with very dense long dark rufous hairs at apex.

Sexual dimorphism. Males more slender than females, with longer antennae, with row of very dense dark rigid hairs on inner surface of protibia, and with widened pro- and mesotarsi.

Comments. The diagnostics of the species of this genus, based on the characters of the male genitalia, is difficult because of the uniformity of the latter structure. Clear differences from the other *Hedyphanes* are found only in *H. koltzei* Heyden, 1892, *H. iranicus* Medvedev, 1976, and *H. igori* sp. n. whose genitalia have longitudinal gutter-shaped depression on the dorsal side of the parameres; while in the other species their dorsal side has a weak keel-shaped longitudinal elevation. For this reason, the male genitalia of the majority of the species are not illustrated in this paper.

Hedyphanes coerulescens

Fischer von Waldheim, 1821

(Fig. 1)

Fischer von Waldheim, 1821 : 13 (*Tagenia*); 1822 : 174; Baudi di Selve, 1876 : 268; Allard, 1877 : 53, 225; Seidlitz, 1896 : 796; Reitter, 1914 : 187; 1922 : 17; Skopin, 1961 : 206; 1964 : 278; 1968 : 75; Medvedev, 1965 : 379, fig. 112–9; Kryzhanovsky, 1965 : 180; Tadzhibaev, 1972 : 275; Medvedev and Nepesova, 1985 : 152; Abdurakhmanov and Nabozhenko, 2011 : 148, 300, fig. 326; Ivanov, 2012 : 227; Egorov and Rakhimov, 2015 : 33.

Type material (SMTD). Male lectotype was designated by Abdurakhmanov and Nabozhenko (2011): “Fischer von Waldheim” (printed), “Typus *Hedyphanes coerulescens* Fisch.” (red, printed), “*Tag. coerulescens* m. Buchara,” “Staatl. Museum für Tierkunde Dresden” (printed). The lectotype lacks the fore and middle left legs, and two right apical mesotarsomeres. Paralectotype, ♂ with labels: “Fischer von Waldheim” (printed), “Staatl. Museum für Tierkunde Dresden” (printed). The paralectotype lacks the middle right leg and two left apical protarsomeres. Paralectotype, ♀ with labels: “Fischer von Waldheim” (printed), “Staatl. Museum für Tierkunde Dresden” (printed). Four apical left mesotarsomeres, 3 apical left metatarsomeres, and right fore leg are missing.

Material. Kazakhstan. *West Kazakhstan Prov.*, Chinsinsky 20th, 27.VI.1909 (S. Zhuravlev), 1 ♂ (ZIN). *Atyrau Prov.*, Elibek District, Qurghonteppa

Natural Boundary, 18.V.1980 (F.A. Saraev), 1 ♂ (CN); Zheltau, 13.V.1981 (F.G. Bidashko), 1 ♂ (CN); Mertvy Kultuk, spring, 1840 (A. Lehman), 1 ♀ (ZIN). *Mangystau Prov.*, Shetpe, 18–21.IV.2011 (A.E. Abramov), 5 ♂, 1 ♀ (CN); Beyneu, 16.IV.2011 (A.E. Abramov), 9 ♂, 10 ♀ (CN); Mangyshlak, 11–19.IV.1997 (Dostoevsky), 3 ♂, 3 ♀ (ZIN); Kamysta, 1.V.1962 (L. Makarov), 1 ♂, 1 ♀ (ZIN); Ustyurt, Karamolidagbas, 9.V.1962 (N.G. Skopin), 1 ♂ (ZIN); near Shoulder, 1.VI.1964 (N.G. Skopin), 1 ♂, 1 ♀ (ZIN); Aral Sea, Barsakelmes Isl., Dzhashan-Musun, 6.VI.1973 (Z.A. Zorina), 1 ♀ (ZIN); Karmakchi (= Zhosaly), 18.IV.05 (J. Baeckmann), 1 ♀ (ZIN); Syr Darya, Perovsk (= Kyzylorda), Dzhulek fortress, 4.V.1905, 14.V.1905, 18.V.1905 (J. Baeckmann), 3 ♀ (ZIN); Perovsk, near Dzhulek fortress, Balgakum, 21.IV.1908 (D.K. Glazunov), 1 ♂, 2 ♀ (ZIN); Chiili (= Shieli), 24.V.1967 (N.G. Skopin), 1 ♂, 1 ♀ (ZIN); SW Kyzylkum Desert, 120 km NE of Chirik-Rabat, 23.IV.1967, 26.IV.1967 (N.G. Skopin), 2 ♂, 2 ♀ (ZIN); Muyunkum Desert, 26.V.1959 (N.F. Chernonog), 3 ♂ (ZIN). **Turkmenistan.** Krasnovodsk (= Turkmenbashi), 19.VIII.1904 (Kulygin), 1 ♀ (ZIN); near Gumdag, 18.IV.1952 (O.L. Kryzhanovsky), 1 ♀ (ZIN); sands near Pereval Railway Station, on *Salsola*, 26.IV.1952 (O.L. Kryzhanovsky), 3 ♂, 2 ♀ (ZIN); Kyuren Dag, Danata, 23.IV.1974 (G.S. Medvedev), 1 ♂ (ZIN); Kazandzhik (= Bereket), foothills, 6.IV.1952 (O.L. Kryzhanovsky), 1 ♂ (ZIN); near Iskander Railway Station, 16.IV.1951 (O.L. Kryzhanovsky), 1 ♂ (ZIN); near Bekibent, sands, 5–6.V.1952 (K.G. Romadina, V.D. Il'ichev), 5 ♀ (ZIN); near Rustam-Kale, 6.V.1952 (V.D. Il'ichev), 1 ♀ (ZIN); Gyzyletrek, 36 km S of Nadau, 8.V.1952 (V.D. Il'ichev), 1 ♀ (ZIN); Garabogaz, 40 km N of Kyzyl-Arvat (= Serdar), in termitary, 16.V.1952 (D.M. Shteinberg), 1 ♀ (ZIN); 18 km N of Kyzyl-Arvat: 6.IV.1952 (V.D. Il'ichev, D.M. Shteinberg), 6, 8.IV, 18.V.1952 (K.G. Romadina), 4 ♂, 8 ♀ (ZIN); 6.V.1953 (D.M. Shteinberg), 1 ♂ (ZIN); N of Kyzyl-Arvat, Toutly, in evening, on *Haloxylon*, 20.IV.1962 (V.D. Il'ichev, D.M. Shteinberg, K.G. Romadina), 21.IV.1952 (K.G. Romadina), 1 ♂, 6 ♀ (ZIN); Kyzyl-Arvat, slopes of Kopet Dag, 15.IV.1975 (V.V. Yanushev), 2 ♀ (ZIN); Arman Saad, Kyzyl-Arvat, 1896 (K.O. Ahnger), 5 ♂, 4 ♀ (ZIN); Takyryu, Kyzyl-Arvat (Shteinberg), 1 ♀ (ZIN); 12 km S of Kyzyl-Arvat, 22.IV.1952 (Odintsova), 1 ♀ (ZIN); Kopet Dag foothills, 15 km S of Kyzyl-Arvat, 9.IV.1952 (D.M. Shteinberg), 1 ♂ (ZIN); western environs of Mashhad Sands, 5.V.1952 (D.M. Shteinberg), 1 ♀

(ZIN); Bakharden (= Baharly), 17.IV.1902 (K.O. Ahnger), 3 ♀ (ZIN); W of Bakharden, 12.IV.1951 (D.M. Shteinberg), 4 ♂ (ZIN); Kopet Dagh, Bakharden, 1966 (V.D. Potapol'skiy), 1 ♀ (ZIN); 139 km W of Ashgabat, 27.IV.1975 (V.V. Yanushev), 1 ♂, 1 ♀ (ZIN); Kelyata (= Kelete), 6.IV.1902 (K.O. Ahnger), 1 ♀ (ZIN); Ashgabat (without date, collector unknown), 1 ♀ (ZIN); Ashgabat: 5, 8, 16.V.1928 (V.V. Gussakovskiy), 3 ♀ (ZIN); 10–25.V.1980 (Kh.I. Atamuradov) 1 ♂ (SMNS); near Ashgabat, 17.VI.1967 (L.R. Freiberg), 1 ♂ (ZIN); Ashgabat, Anau: 31.III.1964 (L.R. Freiberg), 2 ♂ (MPGU); 28.III.1977 (collected by Kharkov Entomological Society), 1 ♂, 2 ♀ (CN); Artyk, 1901 (G.V. Loudon), 1 ♀ (ZIN); Tejen: 2–5.IV.1911 (G.V. Loudon), 2 ♀ (ZIN); 6.IV.1929 (V.V. Nikitin), 1 ♀ (ZIN); “Murgab tsarist manor”, 21.IV, 12.V.1912 (D. Smirnov), 2 ♀ (ZIN); Bayram-Ali (= Bayramaly) (Merv ruins), 27.IV.1968 (G.S. Medvedev), 1 ♂, 1 ♀ (ZIN); Shary Mt. (Merv ruins), 27.IV.1968 (G.S. Medvedev), 1 ♀ (ZIN); Bayram-Ali, Merv, 17.IV.1972 (Yu.S. Balashov), 4 ♂, 2 ♀ (ZIN); Yolatan' (= Ioleten), 17.IV.1926, 21.IV.1927 (V.A. Kizeritsky), 2 ♂, 1 ♀ (ZIN); Sary-Yazy, 12–25.IV.1911 (G.V. Loudon), 1 ♂ (ZIN); near Kushka (= Serhetabat), 4.V.1909 (I. Ivanov), 1 ♂ (ZIN); Peski Station, 17.IV.1911 (G.V. Loudon), 1 ♀ (ZIN); Repetek, V.1900 (K.K. Saaro), 1 ♂, 3 ♀ (ZIN); Karakum Canal: Nichka, 25.IV.1968 (G.S. Medvedev), 7 ♂, 7 ♀ (ZIN); Karamet-Niyaz, 23.IV.1968 (G.S. Medvedev), 1 ♀ (ZIN); Kelif, 19.V.1968 (G.S. Medvedev), 2 ♀ (ZIN); Kugitangtau Range (= Koytendag Range), 6 and 14 km W of Svintsovy Rudnik, 24, 29.IV, 5, 12, 20.V.1959 (G.S. Medvedev), 4 ♂, 5 ♀ (ZIN). **Uzbekistan.** *Bukhara Prov.*: Kyzylkum Desert: 70 km S of Tashly-Bulak, 2.V.1965 (E.L. Gur'eva), 1 ♂ (ZIN); Bukantau Mt., 13.V.1965 (G.S. Medvedev), 1 ♂, 1 ♀ (ZIN); Aristantau, 25.IV.1966 (G.S. Medvedev), 1 ♀ (ZIN); Tamdytau, Aktau Mt., 4.V.1965 (G.S. Medvedev), 10.V.1965 (L.V. Arnoldi), 3 ♀ (ZIN); Kuljuktai Mts., Ayakguzhumdy, 7, 10, 11, 12, 16, 29.IV.1965, 2.IV.1966 (G.S. Medvedev), 20 ♂, 20 ♀ (ZIN); 50 km NW of Jingildy, 19.IV.1966 (G.S. Medvedev), 1 ♀ (ZIN); 40 km E of Jingildy, Ayakguzhumdy, 11.IV.1973 (M.I. Falkovich), 2 ♂, 2 ♀ (ZIN); Ayakagyta, 20.IV.1965, sands with *Nitraria* (G.S. Medvedev), 2 ♂, 7 ♀ (ZIN); Mussa-Bay, 1892 (D.K. Glazunov), 3 ♂, 4 ♀ (ZIN); SE Kyzylkum, 20.V.1960 (P.A. Lehr), 1 ♂, 1 ♀ (ZIN); Kyzylkum, Shafrikan, 28.V.1965 (L.V. Arnoldi), 2 ♂ (ZIN); Nuratau Mts., Temir-Kauk, 1892 (D.K. Glazunov), 5 ♂, 2 ♀ (ZIN);

Tuskane, 1892 (D.K. Glazunov), 3 ♂, 4 ♀ (ZIN); Bukhara, 1903 (Prof. Scheider), 1 ♂ (SMTD); Bukhara, Karaul-Bazar, 10.IV.1927 (V.V. Yakhontov), 3 ♂ (ZIN). *Jizzakh Prov.*, Jizzakh, Golodnaya Steppe (Mirzacho'l), IV.1880 (collector unknown), 1 ♂ (ZIN); 1, 4, 23.IV, 10.V.1903 (G.G. Jakobson), 1 ♂, 4 ♀ (ZIN), 1892 (D.K. Glazunov), 1 ♀ (ZIN); Pakhtakor Distr., Karnabchul, 7.VI.1958 (M. Sosnina), 2 ♂ (ZIN); Syrdarya Railway Station near Jizzakh, 8.V.1903 (G.G. Jakobson), 1 ♂, 3 ♀ (ZIN); Ilbe Kuybak, near Jizzakh, 9.V.1903 (N.N. Ivanov), 1 ♂, 1 ♀ (ZIN); Khodzhikent, IV.1880 (collector unknown), 1 ♂ (ZIN); Khodzhikent Distr., 6–7.IV.1911 (Chernyaev), 1 ♂, 1 ♀ (ZIN). *Tashkent*, (1868–1871) (A.P. Fedchenko), 1 ♂, 1 ♀ (ZIN); Khilkovo (now Bekabad), 12.IV.1914 (collector unknown), 1 ♀ (ZIN). *Fergana Prov.*: Fergana, 11.V.1920 (N.A. Zarudny), 1 ♀ (ZIN); Fergana (= Skobelev) env., 13–15.V.1920 (I. Ivanov), 1 ♀ (ZIN). *Sirdarya Prov.*: Ursatievskaya Railway Station (= Khavast), 9.V.1920 (I. Ivanov), 2 ♂ (ZIN); Tashlau (Khavast env.), 23.IV.1912 (collector unknown), 1 ♂ (ZIN). *Samarkand Prov.*: Samarkand, Sirabulak, 5.IV.1929 (B. Nikitin), 1 ♂ (ZIN). *Kashkadarya Prov.*: Mubarek, 22.IV.1962 (B.M. Mamaev), 1 ♂, 1 ♀ (ZIN); 10 km W of Maydayochi (= Maydayap), 39°23'59.8"N, 65°38'21.2"E, 331 m, 11.IV.2014 (M.V. Mokrousov), 8 spms. (ZIN); Chirakchi Distr., ≈ 10 km SW of Qarshi, 38°57'20.2"N, 65°53'45.7"E, 22.IV.2014 (M.V. Mokrousov), 2 spms. (ZIN); Kamashi, 6.IV.1929 (collector unknown), 1 ♀ (ZIN). *Surkhandaryinskaya Prov.*: Termez, 23.III.1913, 4.IV.1913, 11.IV.1913 (A.N. Kirichenko), 1 ♂, 3 ♀ (ZIN); Termez, sands, 19.III.1958 (collector unknown), 1 ♀ (CN). **Tajikistan.** Shaartuz, 4.IV.1958, 6.IV.1958 (I.K. Lopatin), 1 ♂, 1 ♀ (ZIN), 1 ♂ (CN); Chiluchor-Chashma, W of Shaartuz, 20.IV.1959 (I.K. Lopatin), 2 ♀, 20.IV.1962 (E.L. Gur'eva), 1 ♀ (ZIN); Shaartuz Distr., Beshkent, under *Salsola*, 20.IV.1960 (A. Bogatshev), 1 ♂ (ZIN); Ayvaj, 17.IV.1944 (L.V. Arnoldi), 1 ♀ (ZIN); Jilikul' on Vakhsh River, 29.IV.1943 (L.V. Arnoldi), 1 ♀ (ZIN). “E Bukhara” (without date) (Regel), 1 ♂ (ZIN).

Description. Male. Body elongate, slender, black with blue tint, weakly lustrous. Head widest across eyes. Eyes strongly convex. Ratio of width of head across eyes to interocular distance 1.57–1.60. Genae projecting, angular, elevated. Lateral margin of head with obtuse-angular smoothed or distinct emargination between gena and frontoclypeus. Frontoclypeus separated from frons by shallow smoothed

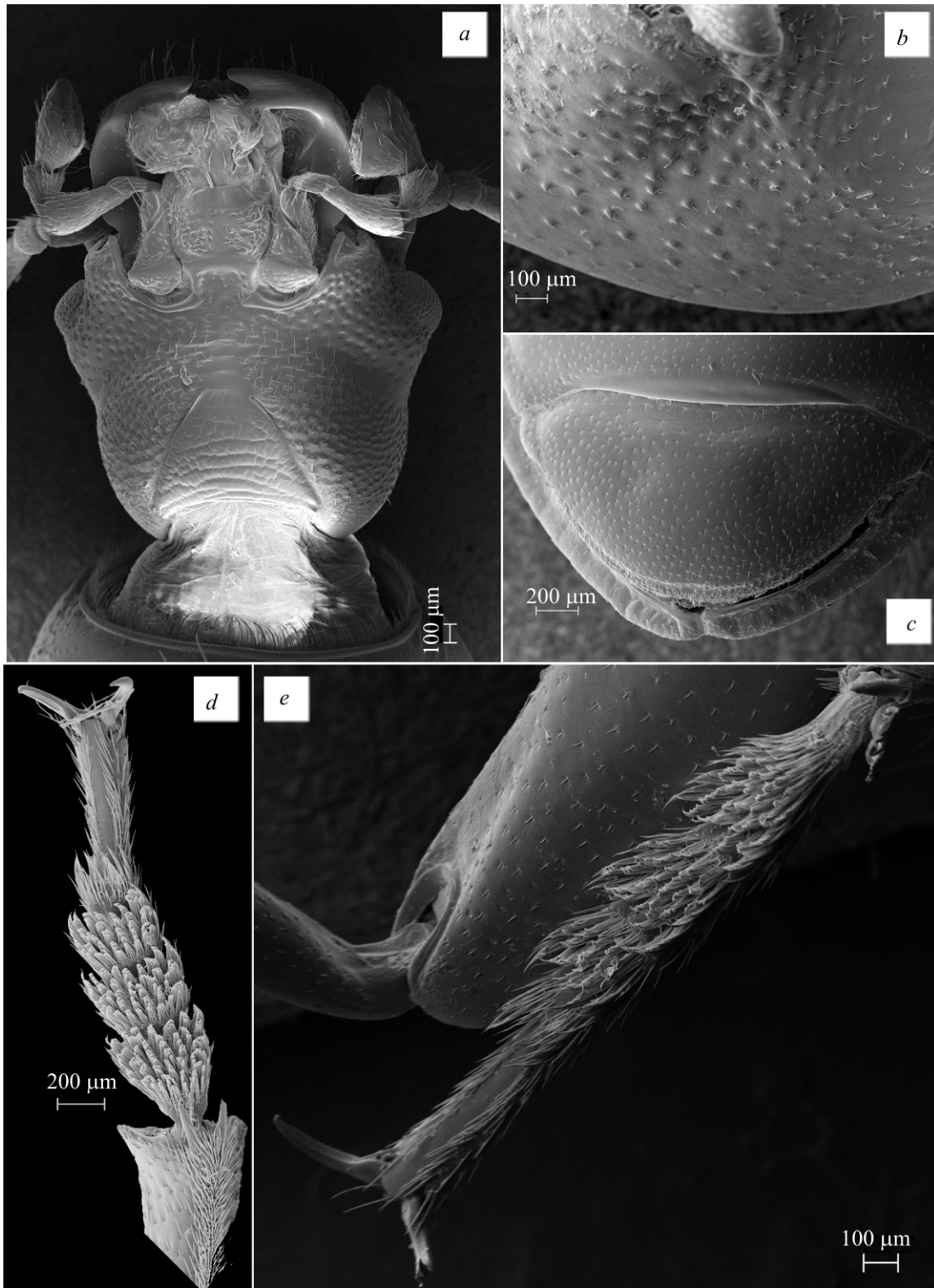


Fig. 1. *Hedyphanes coeruleus* F.-W.: (a) head, ventral view; (b) prothoracic hypomeron; (c) epipleural apex and abdominal ventrite 5; (d) protarsus, ventral view; (e) mesotarsus, ventral view.

depression. Punctuation of head formed by sparse and fine (space between punctures 2–4 times puncture diameter) to moderately coarse and moderately dense (puncture diameter subequal to interpuncture space). Antennae long, with three apical antennomeres extending beyond base of pronotum; 11th antennomere weakly asymmetrical, elongate, subparallel-sided up to middle, with outer side sharply slanting toward apex behind middle.

Pronotum transverse (1.50–1.75 times as wide as long), widest before middle; sides weakly rounded, indistinctly emarginate at base; occasionally pronotum cordate. Anterior margin rounded; base weakly rounded, frequently emarginate in middle. Anterior angles strongly rounded, obtuse; posterior angles obtuse but more distinct, narrowly rounded apically, separated from pronotal disc by oblique depression. Sides of pronotum with fine inconspicuous margination frequently obliterate in middle; base finely marginate; anterior margination frequently smoothed or obliterate in middle. Pronotal disc longitudinally convex. Prothoracic hypomera covered with small sparse granules. Punctuation of pronotum fine and sparse (interpuncture space 2–4 times puncture diameter). Prosternal process weakly convex.

Elytra elongate, elliptical, widest in middle. Elytral striae distinct, formed by round, separately raised punctures; interstriae flat, with fine inconspicuous punctuation. Epipleura with sparse, very small granules.

Abdominal ventrites glabrous, with fine and sparse punctuation; ventrite 1 with smoothed longitudinal rugosity at sides; 2nd frequently with granules. Anal ventrite marginate apically, glabrous.

Legs long; femora with recumbent golden hairs on inner surface. Pro- and mesotarsi widened. Protarsomeres triangular, transverse; mesotarsomeres longitudinal.

Female. Body less slender; legs shorter than those in male. Pronotum less oblong, widest in, or slightly before middle; length to width ratio 1.00–1.08. Antennae not reaching base of pronotum; 11th antennomere not longer than 10th antennomere. Femora without dense recumbent hairs on inner surface, occasionally with sparse long hairs. Sides of pronotum frequently not emarginate before posterior corners.

Body length 7.8–15.0 mm, width 3.7–6.0 mm.

Notes. Gebien (1943) presumed that *Hedyphanes chalybaeus* Faldermann, 1837 is a junior synonym of

H. coerulescens. The types of the first taxon have not been found and probably are lost. The Faldermann's description much better corresponds to the Transcaucasian *Entomogonus clavimanus* Reitter, 1903.

Distribution. Russia (Bashkortostan, the east of Astrakhan Province), Western Kazakhstan, Mangyshlak Plateau, Ustyurt Plateau, Southern Kazakhstan as far to the north as the Chu River valley, Turkmenistan, Uzbekistan, southwestern Tajikistan, northern Afghanistan.

Hedyphanes besseri Faldermann, 1837
(Fig. 2)

Faldermann, 1837 : 95; Motschulsky, 1845 : 82; Allard, 1876 : 8; 1877 : 226; Seidlitz, 1896 : 796; Reitter, 1914 : 186; 1922 : 18; Medvedev and Nepesova, 1985 : 152; Ivanov, 2012 : 227.—*parvicollis* Seidlitz, 1896 : 795, 797; Reitter, 1914 : 184; 1922 : 17, syn. n.

Type material. The types of the F. Faldermann's species have not been found and probably are lost.

The holotype of *Hedyphanes parvicollis* Seidlitz, 1896 (DEI) is a female with the labels: "Transcasp. Kisol-Aswat," "aschabat Hauser," "Holotypus," and a blue square.

Material. Kazakhstan. Mangystau Prov., 15 km S of Fort Shevchenko, coast, 15.VI.2013 (G.M. Abdurakhmanov), 1 ♀ (CN). **Turkmenistan.** Krasnovodsk (= Turkmenbashi) (without date, collector unknown), 1 ♀ (ZIN), 28.III–12.V.1899, 1.V.1900 (K.O. Ahnger), 4 ♂, 6 ♀ (ZIN), 19.VIII.1904 (Kulygin), 1 ♀ (ZIN), 2.V.1905 (E. Fischer), 1 ♂ (ZIN), 3–4.IV.1914 (A.N. Kirichenko), 1 ♂, 2 ♀ (ZIN), 21.III.1916 (B. Il'in), 3 ♂, 2 ♀ (ZIN), 30.IV.1947 (N.S. Borkhsenius), 2 ♀ (ZIN); Mollagara, III.1895 (S.I. Korzhinsky), 1 ♀ (ZIN); 40 km E of Nebit-Dag, Chil-mamed-kum sands, Kyzyl-Takyr, 20–28.V.1993 (Yu.G. Arzanov, P.P. Ivliev), V.1984 (E.A. Khachikov), 1 ♂, 1 ♀ (CN); Great Balkhan, Jebel, 1898 (F. Hauser), 1 ♀ (ZIN); S slope of Great Balkhan, near Jebel, 15.IV.1965 (V.V. Yanushev), 1 ♂ (ZIN); Uzbek: Jebel, 14.IV.1952 (O.L. Kryzhanovskiy), 1 ♀ (ZIN); Tagolok, 10.IV.1951 (O.L. Kryzhanovskiy), 1 ♀ (ZIN); Top'yatan, 11.IV.1951 (O.L. Kryzhanovskiy), 1 ♂ (ZIN); Alty-Kuryu, 15 km N of Pereval Railway Station, 29.V.1952 (O.L. Kryzhanovskiy), 3 ♀ (ZIN); sands near Pereval Railway Station, on *Salsola*, 26.IV.1952 (O.L. Kryzhanovskiy), 2 ♂ (ZIN); Kyuren Dag, Danata env., 9.V.1974 (Loginova), 1 ♀ (ZIN),

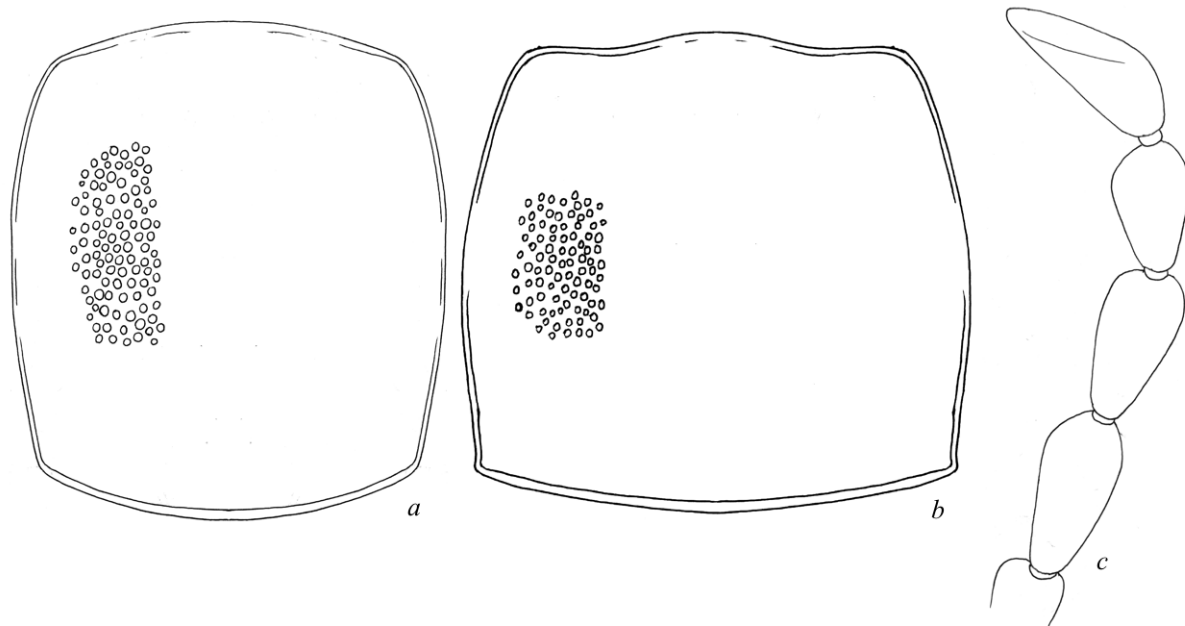


Fig. 2. *Hedyphanes besseri* Fald.: (a) pronotum of male; (b) pronotum of female; (c) apical antennomeres, male.

23.IV.1974 (G.S. Medvedev), 1 ♂, 1 ♀ (ZIN); Kazandzhik (= Bereket), foothills, 6.IV.1952 (O.L. Kryzhanovskiy), 9 ♂, 4 ♀ (ZIN); Gyzyletrek Distr., Nadau env., 24.IV.1974 (Loginova), 1 ♂ (ZIN); Kelyata (= Kelete) Canyon, 19.IV.1974 (G.S. Medvedev), 1 ♀ (ZIN); Ashgabat, 29.V.1964 (L.R. Freiberg), 1 ♂ (ZIN); Chulag, 6.V.1969 (V. Potapolsky), 1 ♀; Bezengi Vill., 16.IV.1991 (A.V. Napolov), 1 ♀ (CN); Ashgabat env., sands, 2.IV.1970 (L.R. Freiberg), 1 ♀ (ZIN); between Firyuza and Dere-Naub, 26.IX.1950 (L.V. Bianchi), 1 ♀ (ZIN); Dushak, 15.VI.1898 (K.O. Ahnger), 1 ♂, 1 ♀ (ZIN); Ioleten (Merv), 12.IV.1898 (K.O. Ahnger), 1 ♀ (ZIN), 17.IV.1968 (G.S. Medvedev), 1 ♂ (ZIN); Mary, Akibay, 22.IV.1971, in anthills burrows (collector unknown), 1 ♂ (ZIN); Ayding, 2.V.1898 (K.O. Ahnger), 1 ♂ (ZIN); Karakum Canal, Nichka, 25.IV.1968 (G.S. Medvedev), 1 ♀ (ZIN); Middle Asia (without date, collector unknown), 1 ♀ (ZIN).

Description. Male. Body slender, black, with greasy luster; antennae dark brown or black. Head widest across eyes. Ratio of head width across eyes to interorbital distance 1.58. Genae weakly obtuse-angular, occasionally sharply angular, forming nearly right angle. Lateral margin of head with sharp obtuse-angular emargination at joint between gena and frontoclypeus. Transverse depression between frons and frontoclypeus inconspicuous. Punctuation of head coarse or moderately coarse, rather sparse. On frons, interpuncture space subequal to puncture diameter;

punctuation in anterior part of head and on genae denser and finer. Antennae long, with three apical antennomeres extending beyond base of pronotum; 11th antennomere asymmetrical, triangular, 1.2 times as long as 10th antennomere.

Pronotum oblong (length to width ratio 1.07–1.15), rectangular, widest at, or slightly before middle. Sides very weakly rounded, nearly straight; anterior margin straight; base rounded. Anterior and posterior angles obtuse, rounded apically; posterior angles occasionally sharp apically. All sides of pronotum clearly margined. Punctuation as that on head, rather coarse, moderately dense, denser lateral to center (at center, puncture diameter subequal to interpuncture space). Prothoracic hypomera covered with large dense round, not raduliform punctures. Prosternal process not convex, only with apical margination projecting in lateral view.

Elytra strongly elongate, elliptical, widest at midlength. Elytral striae distinct, with oblong punctures; interstriae finely and distinctly punctate, occasionally slightly convex. Epipleura with transverse wrinkles and sparse fine punctuation.

Abdominal ventrites with raduliform coarse punctuation laterally; anal ventrite marginate, with recumbent hairs at apex.

Tibiae straight; protibia rarely very weakly curved. 1st–4th protarsomeres widened; 2nd and 3rd tar-

someres transverse; mesotarsomeres also widened, but oblong.

Female. Body robust, convex; elytra spherical. Pronotum square, as long as wide; lateral margination frequently obliterate at midlength. Antennae short, frequently not reaching base of pronotum.

Body length 9–20 mm, width 2.8–8.0 mm.

Variability. This species rather widely varies, especially the females: the elytra to pronotum width ratio varies, the punctuation of the pronotum can be fine and sparse, and the margination of the sides of the pronotum can be interrupted. In some large females, the elytra are densely covered with coarse and transverse wrinkles, without punctuation and striae. In the specimens from the environs of the Karakum Canal, the punctures on the prothoracic hypomera merge into long irregular wrinkles.

Notes. As the type of *H. besseri* has not been found, we adopt the concept of this species by Reitter (1914, 1922) and the subsequent authors. The holotype of *H. parvicollis* differs in distinctly more convex elytra and in the elytra to pronotum width ratio. As shown above, this character widely varies even within a population and cannot be used for species diagnostics. The other characters of the holotype of *H. parvicollis* perfectly fit *H. besseri*.

Medvedev and Nepesova (1985) did not include *H. parvicollis* in their key and probably considered it a dubious species.

Distribution. Western and southern Turkmenistan (the Kopet Dagh foothills), Ustyurt, Mangyshlak.

***Hedyphanes seidlitzi* Reitter, 1914**

(Figs. 3, 4a, 4b)

Reitter, 1914 : 184; 1922 : 17; Kühnelt, 1957 : 90 (part); Medvedev and Nepesova, 1985 : 152.—*albertus* Reitter, 1922 : 16; Iablokoff-Khnzorian, 1957 : 165, syn. n.

Type material. Holotype of *Hedyphanes seidlitzi*, ♂ (HNHM): “Persia Ala-dagh. Budshnurd 1033 m. 6.1902. Coll. Hauser,” “Coll. Reitter,” “*Hedyphanes Seidlitzi* m. type,” “Monotypus *Hedyphanes seidlitzi* Reitter 1914 ♂.”

The holotype of *Hedyphanes albertus* Reitter, 1914 is a female (DEI) labelled “Tekke Turcm.,” “Holotypus,” “Ed. Reitter det.,” “Coll. Kraatz,” “*Albertus* m. (*Hedyphanes*) Type,” and with an ocher square.

Material. Turkmenistan. Transcaspia (without date) (S. Eylandt), 2 ♂ (ZIN), 25.VI.1905 (Herz), 2 ♂ (ZIN); Lyufzabad (unclear label), 11.IV.1901 (G.V. Loudon), 1 ♀ (ZIN); “Turcmenien” (E. König), 1 ♀ (ZIN); Kara-Bogaz, 40 km N of Kyzyl-Arvat, 21.IV.1953 (D.M. Shteinberg), 1 ♂ (ZIN); 18 km NE of Kyzyl-Arvat, 6, 22.IV.1952 (V.D. Il'ichev), 2 ♂ (ZIN); Kyzyl-Arvat—Kara Kala (= Serdar—Garrygala), 2–4.V.1912 (D.P. Gedevanov), 1 ♀ (ZIN); Kyuren-Kala, 14.IV.1901 (G.V. Loudon), 1 ♀ (ZIN); western environs of Mashhad Sands, 5–8.V.1952 (D.M. Shteinberg), 1 ♀ (ZIN); 12 km SW of Messerian, 5.V.1951 (O.L. Kryzhanovskiy), 5 ♀ (ZIN); Messerian plateau, Rustam-Kala, 7.V.1952 (K.G. Romadina), 3 ♂, 11 ♀ (ZIN); Western Kopet Dagh, Khodzhakala, 3.V.1971 (G.S. Medvedev), 1 ♂ (ZIN); Kara-Kala, 27.IV.1930 (E. Shestakov), 4 ♀ (ZIN), 23.IV.1952 (O.L. Kryzhanovskiy), 1 ♀ (ZIN), 26.IV–17.V.1952 (V.N. Kuznetsov), 3 ♂, 2 ♀ (ZIN), 28.IV.1952 (G.S. Medvedev), 1 ♀ (ZIN), V.1952 (T. Bushchik), 4 ♀ (ZIN); 17.V.1964 (L.R. Freyberg), 2 ♀ (ZIN); 2–6 km N of Kara-Kala, 24.V.1952 (O.L. Kryzhanovskiy), 1 ♀ (ZIN); Kopet Dagh, 3.V.1953 (D.M. Shteinberg), 1 ♂ (ZIN); 5 km N of Kara-Kala, on *Salsola*, 11.V.1957 (G.S. Medvedev), 1 ♂, 3 ♀ (ZIN); Kara-Kala env., Shakimdere Canyon, 13.V.1957 (G.S. Medvedev), 1 ♀ (ZIN); 20 km SE Kara-Kala, 30.IV.1971 (G.S. Medvedev) 3 ♂, 4 ♀ (ZIN); Kopet Dagh foothills, 15 km of Iskander, 15.IV.1951 (D.M. Shteinberg), 1 ♀ (ZIN); Sumbar River valley, Kon-Dagh, under *Tamarix*, 28.IV.1951 (D.M. Shteinberg), 2 ♀ (ZIN); Aydere, 10.V.1890 (S. Eylandt), 2 ♀ (ZIN), 29.IV.1952 (Odintsova), 1 ♂ (ZIN); 15 km SW of Geok Tepe, 8.V.1971 (G.S. Medvedev), 2 ♀ (ZIN); Germab, 6.V.1971 (G.S. Medvedev), 6 ♂, 6 ♀ (ZIN); Ilyay-Kala, 23.V.1971 (B.M. Mamaev), 1 ♂ (ZIN); Syunt Mt., up to 1000 m, 3.V.1974 (G.S. Medvedev), 1 ♀ (ZIN); Kopetdagskiy Nature Reserve, Sherlovka cordon, 13.IV.1980 (A.V. Napolov), 1 ♂ (CN); Kelyata (= Kelete) Canyon, 19.IV.1974 (G.S. Medvedev), 1 ♂ (ZIN); Firjuza, 6.IV.1951 (D.M. Shteinberg), 1 ♂ (ZIN); Ashgabat (without date, collector unknown), 1 ♂ (ZIN); Artyk, 1901, 28.III–10.IV.1901 (G.V. Loudon), 1 ♂, 3 ♀ (ZIN); Tejen, 4.V.1888 (M.G. Gorin), 1 ♀ (ZIN); Bayram-Ali (= Bayramaly), 15.III.1901 (G.V. Loudon), 1 ♂ (ZIN), III.1956 (collector unknown), 17.IV.1972 (Yu.S. Balashov), 1 ♂ (ZIN); Kushka (= Serhetabat), 6.IV.1901 (G.V. Loudon), 1 ♂, 1 ♀ (ZIN). **Iran.** *Esfahan Prov.*, Kashan Area, 25 km NE of Aran va Bidgol, 26–27.IV.2007 (A. Klimenko), 1 ♂ (CN). *Gorgan*

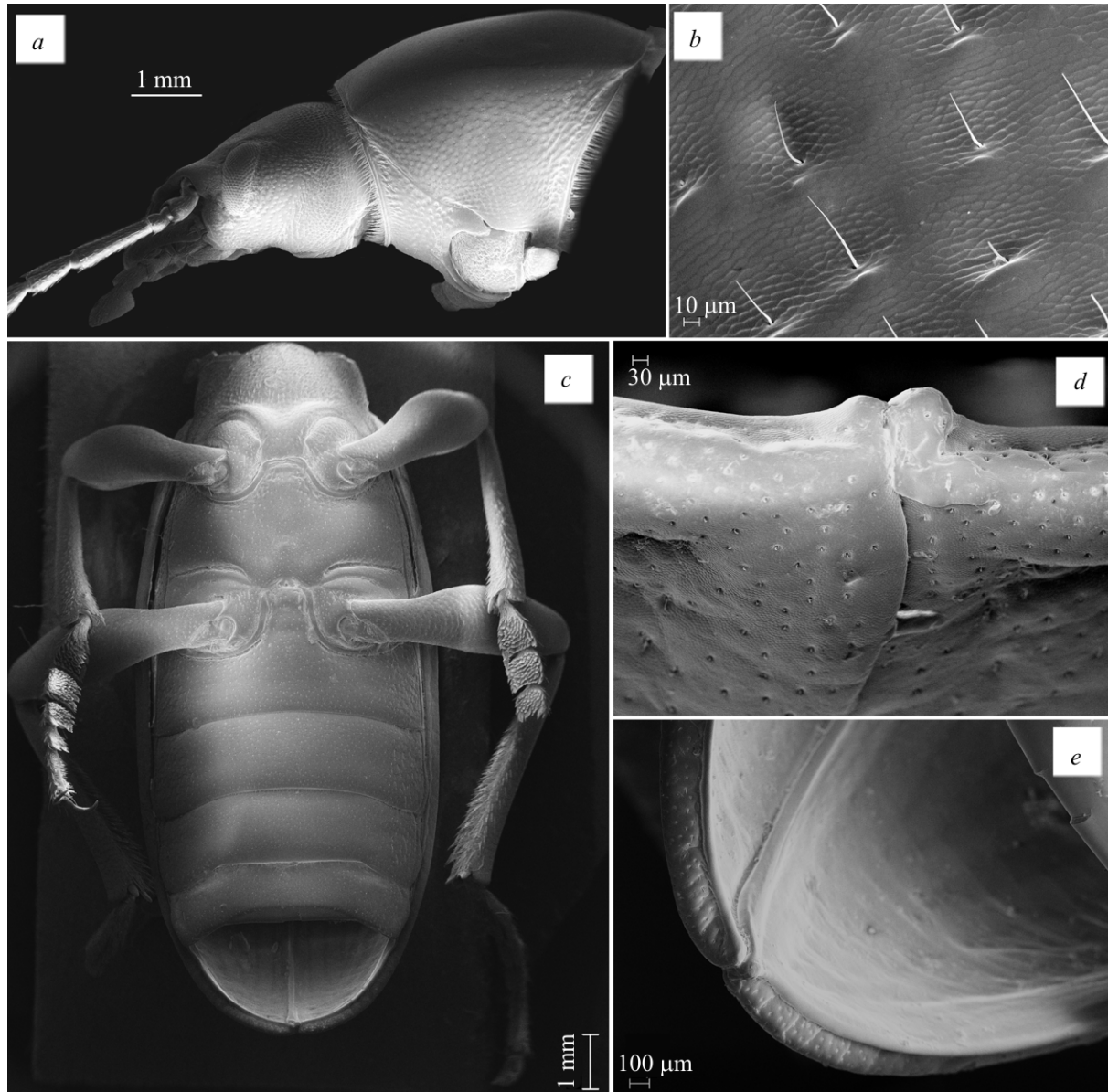


Fig. 3. *Hedyphanes seidlitzi* Rtt.: (a) head and prothorax, lateral view; (b) prothoracic hypomeron; (c) body ventrally, not including prothorax and head; (d) epipleural mucron; (e) inner surface of elytra.

Prov., Chahpassanc, 10.V.1957 (R. Pasqueier), 1 ♂ (HNHM); *North Khorasan Prov.*, Pišqalie, 30.IV.2000 (K. Gaskó), 1 ♂, 1 ♀ (HNHM); Kuldsar, VI.1902 (K.K. Zaaro), 2 ♀ (ZIN); Ala-Dagh, Budschnurd (= Bojnord), 1033 m, V.1902 (Coll. Hauser), 1 ♂, 2 ♀ (HNHM), 30.IV.1965 (Mission Franco-Iranienne), 1 ♀ (MNHP); Jseroft, 8.III.1961 (Cr. Remandière), 1 ♀ (MNHP); *Razavi Khorasan Prov.*, 20 km N of Sabzevar, 1600 m, 36°23'N, 57°34'E, 16.V.2009 (A. Klimenko), 1 ♂, 2 ♀ (CN); 10 km W of Kadkan, 35°36'N, 58°47'E, 2000 m, 21.V.2009 (A. Klimenko), 2 ♂ (CN); Qadamgah area, Darrud, 1900 m, 36°08'N, 59°10'E, 5.VI.2009 (A. Klimenko), 1 ♀ (CN).

Description. Male. Body slender, black, with greasy luster. Head widest across eyes. Eyes large, moderately convex. Ratio of head width across eyes to interorbital distance 1.6. Genae moderately rounded, not angular. Lateral margin of head with smoothed, occasionally inconspicuous emargination between gena and frontoclypeus. Depression between frons and frontoclypeus shallow. Punctuation of head moderately coarse, rather sparse (puncture diameter subequal to interpuncture space). Antennae long, with three apical antennomeres extending beyond base of pronotum; 11th antennomere weakly asymmetrical, not triangular, with sides regularly

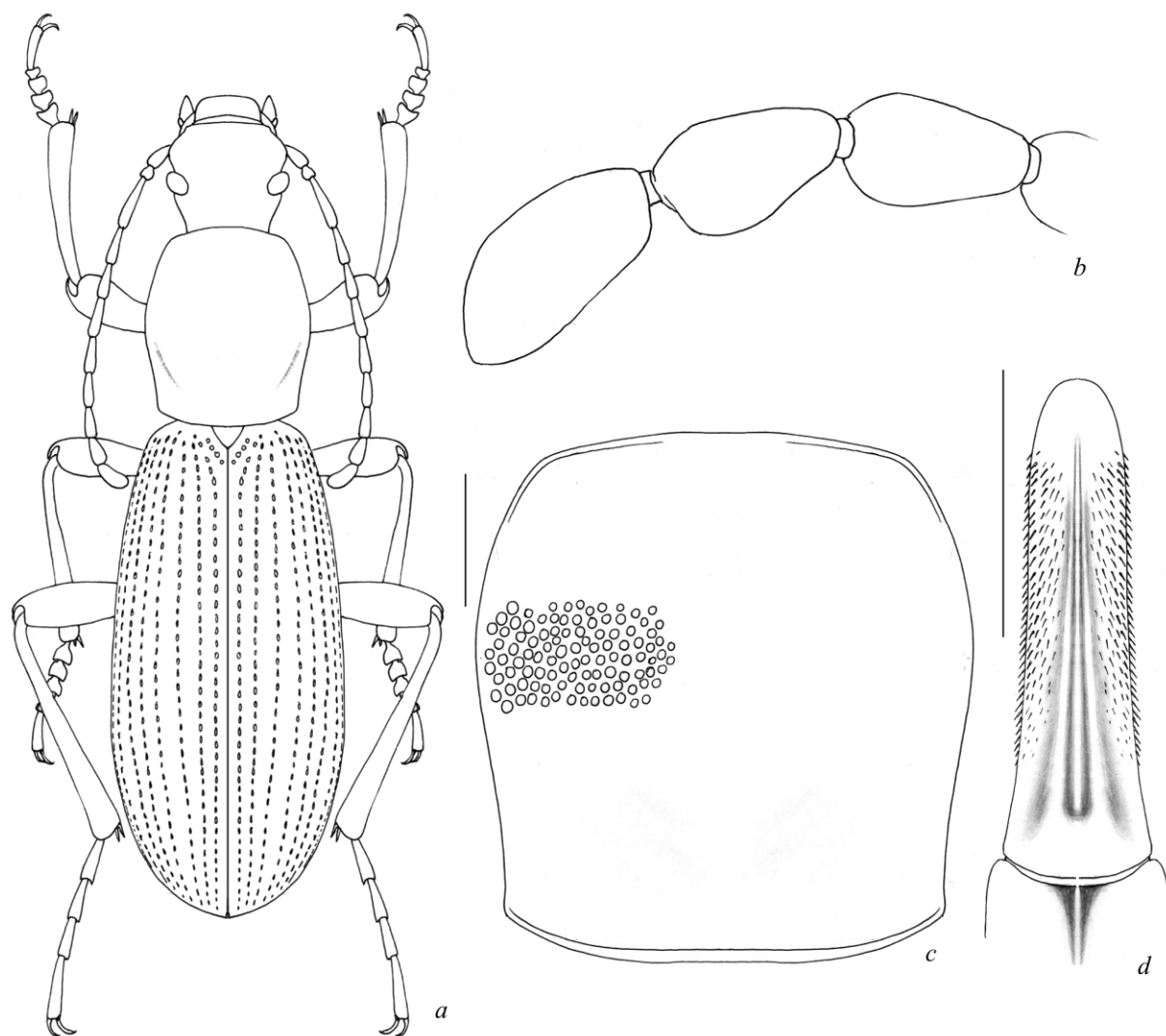


Fig. 4. *Hedyphanes seidlitzi* Rtt. (a, b) and *H. koltzei* Heyd. (c, d): (a) habitus; (b) apical antennomeres of male; (c) pronotum of male; (d) parameres, dorsal view.

weakly rounded toward apex, 1.3 times as long as 10th antennomere.

Pronotum oblong (length to width ratio 1.07–1.16), widest at midlength, less frequently slightly before middle. Sides of pronotum regularly weakly rounded, occasionally indistinctly emarginate near posterior angles; anterior margin straight or very shallowly emarginate; base regularly rounded, emarginate in middle. Anterior angles widely rounded apically, less frequently distinct; posterior angles obtuse, narrowly rounded apically, less frequently distinct. All sides of pronotum clearly marginate. Punctuation as that on head, occasionally finer and sparser. Prothoracic hypomera with dense raduliform punctation; each punc-

ture with small granule at base. Prosternal process marginate, weakly convex.

Elytra oblong, widest behind middle, with weakly rounded, occasionally subparallel sides. Elytral striae distinct, formed by dense round punctures. Interstriae frequently slightly convex, finely punctate. Epipleura gutter-shaped depressed at apex in area of sutural angle and forming very short but always distinct tail-shaped process directed downward.

Abdominal ventrites 1–3 with dense and coarse raduliform punctation at sides. Rest of ventrites surface with usual, moderately dense punctation. Anal ventrite marginate, with row of very short, dark rigid setae at apex.

Pro- and mesotibiae weakly or inconspicuously curved; metatibia straight. All tibiae with dense golden hairs on inner surface. Pro- and mesotarsi widened; protarsomeres transverse, rectangular; mesotarsomeres oblong.

Female. Body larger and more robust. Head with smoothed carina extending from genal lobe to inner margin of eye at each side. Ratio of head width across eyes to interorbital distance 1.45. Antennae shorter, reaching base of pronotum. Pronotum less oblong (length to width ratio 1.04), occasionally as long as wide. Posterior angles of pronotum distinct, separated from disc by oblique depression. Tibiae straight.

Body length 14–18.5 mm, width 4.2–6.9 mm.

Variability. In some large females, small humeral angles are pronounced. The elytra of the female occasionally covered with a fine and dense reticulation of wrinkles. In some specimens from the Central Kopet Dag, the punctuation of the pronotum fine and sparse, that of the prothoracic hypomera sparse and smoothed, and the lateral margination of the pronotum vague or obliterate at midlength.

Notes. In the description of *H. albertus*, Reitter (1922) stated that the holotype is a male, but it is actually a female. Reitter indicated the attenuate humeral angles as the main diagnostic character of *H. albertus*, but this character occurs in large females of *H. seidlitzi* and, thus, has no diagnostic value (Nabozhenko, 2005a). The holotype of *H. albertus* has humeral prominences rounded and poorly defined. All the other characters of *H. albertus* perfectly fit *H. seidlitzi*, including the tail-shaped process of the epipleura (see the description) which is characteristic of this species; thus, the two names are synonymized.

Medvedev and Nepesova (1985) did not include *H. albertus* in their key, probably being not sure of its distinctness.

Iablokoff-Khnzorian (1957) did not examine the holotype of *H. albertus* and, following Reitter (1922), attributed this taxon in his key to a group of species with projecting humeral angles. Later, he established for this species-group the subgenus *Coelophanes* Khnzorian, 1957 which was later synonymized with the nominotypical subgenus *Hedyphanes* (Nabozhenko, 2005a).

Distribution. Southern Turkmenistan (Kopet Dag), northern Iran (Khorasan: Aladag, Kopet Dag; Gorgan; Isfahan: Aran va Bidgol).

Hedyphanes seidlitzi kuschkensis Kaszab,
1960, stat. n.

Kühnelt, 1957 : 90 (*Hedyphanes seidlitzi*, part: “Kuschke”); Kaszab, 1960 : 172; Medvedev and Nepesova, 1985 : 152; Nabozhenko, 2005b : 39, fig. 1.

Type material. Holotype (Naturhistorische Museum Basel) not examined. Paratype (HNHM), female: “Afganistan Kuschke Coll. Hauser 1896,” “*H. spec.?*,” “Collect. Hauser,” “Museum Frey München,” “Paratypus 1960 *Hedyphanes kuschkensis* Kaszab.”

Material. Turkmenistan. Sultan-Kala, 16.III.1901 (G.V. Loudon), 1 ♂, 1 ♀ (ZIN); Tash-Kepri, sands, 25.IV.1954 (V.I. Tobias), 1 ♂, 1 ♀ (ZIN); Badhyz, 28.IV.1952 (Z. Yudina), 2 ♂ (ZIN), 27.III–4.IV.1992 (V.G. Dolin), 1 ♀ (SMNS); the same territory, Kagzly-Adzhi, hilly sands, on *Astragalus unifolius* and *Calligonum* sp., 15.IV.1957 (G.S. Medvedev), 1 ♂, 10 ♀ (ZIN); Gez-Gyadyk Ridge, Pinkhan-Chashma, 23.IV.1972, (Yu.S. Balashov), 23.IV.1977 (V.G. Dolin) 4 ♂, 2 ♀ (ZIN); Pulikhatum, 3.IV.1977 (V.G. Dolin), 30.04.1990 (Sitnikov), 4 ♂ (ZIN), Akar-Chashma, 5.IV.1977 (V.G. Dolin), 5 ♂ (ZIN). **Iran.** *Khorasan Razavi Prov.*, 2 km S of Karizbalagh (stream valley, at light) 35°29.6'N, 60°00.3'E, 1590–1925 m, 16–17.V.2006 (J. Hájek, P. Chvojka), 1 ♀ (NMP); 80 km SW of Sarakhs, Mazdavand, 800 m, 24–25.IV.2006 (A. Klimenko), 1 ♀ (CN); 45 km NE of Torbat-e Jam, 1800 m, 23.IV.2006 (A. Klimenko), 1 ♂ (CN); 60 km NE of Torbat-e Heydarieh, Zharf Vill.: 2400 m, 22.V.2006; 1600 m, 14.V.2007; 1950 m, 35°17'N, 59°53'E, 22.IV.2009; Chakmaq Vill., 1700 m, 35°18'N, 59°53'E, 2.VI.2009 (A. Klimenko), 1 ♂, 4 ♀ (CN). **Afghanistan.** *Herat Prov.*, NE of Adraskan, 25.III.1973 (O.N. Kabakov), 1 ♀ with head and thorax missing (ZIN); NW of Maymana, 1.IV.1971 (O.N. Kabakov), 1 ♂ (ZIN).

Description. Male. Body very slender, convex, black, with greasy luster. Head widest across eyes. Eyes large, clearly projecting. Ratio of head width across eyes to interorbital distance 1.7. Lateral margin of genae strongly rounded in middle, strongly slanting anteriorly in anterior part. Lateral margin of head without emargination between gena and frontoclypeus, occasionally with very shallow emargination. Depression between frons and frontoclypeus inconspicuous. Antennae long, with four apical antennomeres extending beyond base of pronotum; 11th antennomere weakly asymmetrical, lanceolate. Punctuation of head

fine and sparse (puncture diameter half interpuncture space).

Pronotum oblong (length to width ratio 1.17–1.26), widest at midlength. Sides and base of pronotum regularly rounded; anterior margin straight; angles obtuse, narrowly rounded apically. All sides of pronotum finely marginate; anterior margination occasionally obliterate in middle. Prothoracic hypomera with fine and dense raduliform punctation. Prosternal process marginate, weakly convex.

Elytra elliptic, widest at midlength, strongly convex; elytral striae poorly visible among punctation of interstriae; punctures in striae round, nearly as large as punctures on interstriae (especially in apical half).

Abdominal ventrites with dense fine raduliform punctures; anal ventrite entirely marginate, with very short dark-golden hairs at apex.

Legs long and slender; protibia nearly straight; mesotibia weakly curved. All tibiae with dense dark rufous hairs on inner surface. 1st–4th protarsomeres widened; 1st–4th mesotarsomeres widened, but oblong.

Female. Body larger and more robust. Smoothened carina running from gena to inner margin of eye. Antennae short, not reaching base of pronotum; 11th antennomere shorter than 10th antennomere. Pronotum less oblong, frequently widest slightly before middle. All tibiae straight.

Body length 10–16 mm, width 3.5–6.6 mm.

Notes. *Hedyphanes seidlitzii* and *H. kuschkensis* only differ in the punctation of the pronotum and elytra (finer and sparser in *H. kuschkensis*) and in the shape of the body which is more rounded at sides in *H. kuschkensis*. However, these characters vary, and there are many forms intermediate between these two species in the zones of their intergradation. Some individuals from the Kopet Dagh are similar to *H. kuschkensis* in the punctation and to *H. seidlitzii*, in the shape of the elytra. Individuals similar to *H. seidlitzii* occur in the Kushka River valley. Individuals with the intermediate characters inhabit Khorasan to the south of the Kopet Dagh. Thus, *H. kuschkensis* is downgraded to a subspecies *H. seidlitzii kuschkensis* Kaszab, 1960, stat. n.

Distribution. Southeastern Turkmenistan (Badkhyz), northwestern Afghanistan (Badkhyz), Iran (the Eastern Kopet Dagh, Khorasan).

Hedyphanes koltzei Heyden, 1892
(Figs. 4c, 4d)

Heyden, 1892 : 108; Seidlitz, 1896 : 796; Reitter, 1914 : 186; 1922 : 18; Skopin, 1968 : 75.

Type material (DED). Lectotype, ♂, designated here, and 3 paralectotypes, 1 ♂, 2 ♀: “Alexander gebirg Koltze,” “syntypus,” a blue square. Paralectotype, ♀, with similar labels and with an additional label “Coll. Koltze.” Paralectotypes, 2 ♂, 1 ♀ with the labels “Coll. Koltze” and “syntypus.”

Material. Kyrgyzstan. Susamyр River valley, 17.V.1914 (Mikhalevskaya), 1 ♂, 1 ♀ (ZIN); Kukumeren (= Kekemeren River), 18–19.V.1914 (Mikhalevskaya), 1 ♀ (ZIN); Suzak, 25.IV.1965 (Asanov), 4 ♀ (ZIN).

Description. Body slender, black with greasy luster. Head widest across eyes. Ratio of head width across eyes to interorbital distance 1.58. Lateral margin of genae regularly rounded. Lateral margin of head with inconspicuous, strongly smoothed emargination between gena and frontoclypeus. Frontoclypeus situated below level of genae and frons (lateral view); its surface considerably depressed. Punctation of head coarse and dense; punctures round, deep, separated by distance 0.3–0.5 times puncture diameter. Antennae rather long, with three apical antennomeres extending beyond base of pronotum; 11th antennomere 1.3 times as long as 10th antennomere, moderately asymmetrical, with inner margin rounded more strongly than outer one.

Pronotum oblong (length to width ratio 1.08), cylindrical, widest before middle. Sides of pronotum regularly weakly rounded, shallowly widely emarginate in basal part; base and anterior margin weakly rounded; sides not marginate (only anterior and posterior angles finely marginate); base finely marginate; anterior margination vague in middle. Punctation of pronotum as that on head, coarse and dense. Prothoracic hypomera with very coarse and dense raduliform punctation; each puncture with distinct granule at base. Prosternal process convex but not conical.

Elytra oblong-oval, widest behind middle, weakly rounded at sides, slightly widened from base toward apex. Elytral striae inconspicuous, formed by punctures nearly as large as punctures on interstriae. Interstriae coarsely punctate. Epipleura with uniform punctation formed by elongate punctures.

Abdominal ventrites with dense and coarse raduliform punctation merging laterally into longitudinal wrinkles, regularly covered with sparse recumbent hairs. Anal ventrite not marginate and glabrous apically.

Legs long; tibiae slender. Pro- and mesotibiae curved. 1st–4th protarsomeres widened, weakly oblong, triangular; mesotarsus weakly widened.

Parameres with longitudinal elevation which, in its turn, forms longitudinal gutter-shaped medial depression.

Female. Body larger, matte. Antennae shorter, with only ultimate antennomere extending beyond base of pronotum; 11th antennomere strongly asymmetrical, parallelepipedal, shorter than 10th antennomere. Punctuation of pronotum less coarse and dense than that in male (interpuncture space subequal to puncture diameter), with smaller punctures. Elytra regularly oval, not widening toward apices, widest at midlength. Anal ventrite marginate and covered with coarse recumbent hairs at apex.

Body length 14.0–18.5 mm, width 5–7 mm.

Notes. Reitter (1922) and subsequently Gebien (1943) noted that this species is distributed in Turkestan and northern Persia. However, it is known only from the Northern Tien Shan and can hardly be found in the Iranian Plateau. Skopin (1968) erroneously believed that the species is distributed only in Osh Province of Kyrgyzstan and does not inhabit the Kyrgyz Ala-Too Range.

Distribution. Kyrgyzstan (the southern foothills of the Kyrgyz Ala-Tau Range, the east of the Fergana Valley).

Hedyphanes kiritshenkoi Medvedev, 1978
(Figs. 5a, 5b)

Tadzhibaev, 1972 : 275 (*Hedyphanes ocularis*); Medvedev, 1978 : 51–52.

Type material (ZIN). Holotype, ♀, and paratype, ♀, with the label [in Cyrillic]: “Stalinabad, Tadzhik. Kirichenko, 17.IV.1943” (= Tajikistan, Dushanbe, leg. A.N. Kirichenko).

Material. **Uzbekistan.** Termez, IV (without year) (A.V. Bogatshev), 1 ♂ (ZMMSPU). **Tajikistan.** Western Babatag, 1000 m, 25.IV.1973 (P. Vtorov), 3 ♂, 1 ♀ (ZIN); Babatag Mts., Kafirnigan River valley, IV (without year) (A.V. Bogatshev), 1 ♀

(ZMMSPU); Yovon Distr., Khudzhum kolkhoz, 10.IV.1947, 1954 (Yu.K. Antova), 2 ♂, 2 ♀ (ZMMSPU); Yovon Distr., IV.1970 (L. Gafurov), 1 ♂, 1 ♀ (ZMMSPU).

Description. Male. Body slender, black, with bluish tint, weakly lustrous, nearly matte. Head widest across eyes. Eyes large, convex. Ratio of head width across eyes to interorbital distance 1.6. Anterior margin of clypeus straight, less frequently widely shallowly emarginate. Genae angularly rounded, strongly slanting toward clypeus in anterior half. Very small but distinct obtuse-angular emargination present at joint of gena and clypeus. Transverse depression between frons and clypeus inconspicuous. Punctuation of head moderately coarse and moderately dense; punctures on frons larger and deeper, sparse or dense; punctures on rest of surface smaller and denser (interpuncture space 1.5–2.0 times puncture diameter). Antennae long, with four apical antennomeres extending beyond base of pronotum; 11th antennomere weakly asymmetrical, lanceolate, 1.25 times as long as 10th antennomere.

Pronotum oblong (length to width ratio 1.12–1.15), widest before middle, weakly cordate, weakly rounded laterally, weakly emarginate in basal part; base rounded; anterior margin straight. Posterior angles of pronotum obtuse, distinct; anterior angles widely rounded. Pronotum not marginate laterally, with fine margination anteriorly and at base. Prothoracic hypomera with raduliform, rather fine, moderately dense punctation; interpuncture space equal to, or 1.5–2.0 times exceeding puncture diameter. Prosternal process strongly or moderately projecting, conical.

Elytra fusiform, with regularly rounded sides and with small smoothed humeral angles at base; their length to width ratio 2.06–2.20. Elytral striae inconspicuous; punctures in striae and on interstriae similar in size. Punctures in striae slightly oblong, small, sparse. Interstriae finely punctate.

Abdominal ventrites glabrous, with moderately dense and rather fine punctation; punctures at sides of ventrites 1 and 2 weakly raduliform. Margination of anal ventrite obliterate at sides.

Tibiae long and slender, straight. Protarsus widened, with oblong or square segments. Mesotarsus very weakly widened.

Female. Body usually larger, but very small individuals also occur. Antennae with only two apical antennomeres extending beyond base of pronotum.

11th antennomere more asymmetrical, nearly as long as 10th antennomere. Pronotum as long as wide.

Body length 9–20 mm.

Variability. Most frequently this species exhibits variability in the shape of the pronotum which can vary from wider and distinctly cordate to more oblong and weakly cordate. The elytra length to width ratio also varies, as well as the extent of the bluish tint, which is frequently present in the females only on the head.

Distribution. Southwestern Tajikistan (Dushanbe, Babatag Mt. Range), southern Uzbekistan (Termez). The species is recorded for the fauna of Uzbekistan for the first time.

Hedyphanes muminovi (Bogatshev, 1963)
(Fig. 5c)

Bogatshev, 1963 : 98 [*Catomus* (*Stenomacidius*)]; Nabozhenko, 2006 : 801; 2008a : 36.

Type material (ZMMSPU). Holotype, ♂: “arenae prope Dzharkurgan prov. Surchandarja 16.IV.1960 A. Bog.,” “under *Calligonum* etc.” (in Russian), “*Catomus muminovi* sp. n. typ. A. Bogačev det.,” a golden circle. Paratypes, 2 ♀: “arenae prope Dzharkurgan prov. Surchandarja 16.IV.1960 A. Bog.,” “hilly sands, desert shrubs” (in Russian), “*Catomus muminovi* sp. n. Typ. Bogačev det.,” one paratype with a silvery circle.

Material. Uzbekistan. *Surkhan-Dariya Prov.*, Jarkurgan, 25.III.1959, 18.IV.1963 (A.N. Zhelokhovtsev), 7 ♀ (ZMMSPU); same labels, 1 ♂, 2 ♀ (ZIN); Southern Uzbekistan, sands, 18.III.1959 (A.N. Zhelokhovtsev), 1 ♂, 2 ♀ (ZIN).

Description. Male. Body dark brown; head and pronotum black; antennae and tarsi reddish brown. Body with strong sheen; elytra with metallic tint. Body, except for epipleura and hypomera, with varying dense hairs.

Head widest across eyes. Eyes large, strongly convex. Ratio of head width across eyes to interorbital distance 1.6. Lateral margin of gena obtuse-angular, strongly rounded in middle. Lateral margin of head with distinct obtuse-angular emargination between gena and frontoclypeus. Frontoclypeus separated from frons by wide but rather shallow depression. Genae covered with fine and short recumbent hairs at sides and at base. Punctuation of head very coarse and dense; punctures large, round, contiguous. Outer margin of head emargination attenuate to form obtuse tooth at

each side. Antennae long, with three apical antennomeres extending beyond base of pronotum; 11th antennomere very weakly asymmetrical, fusiform, 1.6 times as long as 10th antennomere.

Pronotum rectangular, oblong (length to width ratio 1.25), widest at midlength. Sides and anterior margin of pronotum weakly rounded; base distinctly rounded; all angles widely rounded, obtuse. Surface with recumbent fine hairs at sides; punctuation very coarse and dense, similar to that on head. Lateral margins of pronotum not marginate; anterior margin vaguely marginate; base with fine margination. Prothoracic hypomera with very dense and coarse punctuation; punctures near coxae dense and small, merging.

Elytra oval, strongly convex, widest at midlength (twice as long as wide). Punctures on elytra forming no striae; punctuation irregular, fine, dense, raduliform at sides. In addition to punctuation, surface of elytra covered with fine irregular wrinkles and with subrecumbent hairs denser and longer at apex and at sides.

Abdominal ventrites densely covered with recumbent pale hairs and moderately coarse raduliform punctuation. Anal ventrite not marginate.

Tibiae straight, densely covered with pale subrecumbent hairs. Protarsus widened, with transverse segments; mesotarsus weakly widened, with oblong segments.

Female. Body larger and more robust. Pronotum rectangular; antennae shorter, with only ultimate antennomere extending beyond base of pronotum.

Body length 4.6–7.1 mm, width 1.5–3.0 mm.

Notes. A.V. Bogatshev described this species in the genus *Catomus*. However, *H. muminovi* demonstrates the typical helopioid structure of the male genitalia (Nabozhenko, 2005b, 2006)—the parameres with coarse spines directed posteriad and the penis with one sharp apex. This species also exhibits other characters distinguishing it from *Catomus*. In particular, the ultimate antennomere of *H. muminovi* is not banana-shaped, as that in *Catomus*, but is weakly asymmetrical and fusiform, and the anterior margin of its frontoclypeus is straight, instead of emarginate. The epipleura in *H. muminovi*, in contrast to those in the representatives of the genus *Catomus*, reach the sutural elytral angles. Based on these characters, this species was transferred to the genus *Hedyphanes* (Nabozhenko, 2008).

Distribution. Southeastern Uzbekistan.

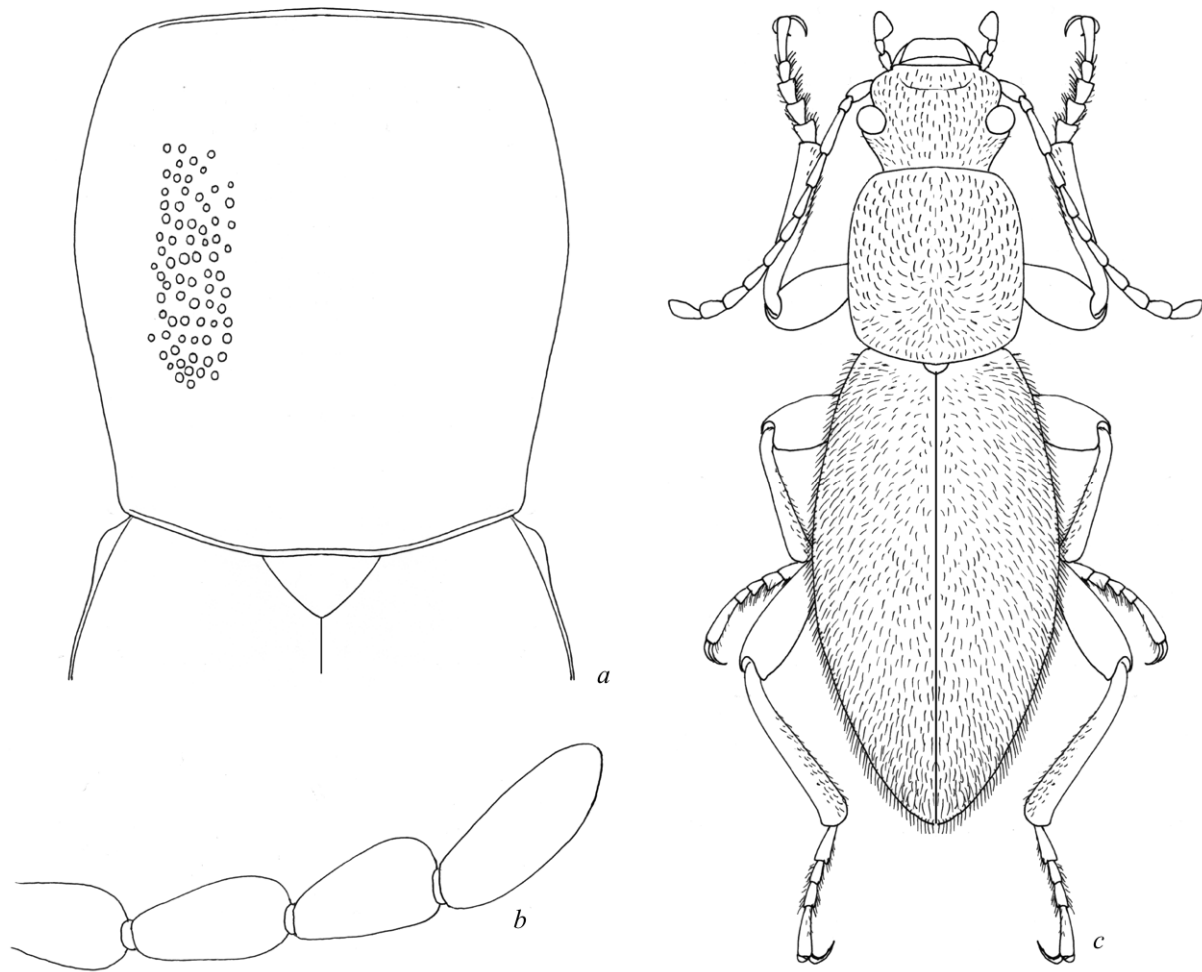


Fig. 5. *Hedyphanes kiritshenkoi* G. Medv. (a, b) and *H. muminovi* Bog. (c): (a) pronotum and base of elytra, male; (b) apical antennomeres, male; (c) habitus, male.

***Hedyphanes tuxeni* Kaszab, 1959**
(Fig. 6)

Kaszab, 1959 : 253; 1960 : 172.

Type material (ZMUC). Holotype, ♂: “3. Danske Exp. Centralasien St. 1239 27/3.1949 Afganistan, Faisabad, Seistan,” “*Hedyphanes* sp. n. aff. *Gebieni* Rtt. Det. Kaszab, 1953,” and “HOLOTYPUS ♂ *Hedyphanes Tuxeni* m. det. Dr. Kaszab, 1957.” The holotype lacks antennae (except for the 1st right antennomere and 1st and 2nd left antennomeres), left metatarsus, and right maxillary palp.

Material. Iran. Sistan and Belutschistan Prov., Nimdeh, 30 km SW of Kuh i Taftan, 1 ♀ (HNHM).

Description. Male. Body dark brown; legs reddish brown; elytra with weak sheen; head and pronotum lustrous. Head widest across eyes. Eyes widely spaced, moderately convex. Ratio of head width across eyes to

interorbital distance 1.2. Gena obtuse-angular, with outer margin straight from base to widest part. Lateral margin of head with distinct obtuse-angular emargination at joint of gena and frontoclypeus. Frontoclypeus situated below level of other surface of head. Anterior half of head covered with short recumbent hairs. Punctuation of head moderately coarse, very sparse at center of frons and moderately dense (puncture diameter equal to interpuncture space) on rest surface. Temples straight in dorsal view.

Pronotum weakly oblong (1.1 times as long as wide), widest slightly before middle, with weakly rounded sides. All angles widely rounded, ill-defined. Sides not marginate. Base finely marginate; anterior margination obliterate in middle. Punctuation of pronotum fine and sparse at center, coarser and rather sparse at sides. Disc with shallow depressions at sides and at base. Prothoracic hypomera moderately densely (punc-

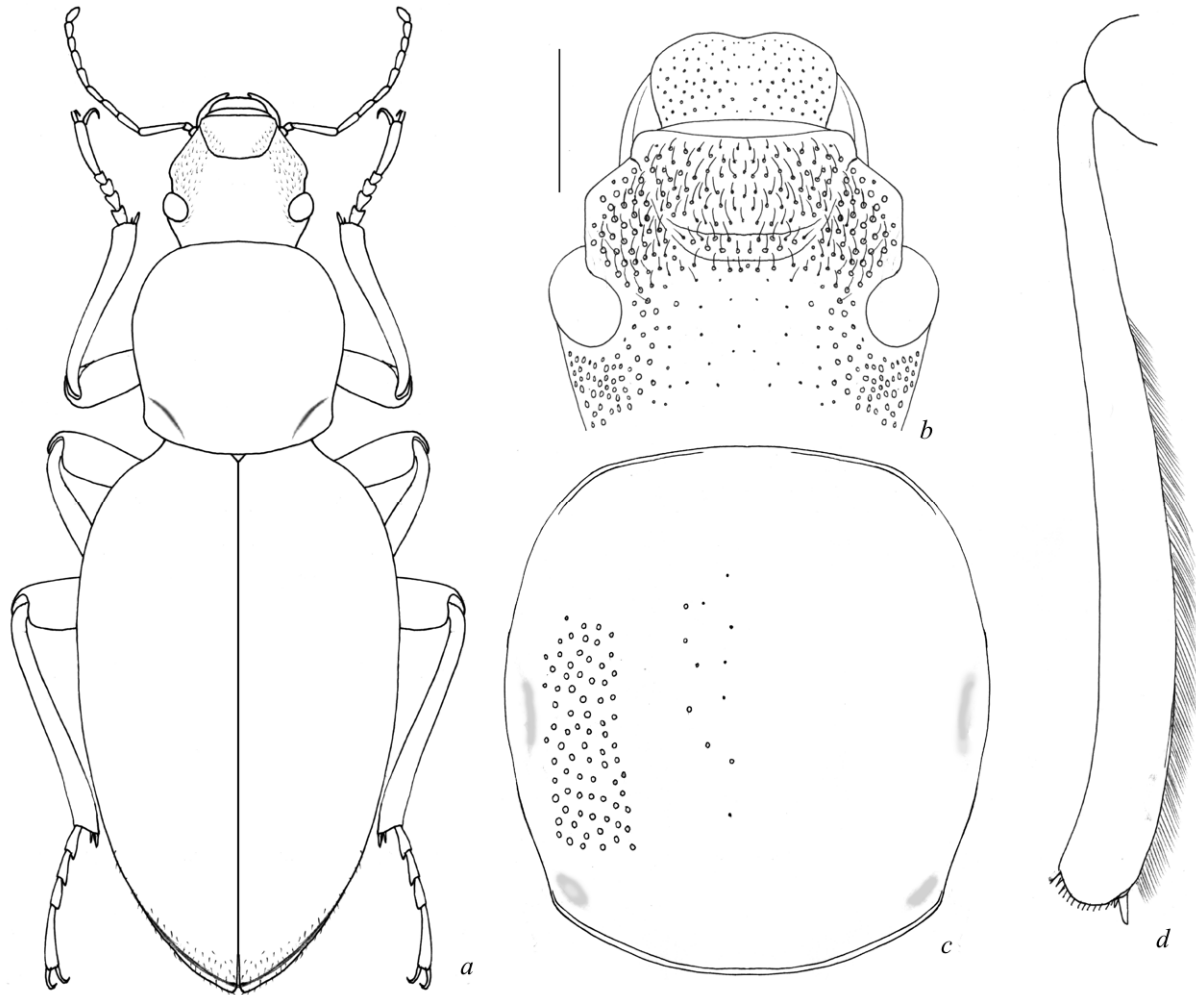


Fig. 6. *Hedyphanes tuxeni* Kasz.: (a) habitus, female; (b) head, male; (c) pronotum, male; (d) metatibia, male.

ture diameter subequal to interpuncture space) covered with small, weakly raduliform punctures.

Elytra elliptical, widest at midlength. Elytral striae clearly visible, consisting of round, non-merged punctures. Interstriae flat; those on elytral declivity weakly convex, with fine distinct punctation. Elytral apex and apical third of sides covered with short sparse subrecumbent hairs.

Abdominal ventrites with very short recumbent yellow hairs. Anal ventrite covered with longer and denser hairs, not marginate apically. Punctation of ventrites fine and sparse, weakly raduliform at sides.

Trochanters with dense recumbent and several long erect hairs. Femora with sparse and short recumbent hairs. Inner surface of femora with denser and long hairs. Pro- and mesotibiae straight; metatibia widely curved. Inner surface of tibiae with dense brushes of

golden hairs. Pro- and mesotarsi widened; 1st–4th protarsomeres transverse; 1st–4th mesotarsomeres oblong.

Body length 15 mm, width 5 mm.

Female. Body wide, large. Head covered with short recumbent hairs. Eyes small, weakly convex; ratio of head width across eyes to interorbital distance 1.4. Antennae short, not reaching base of pronotum; 11th antennomere as long as 10th antennomere.

Pronotum transverse (1.05 times as wide as long), widest slightly before middle, 1.37 times as wide as head across eyes. Posterior angles of pronotum emarginate, separated from disc by oblique depression at each side. Sides marginate only near angles. Anterior margin and base entirely marginate. Prothoracic hypomera with small punctures in outer part; rest of surface with small and dense, weakly raduliform punctures merging into wrinkles.

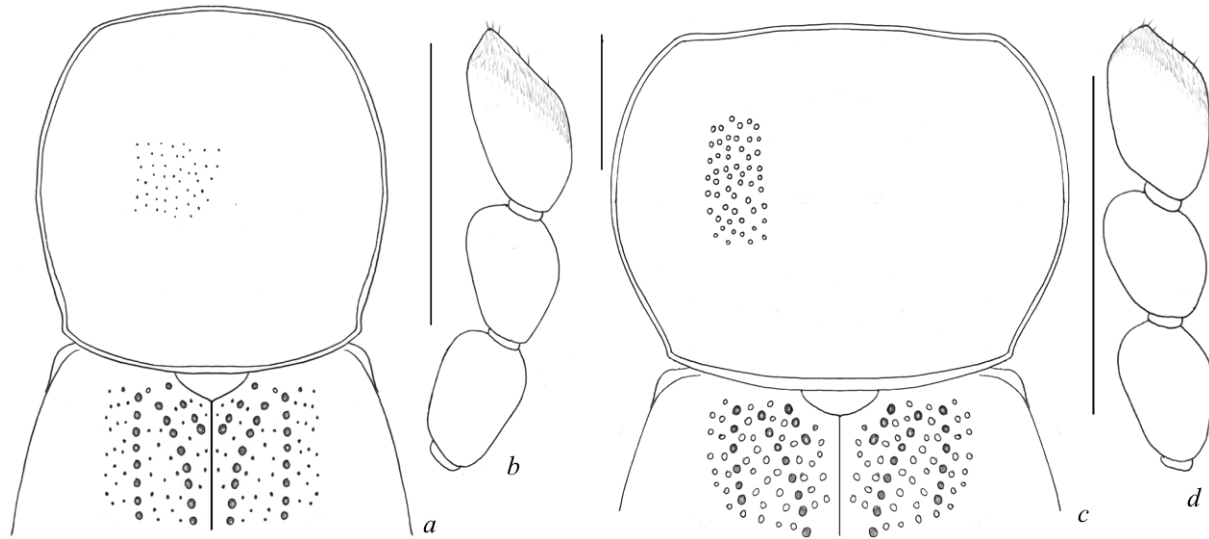


Fig. 7. *Hedyphanes laticollis* F.-W. (a, b) and *H. kadleci* sp. n. (c, d), male: (a, c) pronotum and elytral base; (b, d) apical antennomeres.

Elytra oval, narrowed toward apices (1.7 times as long as wide), 2.7 times as long and 1.5 times as wide as pronotum, widest at midlength, covered with coarse transverse and longitudinal wrinkles; surface of elytra appearing rumpled (individual variability). Apices and sides of elytra with short recumbent hairs.

Body pubescent ventrally. Abdominal ventrites densely covered with short recumbent hairs (especially ventrite 5).

Tibiae and femora with dense subrecumbent golden hairs.

Body length 17 mm, width 6.7 mm.

Distribution. Southern Afghanistan, the east of Iranian Beluchistan. The species is recorded for the fauna of Iran for the first time.

Hedyphanes semnanicus Nabozhenko, 2005

Nabozhenko, 2005a : 352–354, figs. 5–10.

The description, drawings, and type material have been published earlier (Nabozhenko, 2005a).

Distribution. Iran (Semnan Province).

Hedyphanes laticollis Fischer von Waldheim
in Ménétrés, 1832
(Figs. 7a, 7b)

The exhaustive bibliography, complete synonymy, and the list of the type material were published by Abdurakhmanov and Nabozhenko (2011).

The description, drawings, and type material have been published earlier (Nabozhenko, 2002).

Material (only from Iran). **Iran.** *East Azerbaijan Prov.*, 3 km S of Margan, 1200 m, 30.IV.1999, 39°12'1"N, 44°54'2"E (Gy. Fábian, K. Székely), 1 ♂ (HNHM); Gechlag Bager (Dacht E. Moghan), 28.V.1964 (M. Descamps), 2 ♂ (MNHP); between Hamadan and Zandjan, 530–1980 m, 1904 (J. De Morgan), 1 ♀ (MNHP); Between Zendjan and Ardebil 1300 m, 1904 (J. De Morgan), 1 ♂, 1 ♀ (MNHP);

Ecology. In Gobustan (Eastern Azerbaijan), this species inhabits *Artemisia-Salsolietum* semi-deserts with clay soils; in Talysh, it was found in mountain xerophytic stony landscapes with thickets of astragals.

Distribution. Eastern Georgia (Eldari), Azerbaijan, northern Iran (Eastern Azerbaijan).

Hedyphanes kadleci Nabozhenko, sp. n.
(Figs. 7c, 7d)

Material. Holotype (♂) and paratype (♀) (both in NMP): Iran, Azarbaijan-e Sharqi, Heläbäd (= Heläbad), 65 km S of Ardabil, 5.V.2002 (leg. S. Kadlec).

Note. Hellabad Village is situated in Ardabil Province, not in Azarbaijan-e Sharqi as it is indicated in the label.

Description. Male. Body slender, black, matte. Head widest across eyes. Eyes large, convex. Ratio of head width across eyes to interorbital distance 1.63.

Punctuation of head coarse and sparse (puncture diameter one-third to two-thirds interpuncture space) at center of frons, coarse and dense (puncture diameter slightly exceeding interpuncture space) in anterior part and at sides of frons. Antennae moderately long, with two apical antennomeres extending beyond base of pronotum; 11th antennomere wide, asymmetrical, diamond-shaped.

Pronotum transverse (1.12 times as wide as long), widest at midlength, 1.48 times as wide as head. Sides of pronotum strongly rounded, very shortly emarginate near posterior angles; anterior margin nearly straight; base weakly rounded. Anterior and posterior angles obtuse, narrowly rounded apically. All margins of pronotum with uniform coarse margination. Disc regularly weakly convex, with short longitudinal depression at each sides, with oblique small depression at base near each corner. Punctuation of disc moderately fine, moderately dense (puncture diameter about two-thirds interpuncture space lateral to middle and half as long as interpuncture space in middle). Prothoracic hypomera with dense and coarse granulate raduliform punctuation. Prosternal process weakly convex, not conical.

Elytra oblong-oval (1.85 times as long as wide), widest at midlength, 2.40 times as long and 1.15 times as wide as pronotum, 1.75 times as wide as head. Rounded humeral angles clearly visible. Vertical margin of elytral base fitting base of pronotum present only near scutellum. Elytral striae consisting of round (in basal quarter) and oblong (on rest of surface), widely separated punctures. Interstriae with coarse and dense punctures similar to those in striae. Epipleura without apical mucron.

Abdominal ventrites with coarse and dense raduliform punctuation and recumbent hairs; ventrite 5 marginate and covered with brown coarse recumbent hairs.

Pro- and mesotibiae straight, each with one very dense row of dark brown coarse setae on inner surface; mesotibia weakly curved, with dense row of coarse setae in apical half. 1st–3rd protarsomeres strongly widened, transverse, rectangular.

Body length 13 mm, width 4.3 mm.

Female. Body more robust. Antennae short, only reaching base of pronotum. Eyes smaller, ratio of head width across eyes to interorbital distance 1.5. Pronotum without longitudinal depression in middle of

each lateral margin. Body length 11.2 mm, width 4.3 mm.

Etymology. The species is named after the Late Stanislav Kadlec (Litvínov, Czech Republic), an expert on Cerambycidae, who collected the type specimens.

Comparative diagnosis. The new species is most closely related to *H. laticollis* but differs in a wider pronotum with a coarser and denser punctuation, in a very coarse and dense punctuation of the elytral interstriae, which does not differ from the punctuation of the striae, in the margin of abdominal ventrite 5 covered with dense rigid recumbent hairs, and in the structure of the 11th antennomere of the male.

Hedyphanes tagenioides

Faldermann in Ménétriés, 1832

The full bibliography with the synonymy and list of the type material were published by Abdurakhmanov and Nabozhenko (2011).

The description, drawings, and type material have been published earlier (Nabozhenko, 2002).

Material. Azerbaijan, 20 m near Iranian border, Lerik Distr., Yukhary Amburdarya, V.2004 (M.V. Nabozhenko, N.V. Snegovaya), 2 ♂ (CN).

Ecology. In Talysh, this species is associated with clayey soils; this is a twilight species active late in the evening or early in the morning. During the daytime, the insects shelter under rocks or in thickets of astragals.

Distribution. The deserted and semi-desert plains of Transcaucasia and eastern Anatolia (Ararat). As the species was found a few meters away from the Iranian frontier, its occurrence in the territory of Iran is beyond doubt.

Hedyphanes ocularis Reitter, 1914

(Figs. 8a–8c)

Reitter, 1914 : 187; 1922 : 19; Kühnelt, 1957 : 90.

Type material. Holotype, ♂: “Schir-Abad, 16.III.12, M. Sijesow,” “Coll. Reitter,” “*Hedyphanes ocularis* m. Type,” and “Monotypus *Hedyphanes ocularis* Reitter 1914, ♂” (curator’s label).

Material. Iran, Lorestan Prov., near Dorud, 5 km SW of Chgabdar Vill., 33°30′04″N, 49°00′12″E, 14–15.V.2017, 1 ♂ (D.G. Kasatkin) (ZIN).

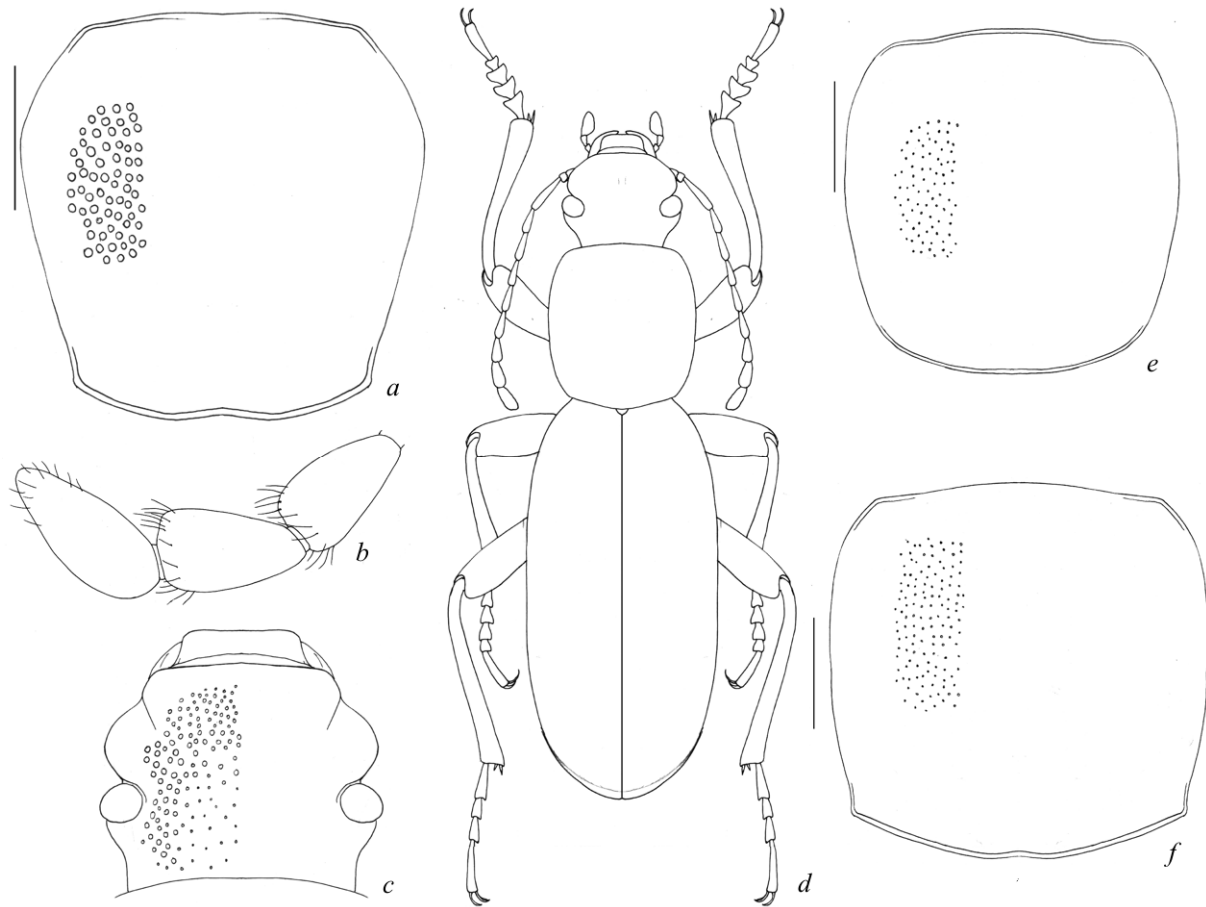


Fig. 8. *Hedyphanes ocellaris* Rtt. (a–c) and *H. matthiesseni* Rtt. (d–f): (a, e) pronotum, male; (f) pronotum, female; (b) apical antennomeres, male; (c) head; (d) habitus, male.

Description. Male. Body slender, black, matte, with blue tint; tarsi and antennae brown. Head widest across eyes. Eyes large, convex. Ratio of head width across eyes to interorbital distance 1.6. Genae angular, forming right angle, diverging sideways from eyes to middle. Lateral margin of head with inconspicuous emargination between gena and frontoclypeus. Punctuation of head coarse, rather sparse; puncture diameter subequal to interpuncture space. Frontoclypeus and genae with finer punctation. Antennae long, with three apical antennomeres extending beyond base of pronotum; 11th antennomere considerably asymmetrical, fusiform, 1.3 times as long as 10th antennomere.

Pronotum weakly oblong (length to width ratio 1.03), widest before middle. Sides straight from base to widest part, then smoothly rounded to anterior angles. Anterior and posterior angles obtuse; anterior angles widely rounded apically; posterior angles narrowly rounded. Anterior margin and base weakly rounded; base with emargination in middle. Lateral margination missing; anterior margin and base finely

marginate. Punctuation of pronotum coarse, moderately dense, sparser at center (puncture diameter subequal to interpuncture space), denser at sides (puncture diameter 1.5–2.0 times interpuncture space). Prothoracic hypomera with dense raduliform punctation; punctures not merging, equally distant from one another; punctuation very dense near legs and in basal part. Prosternal process with conical apex.

Elytra oblong-oval (twice as long as wide), widest at midlength, with regularly rounded sides. Elytral base with small humeral angles formed by epipleura. Interstriae flat; punctures in striae and interstriae equal in size, therefore, elytral striae indistinct.

Abdominal ventrites with fine dense, weakly raduliform punctation; anal ventrite glabrous, not marginate.

Pro- and mesotibiae weakly incurved; metatibiae outcurved. Pro- and mesotibiae covered with dense recumbent dark rufous hairs; metatibia with denser and erect hairs.

Body length 11.5 mm.

Distribution. Iran. Since at least 15 villages in different provinces of Iran bear the name “Shirabad,” the collecting locality cannot be determined precisely.

Hedyphanes matthiesseni Reitter, 1914
(Figs. 8d–8f)

Reitter, 1914 : 186; 1922 : 18; Kühnelt, 1957 : 90.

Type material (HNHM). Holotype: ♂: “Ordo 30.III.04,” “Persien confr. *Matthiesseni*,” “Coll. Reitter,” “Holotypus *Hedyphanes matthiesseni* Reitter, 1914 ♂,” “*H. Matthiesseni* m.”

Material. Iran. “Mugor’, 22.III.1904” (label in Cyrillic) (= *Kohgiluyeh and Boyer-Ahmad Prov.*, Murgarm, 30°47’55”N, 50°44’05”E) (collector unknown), “Coll. Reitter,” “Allotypus 1914 *Hedyphanes Matthiesseni* Reitter, 1914, ♀,” 1 ♀ (HNHM); the identification label was written by curators of the collection, but Reitter mentioned only a male in the description, thus it is not a paratype or a syntype. Ali-Abad-Kamin (= *Fars Province*, 30°17’N, 53°9’3”E), prés Saadatabad, 1.V.1971 (leg. R. Naviaux), 1 ♀ (MNHP); Ná’in (= *Isfahan Prov.*, Nain, 32°51’36”N, 53°05’15”E), Loc. No 129, 20.III.1973 (Exped. Nat. Mus. Praha), 5 ♂, 4 ♀ (NMP), 1 ♂ (ZIN).

Description. Male. Body black with weak bluish tint. Elytra frequently dark brown. Head, pronotum, and legs lustrous, frequently with lacquer sheen; elytra with dull sheen. Head widest across eyes. Eyes weakly convex, rather small. Ratio of width of head across eyes to distance between eyes 1.53–1.55. Lateral margins of genae strongly or moderately rounded. Lateral margin of head widely emarginate between gena and frontoclypeus. Anterior part of head with inconspicuous smoothed transverse depression between frons and frontoclypeus, depression frequently missing at center. Punctuation of head fine and sparse (denser and coarser in area of depressions); interpuncture space 1.5–3.0 times puncture diameter. Antennae short, with ultimate antennomere reaching base of pronotum; 11th antennomere asymmetrical, irregularly fusiform.

Pronotum weakly oblong (length to width ratio 1.05–1.07), subsquare, widest at midlength or, very rarely, slightly before middle. Disc weakly convex. Sides weakly regularly rounded (very shortly emarginate near base in holotype), not marginate; anterior margin and base finely marginate; anterior margination interrupted in middle. Angles of pronotum widely

rounded, obtuse; posterior angles more distinct than anterior angles. Prothoracic hypomera with very coarse and dense raduliform punctation passing into raduliform rugosity in basal half. Prosternal process projecting, conical.

Elytra oblong-oval (length to width ratio 1.9–2.0), 2.5 times as long and 1.16–1.26 times as wide as pronotum. Punctures in striae on elytra slightly elongate, larger than those on interstriae. Interstriae flat, with 3–4 punctures across their width.

Abdominal ventrites with coarse and dense punctures merging into wrinkles at sides. All ventrites covered with inconspicuous recumbent hairs (in lateral view); anal ventrite marginate and with erect setae at apex.

All tibiae straight, each with brush of short dark-golden hairs on inner surface.

Female differing from male in wider and larger body, transverse pronotum (1.04–1.10 times as wide as long), and wider elytra (1.7–1.8 times as long as wide). Antennae not reaching base of pronotum.

Body length 8–15 mm, width 3.8–4.5 mm.

Distribution. Iran (the Southern Zagros Mts., Isfahan, Fars, Kohgiluyeh, and Boyer-Ahmad provinces). Kühnelt’s (1957) record of this species for Beluchistan (Iranshahr) is disputable and requires confirmation.

Hedyphanes europs Reitter, 1914
(Fig. 9)

Allard, 1877 : 54, 227 (*Hedyphanes chalybaeus*); Reitter, 1914 : 187; 1922 : 20; Kühnelt, 1957 : 90.

Type material (HNHM). Lectotype, ♂ designated here, with labels: “v. Bodemeyer Persien, Luristan,” “Coll. Reitter,” “*Hedyphanes europs* m.,” “Holotypus *Hedyphanes europs* Reitter, 1914” (curator’s label). Paralectotypes: 2 ♂ with labels: “v. Bodemeyer Persien, Luristan,” “Coll. Reitter,” “Paratypus, *Hedyphanes europs* Reitter, 1914;” 1 ♀ with label: “Persien, Luristan Coll. Reitter.”

Material. Iran. “Persia” (without date, collector unknown), 1 ♂ (MNHP); “Persia” (without date, collector unknown), 1 ♂ (NHML); Tabriz environs, 20.IV.1914 (Andrievsky), 2 ♂, 4 ♀ (ZIN); Persia bor., Tabriz, 22.IV.1946 (collector unknown), 1 ♀ (ZMMSPU); Iran, East Azerbaijan Province, Changanli, Montagnes (Tabriz), 7–8.V.1964 (M. Descamps),

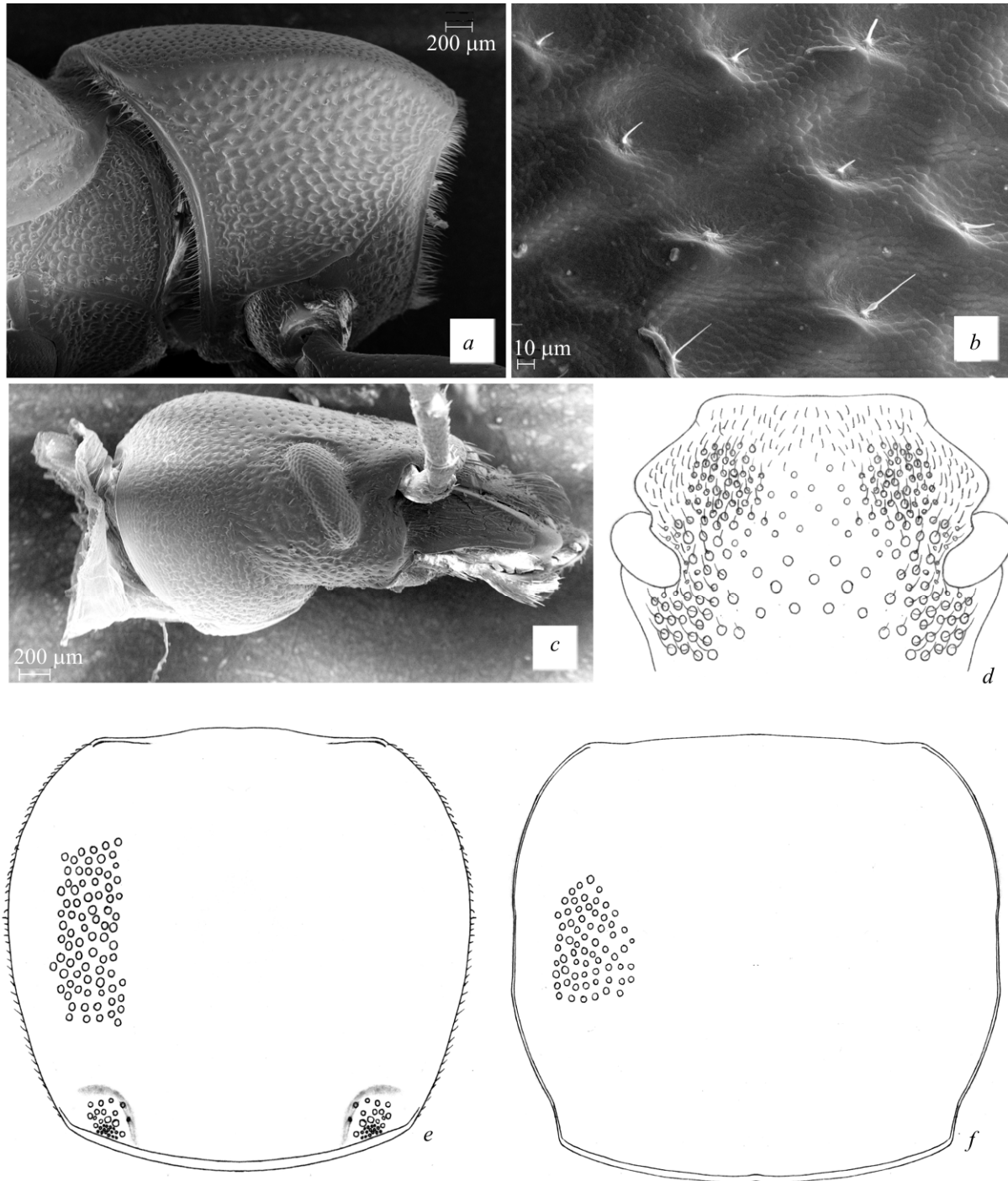


Fig. 9. *Hedyphanes europs* Rtt.: (a) prothorax, lateral view; (b) prothoracic hypomerite; (c) head, ventral view; (d) head, dorsal view; (e) pronotum, male, lectotype (Luristan); (f) pronotum, male (70 km NE Tehran).

3 ♀ (MNHP); Iran, 70 km NE Tehran, 1300 m, 5.V.1965 (F. Kasy, E. and A. Vartian), 1 ♂ (HNHM).

Description. Male. Body large, black, with greasy luster, occasionally with bluish tint; legs and antennae black or brown. Head widest across eyes. Eyes large, considerably convex. Ratio of head width across eyes

to interorbital distance 1.58–1.60. Genae angular, rounded under nearly right angle. Lateral margin of head without emargination at joint between gena and frontoclypeus. Punctuation of head coarse and dense (puncture diameter 2–3 times interpuncture space). Frons with sparser punctuation, with impunctate areas. Punctures large, deep. Head with long recumbent dark

rufous hairs in anterior part. Antennae rather short, with two apical antennomeres extending beyond base of pronotum; 11th antennomere blunted apically, weakly asymmetrical, parallel-sided or weakly regularly rounded laterally, 1.3 times as long as 10th antennomere.

Pronotum nearly as long as wide (length to width ratio 1.01–1.09), widest at midlength. Sides moderately regularly rounded; anterior margin with two weak emarginations; base rounded. Sides not marginate; anterior margination present only laterally; base widely marginate. All angles widely rounded, inconspicuous. Pronotal disc weakly convex, with punctuation similar to that on head. Prothoracic hypomera with very coarse and dense usual punctuation; outer part with finer, slightly raduliform punctuation; punctures very large, deep, separated by intervals appearing as fine costae. Hypomera covered with recumbent dark rufous hairs. Prosternal process moderately convex, not conical.

Elytra oblong-oval, widest at midlength; interstriae flat; striae hardly visible since punctures on interstriae equal in size to those in striae. On elytral declivity and sides, striae consisting of oblong punctures. Elytral apex frequently with short subrecumbent dark rufous hairs (in lateral view). Epipleura with sparse and fine granulate punctuation.

Body ventrally (especially abdomen) with very coarse and very dense punctuation and dark rufous recumbent hairs.

Punctuation of abdominal ventrites very coarse and dense, not raduliform. Anal ventrite of abdomen marginate, without pubescence at apex.

Pro- and mesotibiae straight; mesotibia slightly curved. All tibiae covered with dense dark rufous hairs on inner surface.

Female differing from male in a more robust body, fine punctuation of elytra, and short antennae extending slightly beyond base of pronotum.

Body length 10.9–15.1 mm, width 4–6 mm.

Notes. E. Allard reported as *H. chalybaeus* Faldermann, 1837, the species which is known at present as *H. europs* Reitter, 1914 (Allard, 1877 : 54, 227). I have examined the male (NHML) from F. Bates's collection, which is supplied with the Allard's identification label and also with the labels: "Persia," "*Hedyphanes chalybeus*" (E. Allard's hand-

written label), "*Hedyphanes chalybeus* Fald. t. All." (F. Bates's hand-written label), "F. Bates coll. 81–19."

Distribution. Iran (Luristan, Western Azerbaijan, Tehran).

Hedyphanes bodemeyeri Reitter, 1914
(Fig. 10)

Reitter, 1914 : 185; 1922 : 20; Kühnelt, 1957 : 90.—*gebieni* Reitter, 1914 : 186; 1922 : 19; Kühnelt, 1957 : 90, syn. n.

Type material. Lectotype *Hedyphanes bodemeyeri* (ZIN), designated here, ♂: "v. Bodemeyer Persien. Luristan," "*Bodemeyeri* Rtt. typ.," "coll. H. Lgocki," and a golden circle. Paralectotypes (ZMMSPU): 1 ♂, "V. Bodemeyer Persien, Sultanabad," "Typus," "*Hedyphanes bodemeyeri* Reitt. det.," and a golden circle; 1 ♀, "V. Bodemeyer, Persien, Luristan," "Typus," "*Hedyphanes bodemeyeri* Reitt. det.," and golden circle. Paralectotypes (HNHM): 1 ♂, "Coll. Reitter," "Holotypus *Hedyphanes bodemeyeri* Reitter 1914 ♂" (curator's label), "*Bodemeyeri* M.;" 1 ♀, "Coll. Reitter," "Paratypus *Hedyphanes bodemeyeri* Reitter 1914 ♂" (curator's label), "*Bodemeyeri* M.;" 2 ♂, with labels as above but without latter label (1 male also without label "Coll. Reitter"); 1 ♀, "Coll. Reitter" and "Persien, Luristan;" 1 ♂, 1 ♀, "Coll. Reitter" and "V. Bodemeyer Persien Sultanabad;" 1 ♀, "Persien Luristan Bodemeyer," "*europs* Rtt. det Kaszab," "Paratypus *Hedyphanes europs* Reitter 1914" (curator's label).

Holotype of *Hedyphanes gebieni*, ♂: "V. Bodemeyer Persien Luristan," "Coll. Reitter," "Monotypus *Hedyphanes Gebieni* Reitter 1914 ♂" (curator's label), "*Hedyphanes Gebieni* m. Type."

Material. Iran. *Zanjan Prov.*: Elborz Mts., 20 km E of Zanjan, Sendan Dag Mt., 2200–2300 m, 7.IV.2000 (B. Benedek, T. Hác, G. Kőszegi), 1 ♂ (HNHM); Sarvestan, 21.III.1965 (Mission Franco-Iranienne), 1 ♀ (MNHP). *Fars Prov.*: Ardakan, Loc. 10, 2100 m, 26.V.1976 (P. Brignoli), 1 ♀ (SB); Saadat-Shah, 1900 m, 30°05'21"N, 53°12'38"E, 2.V.2001 (Gy. Fábíán, K. Vig), 1 ♀ (HNHM); Kerman, 13–15.IV.1928 (V. Kuznetsov), 1 ♂ (ZIN).

Description. Male. Body slender, black or dark brown, without blue tint, with greasy luster. Head widest across eyes. Ratio of head width across eyes to interorbital distance 1.6. Genae rounded, with outer margins straight between sharp roundings and fronto-

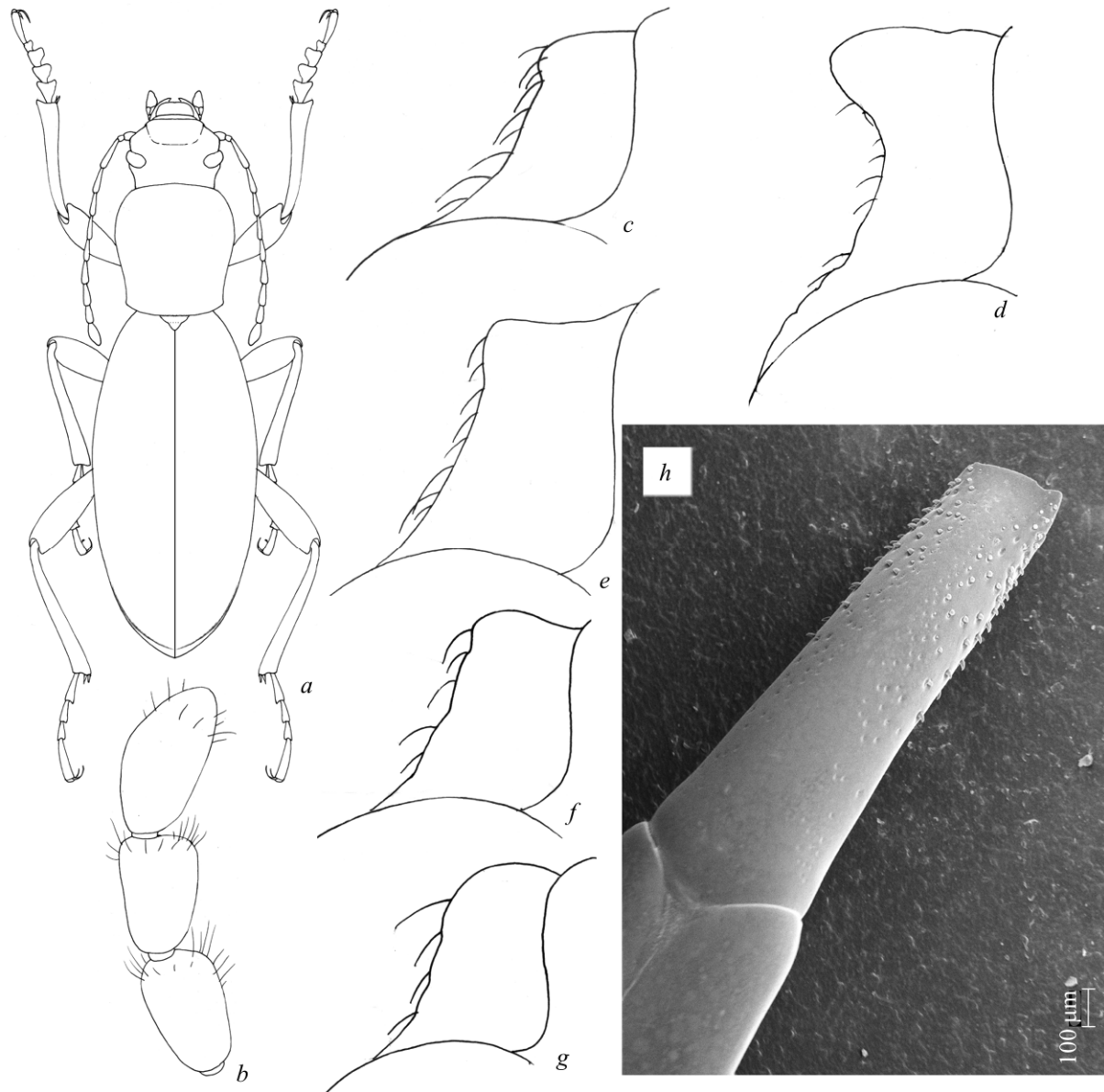


Fig. 10. *Hedyphanes bodemeyeri* Rtt.: (a) habitus, male; (b) apical antennomeres, male; (c–g) prosternal process, lateral view [(c, f, g) Luristan, (d) Kerman, (e) Sendan]; (h) parameres (apex destroyed), dorsal view.

clypeus. Lateral margin of head with hardly visible emargination at joint between gena and frontoclypeus. Punctuation of head coarse and dense; puncture diameter twice interpuncture space; center of frons with sparser and coarser punctuation. Antennae rather long, with two apical antennomeres extending beyond base of pronotum; 11th antennomere asymmetrical, with rounded outer margin, with straight inner margin, 1.4 times as long as 10th antennomere.

Pronotum weakly cordate, slightly oblong (length 1.06–1.16 times width), widest before middle. Sides of pronotum weakly rounded, indistinctly emarginate in

basal third, less frequently straight. Anterior margin and base weakly rounded; base with emargination in middle. Posterior angles obtuse, narrowly rounded apically, more or less distinct. Anterior angles obtuse, widely rounded apically, smoothed. Pronotum marginate laterally and anteriorly; its base entirely marginate only near corners. Prothoracic hypomera with dense and coarse raduliform punctuation. Prosternal process projecting, conical, with one apex (lateral view).

Elytra oblong-oval (length to width ratio 1.95–2.10), widest at midlength, 2.50–2.65 times as long

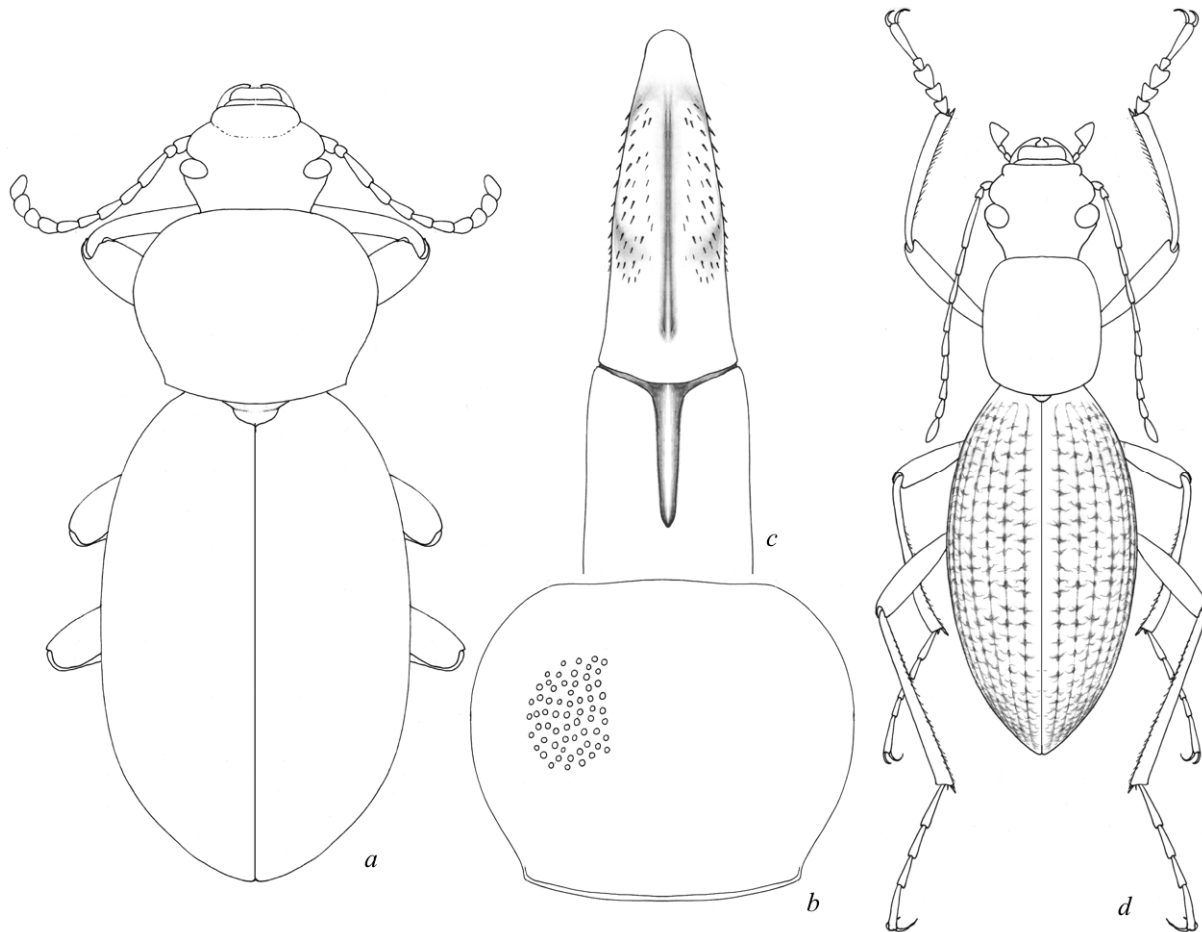


Fig. 11. *Hedyphanes iranicus* G. Medv. (a–c) and *H. zarudnyi* G. Medv. (d): (a) habitus, female, holotype; (b) pronotum, male; (c) parameres, dorsal view; (d) habitus, male, paratype.

and 1.4 times as wide as pronotum, with regularly rounded sides. Punctures in striae large, deep, round. Interstriae flat, very rarely weakly convex on elytral declivity; their punctation fine and sparse; one interstria holding 2–3 punctures in cross-section.

Abdominal ventrites with simple, moderately coarse punctation and with wrinkles at sides. In lateral view, all ventrites covered with very fine and short recumbent hairs. Apex of anal ventrite marginate and with erect hairs.

Protibia straight; mesotibia slightly incurved; metatibia curved outwards.

Female. Body larger and wider. Antennae not reaching base of pronotum. Pronotum slightly transverse (1.05 times as wide as long) or as long as wide. Elytra length to width ratio 1.76 ($n = 4$). Elytra to pronotum length ratio 2.56 ($n = 4$). Elytra to pronotum width ratio 1.40–1.46 ($n = 4$).

Body length 9–19 mm, width 3.6–7.3 mm.

Notes. As *Hedyphanes gebieni* is conspecific with *H. bodemeyeri*, the following synonymy is established: *Hedyphanes bodemeyeri* Reitter, 1914 = *Hedyphanes gebieni* Reitter, 1914, syn. n.

Distribution. Iran. This is a high-mountainous species distributed in the Zagros Mts. from Luristan in the north to Fars in the south; it is also known from Central Iran (Kerman) and the Western Alborz (Zanjan Province).

***Hedyphanes iranicus* Medvedev, 1976**
(Figs. 11a, 11b, 11c)

Medvedev, 1976 : 890.

Type material (ZIN). Holotype, ♀ with labels in Cyrillic “Zap. Persia, Gilyan,” “k. Suvorova,” “Holotypus *Hedyphanes iranicus* G. Medvedev, 1977.”

Material. Iran. Golhak, 1400 m above Tehran, III-V.1961 (J. Klapperich), 4 ♂, 2 ♀ (HNHM); Tehran–Evin, Alborz, 1700–2000 m, Loc. no. 123, 9–

10.III.1973 (Exp. Nat. Mus. Praha), 2 ♀ (HNHM), Loc. no. 276, 2–7.IV.1977, 1 ♂, 2 ♀ (HNHM) and 1 ♀ (NMP).

Description. Male. Body wide, black, without blue tint, matte. Head widest across eyes. Eyes small (in dorsal view), strongly transverse, convex. Ratio of head width across eyes to interorbital distance 1.55. Genae angular. Lateral margin of head with small emargination at joint between gena and frontoclypeus. Punctuation of head coarse, irregular: sparser at center of frons, denser at sides, very coarse between frons and clypeus. Antennae short, with ultimate antennomere reaching base of pronotum; 11th antennomere weakly elongate, trapezoidal.

Pronotum transverse (1.2–1.3 times as wide as long), widest at midlength. Sides of pronotum strongly rounded, weakly shortly emarginate at base. Lateral and anterior marginations missing; base finely marginate. Anterior angles obtuse, widely rounded apically; posterior angles obtuse, narrowly rounded apically. Pronotal disc weakly convex. Punctuation of pronotum coarse, moderately dense (puncture diameter subequal to interpuncture space). Prothoracic hypomera with very coarse and dense, not raduliform punctation passing into short wrinkles. Prosternal process very weakly convex.

Elytra strongly convex, wide (1.4 times as long as wide), widest at midlength, with sides strongly rounded ventrally. Striae on elytra formed by round, widely separated punctures. Punctuation on interstriae fine and sparse, hardly visible in apical quarter. Epipleura with fine and sparse raduliform punctation.

Meso- and metaventrite with coarse and dense, usual punctation. Abdominal ventrites 1–3 with coarse and dense, merging, simple punctation laterally, with finer and sparser punctation and with smoothed longitudinal wrinkles at center; abdominal ventrites 4 and 5 with fine, moderately dense punctation. Anal ventrite not marginate and glabrous apically.

Tibiae straight. Pro- and mesotarsi distinctly widened, with transverse 1st–4th segments.

Parameres with longitudinal gutter-shaped depression dorsally.

Body length 10–11 mm, width 4.5 mm.

Description. Female. Body wider and larger. Pronotum wider than that in male (1.25 times as wide as long). Elytra also wider (1.65 times as wide as

long). Elytral striae inconspicuous, formed by punctures subequal in size to those on interstriae.

Distribution. Northern Iran: Gilyan, Alborz, Southern Talysh.

Hedyphanes zarudnyi Medvedev, 1976
(Fig. 11d)

Medvedev, 1976 : 890.

Type material (ZIN). Holotype, ♂ with labels in Cyrillic “Iran, Zarudniy, 9–10.II.1900–901 g.,” “Beludzhistan, Sib, Chakh-i-Bid spring” (now Seb, 27°14'18.78"N, 62°04'34.30"E), “*Hedyphanes* sp. n. Medv.,” “Holotypus *Hedyphanes zarudnyi* G. Medv.” Paratype, ♀ with identical geographical labels and with label “Paratypus *Hedyphanes zarudnyi* G. Medv.”

Description. Male. Body very slender, with long slender legs and antennae, brown, weakly lustrous; pronotum more strongly lustrous than head and elytra. Head widest across eyes. Eyes large, moderately convex. Ratio of head width across eyes to interorbital distance 1.64. Lateral margin of genae angular, rounded in basal third and then straight up to frontoclypeus. Punctuation of head coarse and dense; puncture diameter 1.5 times interpuncture space. At center of frons, punctuation sparser, with interpuncture space subequal to puncture diameter. Antennae fine, long, with three apical antennomeres extending beyond base of pronotum.

Prothorax cylindrical, round in cross-section. Pronotum rectangular, oblong (length to width ratio 1.17), widest at midlength. Sides and anterior margin of pronotum weakly rounded; base arcuately rounded along entire length. All angles of pronotum widely rounded. Anterior margin and base finely marginate; sides with very fine margination in anterior half. Pronotal disc strongly longitudinally convex. Punctuation of pronotum coarse and dense, with interpuncture space subequal to puncture diameter. Prothoracic hypomera with large round usual punctures. Prosternal process weakly convex in lateral view.

Elytra elongate (twice as long as wide), oval, widest at midlength, 2.5 times as long and 1.5 times as wide as pronotum. Punctures in striae round and longitudinally oblong, not merged into continuous line but forming distinct depressed striae on elytra. Interstriae convex, with fine sparse punctation and transverse wrinkles. Apical part of elytra with few short inconspicuous hairs.

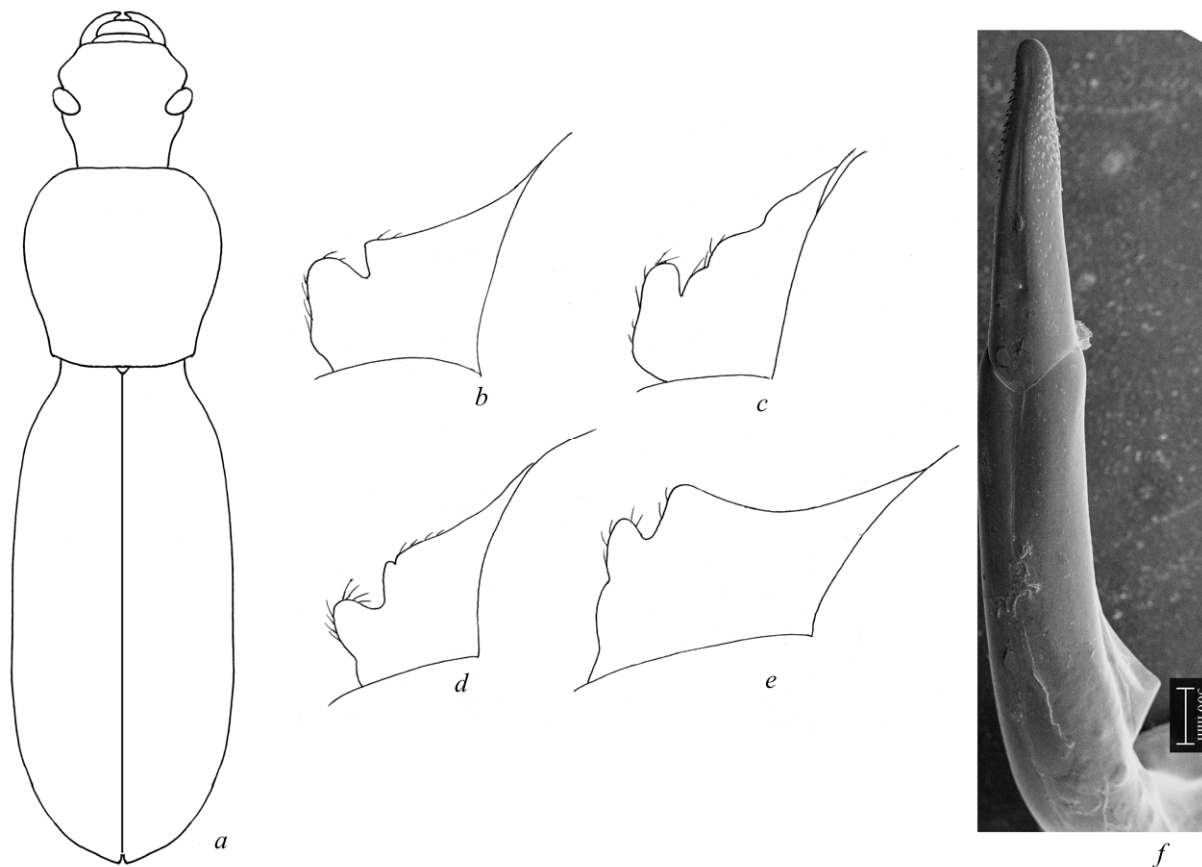


Fig. 12. *Hedyphanes igori* sp. n.: (a) habitus, male; (b–e) variability of prosternal process, lateral view; (f) aedeagus, dorsal view.

Body covered ventrally with recumbent hairs. Punctuation of mesoventrite usual; that on metaventrite raduliform. Abdominal ventrites with dense fine, not raduliform punctuation, with wrinkles at sides. Anal ventrite entirely marginate apically and very densely covered with pale brown subrecumbent hairs (in lateral view).

Legs long, slender; pro- and mesotibiae straight; mesotibia slightly incurved. 1st–3rd protarsomeres widened; mesotarsus inconspicuously widened.

Body length 9.5–11.5 mm, width 2.7–3.5 mm.

Distribution. Southeastern Iran (Beluchistan).

Hedyphanes igori Nabozhenko, sp. n.

(Fig. 12)

Type material (ZIN): Holotype (♂) and paratype (♀), “N Iran, Semnan prov., Shakhrud area, Tahar v., 2100 m, 36°31'N, 54°45'E, 12.VI.2009, A. Klimenko l.” Paratypes. 1 ♂, “Sharud Herz 1887” (now Iran, Semnan Prov., Emamshahr, 36°25'N, 54°57'E), “*Hedyphanes menetriesi* Men.,” “k. G. Siversa” (label in

Cyrillic); 2 ♂, 2 ♀, “k. Christoph” and green square (the green square in Christoph’s collection indicates “Persia”); one female has additional label “*Hedyphanes laticollis* Men.” and an orange circle with number 352; 1 ♀, “North-West. Iran” (label in Cyrillic), “Tschahardch, 8/4.58” (now Iran, Semnan Prov., Qual’eh, 36°25'N, 54°13'E).

Description. Male. Body slender, black, with greasy luster. Head widest across eyes. Eyes large, convex. Ratio of head width across eyes to interorbital distance 1.55–1.56. Lateral margin of head without emargination between gena and frontoclypeus. Lateral margin of genae obtuse-angularly rounded. Temples weakly rounded. Punctuation of head irregular. Head in anterior part, genae, and center of frons with fine and sparse punctuation. Interpuncture space 1.5–2 times puncture diameter. Anterior part of frons with coarse, moderately dense punctuation (puncture diameter subequal to interpuncture space). Antennae long, with three apical antennomeres extending beyond base of pronotum; 11th antennomere weakly asymmetrical, 1.3 times as long as 10th antennomere, with parallel outer sides and pointed apex.

Pronotum oblong (length to width ratio 1.04–1.05, rarely 1.24), weakly cordate, widest before middle, considerably narrowed toward base. Sides of pronotum nearly rectilinear from widest part to anterior margin and to base. Anterior margin straight; base weakly rounded, not emarginate in middle. Anterior angles widely rounded; posterior angles obtuse, distinct. Base and anterior angles marginate. Punctuation of pronotum fine and sparse; puncture diameter 2–3 times space between punctures. Prothoracic hypomera with coarse raduliform punctuation. Prosternal process marginate, with 2 apices in lateral view, deeply emarginate between margination and surface of process.

Elytra elongate (length to width ratio 1.77–1.95), weakly rounded laterally, frequently parallel-sided, 1.17–1.40 times as wide as pronotum. Interstriae flat; their diameter holding 2–3 punctures. Punctures in striae large, deep.

Abdominal ventrites with moderately dense, rather fine raduliform punctuation. Anal ventrite marginate apically, with very short coarse setae in apical part. Pro- and mesotibiae weakly curved; metatibia straight.

Parameres distinctly narrowed toward apex, dorsally with deep longitudinal impression along entire length.

Body length 11–15 mm, width 3.7–4.8 mm.

Female. Body larger and wider. Pronotum slightly transverse (1.05–1.09 times as wide as long). Antennae short, not reaching base of pronotum.

Body length 12–19 mm, width 4.4–7.3 mm.

Etymology. The species is named after my son Igor.

Comparative diagnosis. This species is most closely related to *Hedyphanes bodemeyeri* Rtt. but differs in more parallel-sided elytra, in a deeply marginate prosternal process forming two apices in lateral view (this character distinguishes *H. igori* from *H. bodemeyeri*), in the structure of the parameres which bear a deep longitudinal gutter-shaped depression on the dorsal side, and in the presence of additional areas of sclerotization on sternite VIII of the male.

Hedyphanes aalbui Nabozhenko, sp. n.

(Fig. 13)

Type material (ZIN). Holotype (♂) and paratypes (2 ♂, 8 ♀): **Iran, Yazd Prov.**, Deh Bala, 2650 m, 10.V.2014 (D. Murastyi).

Description. Male. Body slender, narrow, cylindrical, black, with greasy luster, covered with black setae. Head widest across eyes. Eyes large, strongly transverse, convex. Ratio of head width across eyes to interorbital distance 1.7. Lateral margin of head with shallow emargination at joint of gena and clypeus. Lateral margin of genae angularly rounded. Punctuation of head coarse, irregular. In anterior part of head, punctures very large, round, 2–3 times as large as interpuncture space; at center of frons, punctuation finer, rather sparse (interpuncture space 2–3 times puncture diameter). Vertex with very coarse and dense punctuation in anterior half and with coarse transverse wrinkles in gular area. Antennae moderately long, with two apical antennomeres extending beyond base of pronotum; 11th antennomere weakly asymmetrical, longer than 10th antennomere.

Pronotum oblong, widest before middle (length to width ratio 1.13), 1.2 times as wide as head. Sides of pronotum weakly rounded in anterior half and widely emarginate or straight in basal half; anterior margin rounded; base weakly rounded. Anterior and posterior angles obtuse, rounded. Base and anterior margin marginate at sides; lateral margination missing. Disc transversely rounded, regularly convex, occasionally with depression near anterior corners. Punctuation of disc fine and sparse (interpuncture space 3–4 times puncture diameter) at center and coarse and moderately dense (puncture diameter subequal to interpuncture space) at sides. Prothoracic hypomera with coarse raduliform punctuation and with hairs directed anteriorly. Prosternum with large smooth granules. Prosternal process not marginate, very weakly convex.

Elytra strongly elongate (length to width ratio 2.13), widest behind middle, 1.65 times as wide as head, 1.40 times as wide and 2.64 times as long as pronotum. Humeral angles absent. Punctures in clearly pronounced striae round. Interstriae flat or weakly convex, with sparse, moderately coarse raduliform punctuation. Punctures in striae larger than those on interstriae.

Mesoventrite longer than metaventrite, with transverse rugosity and smoothed granules. Metaventrite, mesepimera, and metepisterna with coarse and dense punctuation; abdominal ventrites 1–3 with coarse and dense raduliform punctuation and wrinkles; ventrite 4 with sparse punctuation, without wrinkles; ventrite 5 with moderately coarse dense punctuation, entirely marginate.

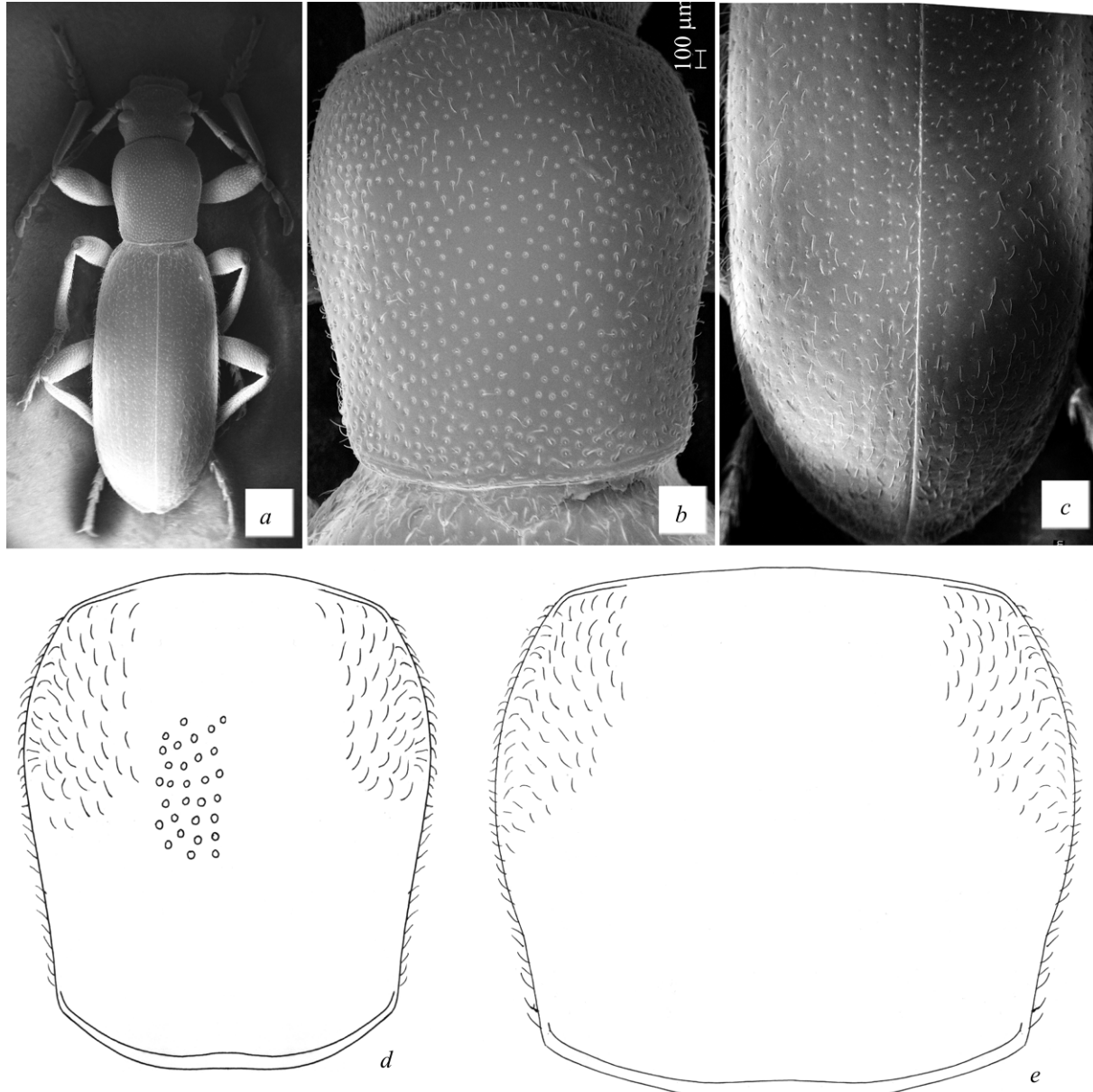


Fig. 13. *Hedyphanes aalbui* sp. n.: (a) habitus, male; (b) pronotum and elytral base, male; (c) elytra; (d) pronotum, male; (e) pronotum, female.

Pro- and metatibiae straight; mesotibia curved. Each tibia with very dense long brush of black setae and with longer brown hairs on inner surface. Pro- and mesotarsi widened; 2nd and 3rd protarsomeres as long as wide; 2nd and 3rd mesotarsomeres longitudinal.

Body length 12.0–13.3 mm, width 3.6–3.7 mm.

Female. Body larger; antennae shorter. Pronotum more transverse, nearly as wide as long (length only 1.02 times width). Elytra widest at midlength, frequently rugose. Body length 11.0–19.2 mm, width 3.76–4.00 mm.

Etymology. The species is named after my colleague Rolf Aalbu (California Academy of Sciences, USA), a famous expert in tenebrionid beetles of the New World.

Diagnosis. The new species differs from all the congeners in the short black rigid setae covering the body and in the raduliform punctation of the elytra. It is most similar to *H. bodemeyeri* but additionally differs from it in the shape of the male elytra widest at the midlength, in clearly pronounced elytral striae, and in a very weak convex prosternal process.

Hedyphanes afghanicus Nabozhenko, sp. n.
(Fig. 14)

Type material (ZIN). Holotype, ♂, **Afghanistan**: “Afghan., Farah SW Šin-Dand, 1100 m, 1.IV.1971 Kabakov.” Paratypes: 1 ♂, “Afghan. 30 km SW Herat, 1100 m, 25.XII.1971 Kabakov;” 2 ♀, “Afghan., Farah N Anardara, 1000 m, 28.III.1971 Kabakov.”

Description. Male. Body matte dorsally; pronotum and head with weak sheen. Head glabrous, widest across eyes. Eyes large, convex, strongly projecting. Ratio of head width across eyes to interorbital distance 1.55. Width of head across eyes 1.13 times that at level of genae. Genae angular. Lateral margin of head with obtuse-angular emargination at joint of gena and clypeus. Punctuation of head sparse and fine, moderately coarse on clypeus and genae. Antennae relatively short, with three apical antennomeres extending beyond base of pronotum, reaching 1/10 of length of elytra; 9–11th antennomeres short, transverse.

Pronotum longitudinal (length to width ratio 1.05–1.13), widest at, or slightly before middle, narrowest in anterior third, 1.15–1.20 times as wide as head. Sides of pronotum weakly rounded; anterior margin weakly rounded; base considerably rounded. Anterior angles hardly visible; posterior angles widely rounded. Prothorax round in cross-section. Sides of pronotum not marginate; anterior margin and base with fine margination. Prothoracic hypomera with sparse, weakly raduliform punctuation and with smoothed wrinkles at base. Prosternal process not convex.

Elytra glabrous even at apex, strongly convex, widest at midlength (1.8 times as long as wide), 1.4–1.5 times as wide and 2.40–2.45 times as long as pronotum. Punctures in elytral striae small, round; apical third with very fine, oblong punctures; elytral apex without striae. Interstriae with very fine and sparse punctuation; elytral declivity impunctate.

Meso- and metaventrite with short recumbent pale hairs. Abdominal ventrites 1 and 2 glabrous; ventrites 3 and 4 with row of marginal hairs; ventrite 5 covered with recumbent pale hairs and clearly marginate. All abdominal ventrites with very fine and sparse raduliform punctuation.

Legs long and slender. Pro- and mesotibiae weakly outcurved; metatibia weakly incurved, with dense pubescence on inner surface. Protarsus and 1st and 2nd mesotarsomeres widened, oblong.

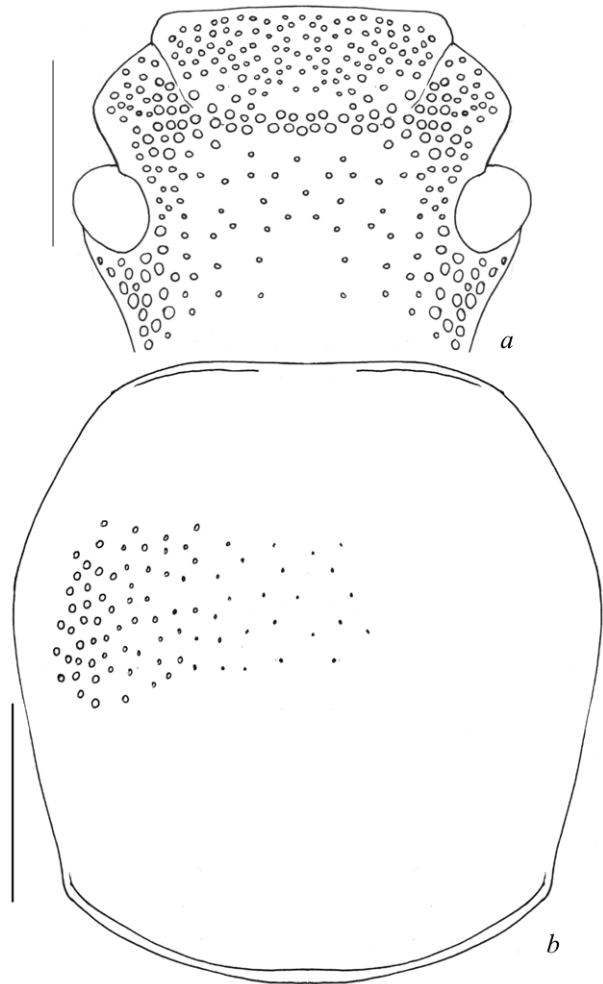


Fig. 14. *Hedyphanes afghanicus* sp. n., male, holotype: (a) head, (b) pronotum.

Body length 10.2–13.0 mm, width 3.4–4.4 mm.

Female. Body more robust. Antennae shorter than those in male, hardly reaching base of pronotum. Pronotum nearly as wide as long (width 1.03 times length). Elytra wider (1.57–1.74 times as long as wide), 1.55–1.60 times as wide and 2.55–2.90 times as long as pronotum. Legs slender but shorter than those in male.

Body length 7.5–12.2 mm, width 2.9–4.8 mm.

Comparative diagnosis. This species is closely related to *Hedyphanes tuxeni* but differs in glabrous abdominal ventrites 1–4 (only margins of ventrites 3 and 4 are covered with hairs), in an entirely marginate anal ventrite, in the absence of a sparse pubescence at the apex and sides of the elytra, and in a glabrous frontoclypeus. The body of *H. afghanicus* sp. n. is less lustrous. The pronotum of the male is oblong, and that

of the female is nearly as long as wide (in *H. tuxeni*, the pronotum is slightly wider than long in both sexes).

A Key to species of the Genus Hedyphanes from Kazakhstan, Middle Asia, Iran and Afghanistan

- 1 (4). Epipleura with short fused apical process directed downward (epipleural mucron). When epipleural mucron inconspicuous in some individuals, elytra with weak but distinct humeral angles.
- 2 (3). Punctuation of head and pronotum fine and sparse (puncture diameter half-interpuncture space). Elytral striae inconspicuous, formed by punctures subequal in size to those on interstriae *H. seidlitz kuschkensis*.
- 3 (2). Punctuation of head and pronotum coarse, moderately dense (puncture diameter subequal to interpuncture space); occasionally punctuation at center of pronotum sparse and fine. Striae on elytra distinct, formed by punctures distinctly larger than those on interstriae *H. seidlitz seidlitz*.
- 4 (1). Epipleura without apical mucron.
- 5 (18). Prothoracic hypomera with simple, not raduliform punctuation, without granules; occasionally punctuation coarse to such extent that punctures merged, and intervals between them forming coarse, not raduliform, confused wrinkles.
- 6 (7). Body with metallic bronze-green sheen, densely pubescent with dark golden erect hairs. Outer margin of throat emargination attenuate in shape of obtuse tooth at each side *H. muminovi*.
- 7 (6). Body glabrous, occasionally with weak pubescence only on elytral apex, without metallic sheen. Outer margin of throat emargination without tooth at each side.
- 8 (9). Elytra with distinct striae of punctures; interstriae weakly convex, with longitudinal wrinkles. Body very slender, oblong; pronotum oblong. Elytral apex with few short inconspicuous setae *H. zarudnyi*.
- 9 (8). Elytral striae inconspicuous; interstriae not convex. Pronotum transverse or as long as wide. Apical part of elytra glabrous or with sparse hairs.
- 10 (11). Pronotum transverse (1.2–1.3 times as wide as long), with rounded sides; outer sides of prothoracic hypomera flattened. Punctuation of hypomera coarse to such extent that punctures merged into coarse short wrinkles. Abdominal ventrite 5 not marginate. Parameres of aedeagus with longitudinal gutter-shaped depression dorsally *H. iranicus*.
- 11 (10). Pronotum weakly transverse (1.01–1.15 times as wide as long), as long as wide, or weakly longitudinal. Punctuation of prothoracic hypomera distinct; punctures not merged into wrinkles. Abdominal ventrite 5 marginate. Parameres of aedeagus with weak longitudinal keel-shaped elevation on dorsal side.
- 12 (13). Prothoracic hypomera with recumbent dark rufous hairs directed upward and frequently visible along margins of pronotum in dorsal view. Head with long recumbent dark rufous hairs in anterior third. Body frequently with bluish tint ... *H. europs*.
- 13 (12). Prothoracic hypomera without pubescence; each puncture only bearing very short and fine seta. Head without hairs in anterior third. Body always black.
- 14 (15). Body small: its length 6.0–7.5 mm, width 2.0–2.3 mm. Pronotum not marginate laterally; elytra occasionally sparsely pubescent apically *H. tagenioides*.
- 15 (14). Body large: its length 9–20 mm, width 2.8–8.0 mm. Pronotum with or without lateral margination.
- 16 (17). Pronotum not marginate laterally. 11th antennomere of male 1.3 times as long as 10th antennomere, as long as wide. 1st–3rd protarsomeres of male transverse, cordate *H. semnanicus*.
- 17 (16). Pronotum marginate laterally. 11th antennomere of male 1.2 times as long as 10th antennomere, longitudinal. 1st–4th protarsomeres of male transverse, rectangular *H. besseri*.
- 18 (5). Prothoracic hypomera with raduliform punctuation or granulate.
- 19 (20). Prothoracic hypomera granulate, without punctuation *H. coerulescens*.
- 20 (19). Prothoracic hypomera with raduliform punctuation.
- 21 (22). Body (except elytra) covered with short recumbent dark brown hairs. Elytra with subrecumbent hairs *H. aalbui* sp. n.
- 22 (21). Body glabrous.

- 23 (26). Abdominal ventrite 5 glabrous or pubescent but without short coarse dark rufous setae apically, not marginate.
- 24 (25) Body with blue tint. Angles of pronotum obtuse, narrowly rounded apically. Punctuation of pronotum coarse, moderately dense; at center, puncture diameter subequal to interpuncture space. Elytral apex glabrous. Abdominal ventrite 5 glabrous *H. ocularis*.
- 25 (24). Body black or dark brown. All angles of pronotum widely rounded, hardly visible. Punctuation of pronotum fine and sparse in middle; puncture diameter 3–5 times space between them. Sides of elytra covered with sparse subrecumbent hairs in apical part *H. tuxeni*.
- 26 (23). Abdominal ventrite 5 entirely marginate, with short rigid setae anteriorly or with recumbent dense pubescence formed by pale hairs.
- 27 (30). Elytra with distinct rounded humeral angles; laterally to scutellum, elytral base with distinct vertical margin fitting base of pronotum.
- 28 (29). Abdominal ventrite 5 without dense rigid recumbent hairs at apex. Pronotum not transverse (as long as wide), with weakly rounded sides and with very fine and sparse inconspicuous punctuation. Punctuation of interstriae very fine and sparse; punctures in striae distinctly larger than those on interstriae. 11th antennomere of male strongly elongate, with sharp apex, not trapezoidal *H. laticollis*.
- 29 (28). Abdominal ventrite 5 with dense rigid recumbent hairs at apex. Pronotum transverse (1.12 times as wide as long), with strongly rounded sides and with coarser and moderately dense, distinct punctuation. Punctuation of interstriae coarse and dense; punctures in striae equal in size to those on interstriae. 11th antennomere of male weakly elongate, with obtuse-angular apex, trapezoidal *H. kadleci* sp. n.
- 30 (27). Elytra without humeral angles and vertical margin at base, rarely with short inconspicuous humeral epipleural projections at base.
- 31 (32). Prosternal process clearly marginate apically, with deep emargination between conical apex and border in lateral view. Parameres of aedeagus with longitudinal groove in middle *H. igori* sp. n.
- 32 (31). Prosternal process not marginate apically, with only one conical or weakly convex apex in lateral view. Parameres of aedeagus without longitudinal groove in middle.
- 33 (34). Head and pronotum lustrous, frequently with lacquer sheen. Pronotum subsquare. Antennae of male short, with ultimate antennomere reaching base of pronotum *H. matthiesseni*.
- 34 (33). Body with weak, occasionally matte sheen. Pronotum not square. Antennae of male long, with at least three apical antennomeres extending beyond base of pronotum.
- 35 (38). Prothoracic hypomera with rather fine, moderately dense or sparse raduliform punctuation (interpuncture space 1.5–2.5 times puncture diameter). Elytra widest at midlength. Body matte. Aedeagus with keel-shaped longitudinal elevation in middle.
- 36 (37). Elytra without humeral angles. Prosternal process not convex. Abdominal ventrite 5 covered with pale recumbent hairs. Body without blue tint *H. afghanicus* sp. n.
- 37 (36). Elytra with small rounded humeral angles. Prosternal process distinctly convex or conical. Abdominal ventrite 5 with sparse recumbent hairs. Entire body or at least head with bluish tint *H. kiritshenkoi*.
- 38 (35). Prothoracic hypomera with very coarse and dense raduliform punctuation; each puncture with distinct granule at base. Elytra widest behind middle. Body with greasy luster. Aedeagus with longitudinal gutter-shaped depression in middle *H. koltzei*.

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