

# A Revision of the Genus *Catomus* Allard, 1876 and the Allied Genera (Coleoptera, Tenebrionidae) from the Caucasus, Middle Asia, and China

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**Abstract**—The genus *Catomus* Allard and the allied genera of the fauna of Kazakhstan, Middle Asia, the Caucasus, and China are revised. The subgenus *Stenomacidius* Seidlitz, 1896 is synonymized with the genus *Cylindronotus* Faldermann, 1837. A new genus, *Eustenomacidius* gen. n., with the type species *Helops luridus* Ménétriés, 1848 is described. The following new combinations are proposed: *Cylindronotus* (s. str.) *acutangulus* (Seidlitz, 1896), *Odocnemis anatolicus* (Kaszab, 1961), *Eustenomacidius hirtipennis* (Seidlitz, 1896), *Eustenomacidius turkmenicus* (Medvedev, 1964), *Eustenomacidius mongolicus* (Kaszab, 1968), and *Eustenomacidius wagnae* (Ren, 1999). The following new subgenera are described: *Montanocatomus*, *Sinocatomus* (genus *Catomus*), and *Caucasohelops* (genus *Eustenomacidius*). The name *Catomodontus* Koch, 1935 is considered invalid. A new genus *Xanthohelops* closely related to *Eustenomacidius* is described from the Kara Kum Desert (Turkmenistan). The following new species and subspecies are described: *Catomus* (s. str.) *noctivagus*, *C.* (s. str.) *indubitatus*, *C.* (*Montanocatomus*) *fabiani*, *C.* (*Sinocatomus*) *solitarius*, *Eustenomacidius* (*Caucasohelops*) *svetlanae* with a new subspecies *E.* (*Caucasohelops*) *svetlanae araxi* subsp. n., *Xanthohelops karakumicus* Nabozhenko et Medvedev, spp. n. The following new synonyms are established: *Cylindronotus* Faldermann, 1837 = *Stenomacidius* Seidlitz, 1896; *Eustenomacidius luridus* (Ménétriés, 1848) = *Stenomax laevicollis* Kraatz, 1882, = *Stenomax lucidicollis* Kraatz, 1882, = *Catomus* (*Stenomacidius*) *provocator* Reitter, 1922; *Catomus* (*Montanocatomus*) *reinigi* (Schuster, 1931) = *Catomus* (*Stenomacidius*) *alaensis* G. Medvedev, 1970; *Catomus fragilis* (Ménétriés, 1848) = *Catomus subniger* Reitter, 1901; *Catomus karakalensis* G. Medvedev, 1964 = *Catomus dolini* G. Medvedev, 2004. Lectotypes are designated for the following species: *Cylindronotus acutangulus* (Seidlitz, 1896); *Eustenomacidius hirtipennis* (Seidlitz, 1896); *Catomus fragilis* (Ménétriés, 1848); *Catomus reinigi* (Schuster, 1931); *Catomus provocator* Reitter, 1922; *Catomus subniger* Reitter, 1901; *Catomus niger* (Kraatz, 1882) and *Catomus antoniae* Reitter, 1890. Morphological adaptations of species to particular environmental conditions, relationships of the new taxa and their positions in the tribe Helopini are considered. Keys to genera of the tribe Helopini of the Caucasus, Middle Asia, and Kazakhstan, and to subgenera and species of *Catomus* and *Eustenomacidius* of the Caucasus, Middle Asia, Kazakhstan, and China are given.

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Species of the genus *Catomus* Allard, 1876 are widely distributed in the Mediterranean Area, Middle Asia, Asia Minor, and the Near East; one species of the genus occurs in China. At present, the genus comprises about 60 species and is subdivided into two subgenera, *Catomus* s. str. and *Stenomacidius* Seidlitz, 1896. The subgenus *Catomodontus* Koch, 1935 was also erected in the genus *Catomus*, but without designation of type species. According to the International Code of Zoological Nomenclature, 2000 (article 13.3), this name is invalid. Löbl and Merkl (2003) have designated the type species for the subgenus *Catomodontus*, *Catomus coronatus* Koch, 1935, but have not indicated “subgen. n.” after the name and have assigned the authorship to Koch. Thus, the name *Catomodontus* should be considered invalid.

The genus *Catomus* was distinguished by Allard (1876, 1877) and initially included a number of species from the Near East and Western Mediterranean Area. The type species *Catomus persicus* Allard, 1876 was later designated by Gebien (1943).

The classification of the genus was reconsidered by Seidlitz (1896), who downgraded *Catomus* to a subgenus of the genus *Helops* Fabricius, 1775 (sensu Seidlitz, 1896). He distributed species of *Catomus* (in the modern sense) among two genera, *Helops* and *Hedyphanes*, and distinguished two subgenera in the genus *Hedyphanes*, *Catomidius* and *Stenomacidius*, in addition to the nominotypical one. The former subgenus included typical representatives of *Catomus*, and the latter, the species belonging to the subtribe *Cylindronotina* (sensu Nabozhenko, 2002a). Español (1956)

has also noted that *Stenomacidius* is a combined group, and its species belong to the tribe *Cylindronotini* sensu Español, 1956. Seidlitz distinguished the genera *Helops* and *Hedyphanes* on the basis of the absence (*Hedyphanes*) or presence (*Helops*) of a vertical basal margin of the elytral base [flat articulation area at the bases of the pronotum and elytra closely fitting them against each other] and a degree of development of the humeri. At the same time, he included in the genus *Helops* some *Catomus* species lacking the vertical basal margin of the elytral base, lowering the rank of *Catomus* to a subgenus, and placed the species possessing the vertical basal margin of the elytral base and distinct humeral angles (*pilosulus*, *hirtipennis*, etc.) in the genus *Hedyphanes*.

In his revision of North African Helopini, Vauloger (1899) returned the generic rank to *Catomus* and included all African species of the group in the nominotypical subgenus.

Reitter (1922) improved the classification of *Catomus*, having included all its species in one genus with two subgenera: the nominotypical one and *Stenomacidius* (he synonymized the name *Catomidius* with *Catomus*). Similarly to Seidlitz, Reitter did not use the structure of the male genitalia and related the genera *Catomus* and *Hedyphanes*, combining them into the separate subtribe Hedyphanina on the basis of lack of the humeri and vertical basal margin of the base of the elytra. However, such a grouping is artificial, and similarity in these characters is more likely an example of homoplasia, considering, especially, that representatives of both genera have adapted to similar types of landscapes and inhabit similar biotopes.

Antoine (1947) was the first to use the structure of the genitalia of *Catomus* for identification of species and for comparative morphological analysis of genera of the tribe Helopini in the fauna of Morocco.

One of the latest revisions of the genus *Catomus* was made by Español and Viñolas (1986). It included descriptions of, and keys to species of *Catomus* of Iberian Peninsula.

In addition to Heyden and Kraatz (1882, 1886), Reitter (1890, 1922), and Seidlitz (1896), the Middle Asian and Transcaucasian representatives of the group were considered by Reinig (1931), Bogachev (1938, 1963), Medvedev with coauthors (Medvedev, 1964, 1970, 1978, 2004; Medvedev and Nepesova (1985), Kaszab (1968), Ren and Youzhi (1999), Abdurakhmanov and Abdulmuslimova (2002), and other authors. Nevertheless, no revision, morphological review, and

keys to the group (except for Turkmenistan species) have been published.

Examination of the male genitalia and external morphological characters has shown that *Catomus* and *Hedyphanes* belong to different evolutionary branches in the subtribe Helopina of the tribe Helopini. The first group is formed by the genera comprising the species characterized by the following features: penis with two or three apices, rounded in apical part; phallobase very long in comparison with short parameres; parameres with elongate asperate punctation and inconspicuous short hairs. This group includes the genera *Catomus*, *Gunarus* Gozis, 1886, *Stenohelops* Reitter, 1922, etc. (catomoid group of genera). The second group includes the genera, representatives of which possess the penis with one or two apices frequently tapered and the long parameres covered with short, spiniform setae pointing backwards. This group comprises the genera *Entomogonus* Solier, 1848, *Hedyphanes*, *Helops*, *Probaticus* Seidlitz, 1896, *Raiboscelis* Allard, 1876, etc. (helopioid group of genera).

As mentioned above, Seidlitz described *Stenomacidius* as a subgenus of the genus *Hedyphanes*. Reitter subsequently included this subgenus in the genus *Catomus*. According to Seidlitz and Reitter, the species of *Stenomacidius*, in contrast to the other representatives of *Catomus*, have a slender cylindrical body, pubescent abdominal sternites, and not widened fore tarsus of the male. Medvedev (1990) designated as the type species of this subgenus *Hedyphanes acutangulus* Seidlitz, 1896, one of the first species included by both Seidlitz and Reitter in the subgenus *Stenomacidius*. After examination of a syntype (male), designated here as lectotype (deposited in Naturhistorisches Museum Wien) with labels "Achalzich," "Collect. Türk," "*acutangulus* det. Seidlitz," and "*Hedyphanes acutangulus*," I place this species in the genus *Cylindronotus* Faldermann, 1837. Therefore, the name *Stenomacidius* should be considered a junior synonym of *Cylindronotus*. The second syntype of this species, which was reported by Seidlitz to originate from Syria, has not been found, being probably lost. Thus, a new combination, *Cylindronotus acutangulus* (Seidlitz, 1896), comb. n., and a new synonymy, *Cylindronotus* Faldermann, 1837 = *Stenomacidius* Seidlitz, 1896, **syn. n.**, are established.

The Middle Asian and Transcaucasian species of the genus *Catomus* are distributed in arid and semi-arid territories of the Palaearctic Region, inhabiting landscapes with dense soils (salt flats, clay and rocky

deserts) and occasionally occurring in the areas with sandy loam soils. Some species (*Catomus antennatus* Bogachev, *C. indubitatus* sp. n.) possessing good ability for climbing are found on the trunks of fruit-trees. According to Mordkovich (1977), there are four principal types of adaptation of tenebrionid beetles to arid environment: fossorial habit, interstitial habitation, dwelling in large cavities, or forming adaptations protecting the tracheae in the subelytral cavity from the dry and hot air to enable living on the soil surface. The overwhelming majority of species of *Catomus* followed the third way, and, as a result, they had assumed a number of adaptive features: body elongate, cylindrical; junction of prothorax with mesothorax rather movable in all directions; elytral base without vertical basal margin, against which base of pronotum should rest; humeri absent; upper edging of epipleura (lateral margin of elytra) wanting or pronounced only at apex and, therefore, epipleura smoothly merging with sides of elytra; vertical basal margin of base of pronotum absent; pronotum cylindrical with straight or rounded sides and rounded angles (Figs. 58, 85).

A total of the above characters is inherent in a group of closely related species inhabiting the plain and low-mountainous arid territories, namely, salt flats and alkali soils, fixed sands, and clay deserts, where species of *Catomus* can find shelter in cracks and other natural cavities in the soil. However, among the Middle Asian species of the genus there is a group, which has developed in the mountain arid areas of the Pamiro-Alai and Northern Tien Shan (*Catomus pilosulus* Kraatz, *C. reinigi* Schuster, *C. grandis* G. Medvedev, *C. badachshanicus* G. Medvedev, *C. fabiani* sp. n.). Morphological modifications of some external structures of this group proceeded in a different direction: vertical basal margin of base of pronotum clearly pronounced near acute-angled posterior angles of pronotum; vertical basal margin of elytral base and also humeral angles well seen; upper edging of epipleura wide and separated from vertical part of elytra along its entire length; body cylindrical, oval in cross-section (Fig. 97). Two of the former characters testify to a limited capability of the thorax to move in the lateral direction and to the predominance of the dorso-ventral direction in the prothorax motion. It should be noted that in this group of species some constant features typical of the remaining Middle Asian and Transcaucasian representatives of *Catomus* are less distinct or absent. For example, the fore tarsus of the male is slightly widened; the anterior margin of the clypeus

may be widely emarginate, bisinuate, or straight even within a population (Figs. 87, 93, 98, 104); the spiculum gastrale bears indistinct teeth at the base of the branches (Fig. 111), or bears no teeth (Figs. 89, 100). Nevertheless, the synapomorphies in the structure of the antennae, genae, and male genitalia and a transitional character of other morphological structures assume the alliance of all Middle Asian and Transcaucasian species of the genus *Catomus*. I separate these species in the subgenus *Montanocatomus* subgen. n.

Representatives of the genus *Catomus* have also retained a number of primitive characters: subelytral cavity reduced; elytral epipleura, gradually narrowing, ending before elytral apex; mouthparts with numerous membranous structures. These characters demonstrate that the process of adaptation of this group to the arid environment conditions has affected not all the structures of the organism. Like other representatives of the tribe Helopini in arid territories, species of *Catomus* are moderately xerophilous even in the extreme arid habitats. This character is also manifested in their behavioral reaction: the diurnal and seasonal activity. Representatives of the genus are active and feed during the night and twilight time (early in the morning and late at night), and spend the day time in shelters. The seasonal activity of *Catomus* falls on early spring, the period of intensive vegetation of ephemerals and ephemeroids, which constitute a significant portion of the beetles' diet. During this period, when the sum of daily temperatures does not reach the summer peak, the species can be active in the day time as well. Herbivory in *Catomus* is combined with their ability to climb bushes, grasses, and, occasionally, trees, and with the respective morphological adaptations: tibiae and tarsi long and slender, tarsal claws large and strongly curved. The mobility of the prothorax relative to mesothorax also promotes the active clambering on plants.

The Middle Asian *Catomus* possess male genitalia (Figs. 36–39, 44, 46, 47, 52–55, 61–65, 71, 72, 79–82, 90, 91, 95, 96, 101, 102, 106, 107) of the helopioid type in the broad sense (Nabozhenko, 2001, 2002a, 2005): parameres heavily sclerotized, covered with elongate punctures; ventral processes of parameres fused and covering penis on ventral side of aedeagus along entire length of phallobase, attached to margins of phallobase by membrane; penis with three (subgenus *Montanocatomus*) or two (nominotypical subgenus) apices, claviform widened in apical part; sclerites of penis heavily sclerotized apically, widened at ends;

endophallus simple (Figs. 64, 65), without tubercles and sclerites, in form of elongate bag with strigose microsculpture at base.

The female genital tubes (Fig. 41) are also of the helopoid type (Nabozhenko, 2001, 2002a, 2002b, 2005): basal spermathecal duct distinct; spermatheca consisting of two ducts of different length, without additional reservoirs and short processes; basal duct about as long as duct between place of running of gland and branching of spermatheca.

The spiculum gastrale (Figs. 40, 48, 56, 66, 73, 83, 84) is also of the typical helopoid structure (Nabozhenko, 2001, 2002a, 2005): baculiform sclerites of spiculum gastrale approximate, not curved outwards in dorsal view, straight in lateral view, forming obtuse teeth on outer side at base—at junction of baculiform sclerites and lobes, which is not typical of the subgenus *Montanocatomus* subgen. n.), frequently prolonged into pseudo-common shaft at apex, but not fused entirely, except for apical part connected by membrane.

Thus, in the species of the genus *Catomus* the deep morphological specialization in connection with transition of the ancestral forms to life in arid territories is combined with the plesiomorphic features characteristic of the archaic genera of the tribe Helopini.

Larval stages of *Catomus* species are not known.

No affinity of the genus *Catomus* has been defined. Iablokoff-Khnzorian (1964) presumably attributed *Catomus* to the Mediterranean genus *Nephodinus* Gebien, 1943. Later, Español and Viñolas (1986) unreasonably attributed *Catomus* to *Stenohelops* Reitter, 1922. I consider it untimely to discuss the affinity of *Catomus* with any of the genera of Helopini, until the larval stages are described.

In addition to the species of *Catomus*, attributed in the present study to the nominotypical subgenus and *Montanocatomus*, *Stenomacidius andreinii* Gridelli, 1940 was described in the genus *Stenomacidius*; later, Gebien (1943) transferred it to the genus *Catomus*. Gridelli gave a rather distinct and detailed description of the species with good illustrations, which removes all doubts about the species belonging to the nominotypical subgenus of *Catomus*. Kaszab described the species *Catomus (Stenomacidius) anatolicus* Kaszab, 1961 from southern Turkey. I examined the holotype (♂) and paratypes (1 ♂, 4 ♀) of this species from Dresden Natural History Museum (Staatliche Museum

für Tierkunde Dresden) with identical labels: “Anatolia—Toros Berendi/Eregli 2000 m, leg. Muche.” The examination of the type material has shown that this species belongs to the genus *Odocnemis* Allard, 1876 and possesses the male genitalia of the typically cylindronotoid type; therefore, the species belongs to the subtribe Cylindronotina, and not to Helopina. Consequently, a new combination is established: *Odocnemis anatolicus* (Kaszab, 1961), comb. n. Bogačev (1963) described *Catomus muminovi* in the subgenus *Stenomacidius*. Examination of the holotype and paratypes of this species from the Zoological Museum of Moscow State University has shown that the species belongs to the genus *Hedyphanes*. *Catomus arabicus* Kaszab, 1982, described from Oman, belongs, judging from the description, to the nominotypical subgenus.

Unlike Reitter, Seidlitz had a narrower concept of *Stenomacidius* and included in this subgenus, in addition to *Hedyphanes (Stenomacidius) acutangulus* (see above), only two species morphologically distinct from the rest, *H. (Stenomacidius) laevicollis* Kraatz and *H. (Stenomacidius) hirtipennis* Seidlitz. Examination of the male genitalia and female genital tubes, and also external characters has revealed that these, and many other species described within *Catomus* and included in the subgenus *Stenomacidius (provocator)* Reitter, *turcmenicus* G. Medvedev, *mongolicus* Kaszab, *wagnae* Ren) are morphologically far from *Catomus* [which was noted also by Español (1956)], and belong to the nalassoid branch of the subtribe Cylindronotina. This group of species clearly differs in the morphology and ecology not only from representatives of the genus *Catomus* proper, but also from the nalassoid Middle Asian genera closely related to *Catomus (Turkmenohelops)* G. Medvedev, 1987; *Zophohelops* Reitter, 1901, and *Nalassus* Mulsant, 1854), and should be separated in a new genus, *Eustenomacidius* gen. n. I include in this genus species from the Transcaucasia, Turkmenistan, Tien Shan, Hissarodarvaz, Mongolia, and China.

The species of *Eustenomacidius* (Figs. 1, 6) resemble *Catomus* in appearance, but demonstrate clear differences in the principal characters: anterior margin of clypeus straight; ultimate antennal segment lanceolate, occasionally weakly asymmetrical, but never strongly asymmetrical (banana-shaped); vertical basal margin of elytral base more or less distinct, especially near humeri, frequently not vertical, but gently sloping; vertical basal margin of base of pronotum distinct, especially near posterior angles; angles of pronotum

rectangular or obtuse-angled, but always distinct; humeri noticeable, widely rounded; upper margin of epipleura distinct, visible in dorsal view.

The male genitalia of *Eustenomacidius* (Figs. 2, 3, 7, 8, 15, 16) are of the nalassoid type (Nabozhenko, 2001, 2002a): aedeagus weakly sclerotized, semitransparent; parameres elongate, produced apically into compressed keel. The female genital tubes (Fig. 14) are also of the typical nalassoid structure (Nabozhenko, 2001, 2002a, 2002b): spermatheca short and simple, without lateral processes, reservoirs, and branching; gland short, about as long as spermatheca. The only exception is *Eustenomacidius svetlanae* sp. n. with two subspecies from Transcaucasia (separated by me in the subgenus *Caucasohelops* subgen. n.), this species possesses the strongly elongate and dorso-ventrally flattened parameres of the cylindronotoid type (Figs. 21, 22) and the compound, combined spermatheca (Fig. 23). The tendency toward the transition from the nalassoid to cylindronotoid type of the male parameres structure also exists in other nalassoid groups of the subtribe Cylindronotina (*Nalassus*, *Ectromopsis* Antoine, 1947). The compound structure of the spermatheca (presence of some primary and secondary ducts and short processes) may be linked with a long period of maturation of sex cells in species of this subgenus (in nature, representatives of the subgenus *Caucasohelops* occur from March till July).

Similar conditions of habitation have determined similarity in appearance between representatives of *Eustenomacidius* and the Pamiro-Alai species of *Catomus*, which is the result of the parallel development of separate external structures. This similarity obliterates the distinct morphological border between these groups and complicates their identification on the basis of external characters. However, the fundamentally different structure of the male genitalia and female genital tubes remove all doubts about both the independent development of similar characters and the belonging of these genera to different evolutionary lineages of the tribe Helopini, the subtribes Cylindronotina and Helopina.

Representatives of *Eustenomacidius*, in contrast to members of *Catomus* and many other Middle Asian and Transcaucasian Helopini, have not given up the initial dendrobiont mode of life, and are associated with bush or forest biotopes across the entire distribution range, where they usually form small colonies. In this connection, they have retained the morphological

features characteristic of the archaic forest groups of Helopini, though these features are not so distinct. In particular, the body in *Eustenomacidius* is less cylindrical and more strongly flattened dorso-ventrally, and the junction of the pro- and mesothorax is mainly movable only in the dorso-ventral direction. These characters reveal the adaptation of *Eustenomacidius* and their ancestors to the life under bark. Similar characters are clearly pronounced in the species of the genus *Nalassus* Mulsant, 1854, which live under bark, rocks, and other shelters. Some species of *Eustenomacidius* (*E. luridus*, *E. hirtipennis*) are closely associated with trees, and find shelter and food under the bark of deciduous trees (maple, walnut, etc.). The other species of this group are associated with bushes to a varying extent.

Among the Middle Asian genera of the subtribe Cylindronotina, the genus *Eustenomacidius* is most closely related to *Turkmenohelops* G. Medvedev, 1987, but differs from it in the absence of a deep entire depression between the eyes on the head underside. A key to species of the genus *Eustenomacidius* is given below.

Having examined the material from the Zoological Institute, Russian Academy of Sciences, St. Petersburg [ZIN], I describe here an unusual species different from representatives of the genus *Eustenomacidius*. The new species (Fig. 27) exhibits a number of characters inherent in the Middle Asian representatives of the nominotypical subgenus of the genus *Catomus*: body cylindrical, vertical basal margins of bases of both pronotum and elytra absent, humeri absent, upper edging of epipleura not pronounced at all, epipleura smoothly extending into lateral surface of elytra at either side. At the same time, male genitalia of typical nalassoid structure (Figs. 28, 29), anterior margin of clypeus straight, and ultimate antennal segment lanceolate and symmetrical. Noteworthy is the structure of the mandibles, not usual of Helopini: mandibles not elongate, but sharply curved at nearly right angle; apical and preapical teeth elongate, with acute apices; and preapical tooth strongly shifted toward base. Such a structure of the mandibles implies the development of herbivory (or, probably, detritophagy) and the predominance of the green parts of plants, instead of plant debris, in the diet. Another characteristic feature of the new species is the ovipositor structure (Fig. 31): styli of ovipositor transformed into heavily sclerotized tail-shaped processes bearing no apical tactile sensilla. The apex of the ovipositor in

this species evidently performs the digging function during oviposition, which is connected with the psamophilous mode of life. The other representatives of the tribe lay eggs in various cracks and hollows, and their styli mainly function as a tactile organ (Fig. 10). The female genital tubes (Fig. 32) are characterized by the presence of the bursa copulatrix, which is absent in the other Helopini; by a short spermathecal duct and short gland, which is longer than the spermathecal duct; by the absence of the basal spermathecal duct; and by the gland and spermatheca opening into the vagina separately.

Based on the distinct apomorphies, I separated this species in a new genus, *Xanthohelops* gen. n. The species is most closely related to representatives of the genus *Eustenomacidius* (in structure of the male genitalia and spiculum gastrale and the ultimate antennal segment and in the absence of ocular sulcus) and may be a highly specialized lineage of this genus.

Thus, the genus *Catomus* includes three subgenera (nominotypical one, *Montanocatomus* subgen. n., and *Sinocatomus* subgen. n.). In the fauna of Middle Asia and China, 14 species of this genus are known, including the new species described, and considering synonymies established herein. Five species form the subgenus *Montanocatomus* in the high mountains of the Pamiro-Alai and Northern Tien Shan, eight species belong to the nominotypical subgenus and occur in the plain and low-mountainous territories of Middle Asia, and one species is known from the mid-altitude mountains of Sichuan (China). In the Caucasus, only one species, *Catomus antoniae* Reitter, 1890, has been recorded. Reitter (1890, 1922), Seidlitz (1896), Abdurakhmanov and Medvedev (1994) reported also *Catomus hesperides* (Reiche, 1861), but this species occurs in southern Turkey and Syria, and is not known reliably in the fauna of the Caucasus. The genus *Eustenomacidius* is represented in the Palaearctic fauna by six species and one subspecies, among which one species inhabits western China and southern Mongolia, and the others are distributed in the mountains of Middle Asia. In Transcaucasia, the genus is represented by the subgenus *Caucasohelops* with two subspecies. The genus *Xanthohelops* consists of one species from the Kara Kum Desert.

The study is based on examination of the material from the following institutes and museums: the Zoological Institute, Russian Academy of Sciences (St. Petersburg, Russia) [ZIN], Zoological Museum of the Moscow State University (Moscow, Russia) [ZMMSU], Zoological Museum of the Moscow Ped-

agogical State University (Moscow, Russia) [MSPU], Zoological Museum of the Rostov State University (Rostov-on-Don, Russia) [RSU], Kharkov Entomological Society (Kharkov, Ukraine) [KhES], Institute of Zoology, Academy of Sciences of Armenia (Yerevan, Armenia) [IZAr], Institute of Zoology, National Academy of Sciences of Azerbaijan (Baku, Azerbaijan) [IZAZ], Hungarian Natural History Museum (Budapest, Hungary) [HNHM], Deutsches Entomologisches Institut (Müncheberg, Germany) [DEI], Zoologische Staatssammlung München (München, Germany) [ZSM], Zoological Museum of Institute for Biodiversity and Ecosystem Dynamics (Amsterdam, the Netherlands) [ZMIB], Naturhistorisches Museum Wien (Wien, Austria) [NMW], Staatliche Museum für Tierkunde Dresden (Dresden, Germany) [SMTD], and also the collection by S.M. Iablokoff-Khznorian [CKh] (deposited in Yerevan, at M.Yu. Kalashian [IZAr]).

The depositories of the material are indicated in the text in square brackets.

*A Key to Genera of the Tribe Helopini of China, Middle Asia, Kazakhstan, and the Caucasus*

- 1 (2). Anterior margin of clypeus deeply and widely emarginate or, at least, with projecting lateral angles (bisinuate). Ultimate antennal segment strongly elongate and distinctly asymmetrical, banana-shaped ..... *Catomus* Alld.
- 2 (1). Anterior margin of clypeus straight. Ultimate antennal segment short or elongate, symmetrical or slightly asymmetrical, lanceolate or fusiform.
- 3 (6). Vertical basal margin of elytral base, against which posterior side of pronotum usually resting, absent. Vertical basal margin of base of pronotum at level of posterior angles absent. Body elongate, cylindrical.
- 4 (5). Body small, yellow or ochrous. Mandibles sharply curved, apical tooth with acute apex; preapical tooth distinctly shifted toward base. Styli of ovipositor without sensilla, tapered and heavily sclerotized apically. Male genitalia and female genital tubes of nalassoid type .....  
..... *Xanthohelops* gen. n.
- 5 (4). Body large, black. Mandibles elongate, smoothly curved; apical and preapical teeth rounded, approximated. Styli of ovipositor with sensilla, not tapered apically. Male genitalia and female genital tubes of helopioid type .... *Hedyphanes* F.-W.

- 6 (3). Vertical basal margin of elytral base present at least near humeri. Vertical basal margin of base of pronotum always present near posterior angles. Anterior margin of clypeus straight; ultimate antennal segment sometimes slightly asymmetrical, 1.5 times as long as penultimate segment, but never strongly asymmetrical (banana-shaped).
- 7 (8). Underside of head with deep entire transverse depression beginning from lower margin of eyes at either side and running slightly below prementum ..... *Turkmenohelops* G. Medv.
- 8 (7). Depression on underside of head absent, occasionally only ocular sulcus pronounced.
- 9 (14). Eyes much wider than long, obliquely situated. Anal sternite deeply edged along margin and finely edged butt-end. Male genitalia and female genital tubes of helopioid type.
- 10 (11). Mentum with strongly projecting obtuse process.—Body dorsally with dark blue metallic tint ..... *Helops* F.
- 11 (10). Mentum without strongly projecting process.
- 12 (13). Epipleura not reaching elytral apex. Anal sternite with coarse subrecumbent setae at apex.—Body black, large, distinctly convex ..... *Probatiscus* Seidl.
- 13 (12). Epipleura reaching elytral apex. Anal sternite hairless, without coarse setae at apex.—Body with bluish tint, weakly convex ..... *Entomogonus* Rtt.
- 14 (9). Eyes moderately or slightly wider than long, slightly oblique. Anal sternite not edged along margin, occasionally finely edged only at butt-end. Male genitalia and female genital tubes of nalassoid or cylindronotoid type.
- 15 (20). Eighth elytral interval apically flat, convex, or cariniform, merged with margin of elytra. Epipleura not reaching sutural angle of elytra. When all elytral intervals uniform, and 8th interval connected apically with 2nd, then ocular sulcus distinct, epipleura of male reaching elytral apex, 2nd–8th antennal segments of male strongly widened, fore tibia of male not dentate on inner surface (some species of *Nalassus*).
- 16 (17). Ocular sulcus absent. Upper edging of epipleura (lateral margin of elytra) at elytral apex obsolete or very narrow; 8th elytral interval merged at apex with margin of elytra. Male parameres and female genital tubes of cylindronotoid type. Body black, matte, usually slender ..... *Reitterohelops* Skopin.
- 17 (16). Ocular sulcus distinct. Upper edging of epipleura at elytral apex well visible, not narrower than 9th elytral interval; 8th interval merged with margin of elytra; otherwise, epipleura reaching elytral apex.
- 18 (19). Inner margin of fore and, frequently, also middle tibiae of male with large denticles or granules. Elytra with granules or tubercles. Male genitalia and female genital tubes of cylindronotoid type. Spiculum gastrale of male strongly elongate, with straight and weakly curved baculiform sclerites usually fused at base. If spiculum gastrale with baculiform sclerites not fused, fore tarsus of male widened, and elytra without granules or tubercles ..... *Odocnemis* Alld.
- 19 (18). Inner margin of male tibiae without denticles or granules. Male genitalia and female genital tubes of nalassoid type. Parameres of male occasionally flattened at apex dorso-ventrally (subgenus *Helopondrus* Rtt.), but in this case, they short and weakly sclerotized, and spermathecal gland short, not longer than spermatheca. Female genital tubes of nalassoid type. Spiculum gastrale with widely spaced, curved baculiform sclerites. Fore tarsus of male not widened ..... *Nalassus* Muls.
- 20 (15). Eighth elytral interval not more convex at apex than others, merged with 2nd interval.
- 21 (24). Epipleura reaching sutural angle of elytra.
- 22 (23). Fore and middle tibiae of male with denticles or granules on inner margin. Trochantins and bases of femora without long and dense hair tufts. Parameres of male strongly elongate, sclerotized, without deep sulciform depression on dorsal side. Spiculum gastrale with widely spaced baculiform sclerites, in lateral view frequently strongly S-curved. Fore tarsus of male widened ..... *Cylindronotus* Fald.
- 23 (22). Fore and middle tibiae of male without denticles and granules on inner margin. Trochantins and bases of femora with dense tuft of long hairs. Parameres of male short and curved on

dorsal side, with deep sulciform depression on dorsal side ..... *Armenohelops* Nab.

- 24 (21). Epipleura not reaching sutural angle of elytra. Very rarely, epipleura reaching elytral apex, but then tibiae of male without denticles, and trochantins without tufts of long hairs.
- 25 (28). Body robust, distinctly convex. Humeri well developed, acute-angled, shortly rounded at apices. When humeri not acute-angled, but rounded at apices, then body very small, with lacquer shine, strongly convex, and eyes small and rounded in lateral view.
- 26 (27). Pronotum always with clearly marked posterior angles. Humeri narrowly rounded, distinct ..... *Zophohelops* Rtt.
- 27 (26). Pronotum always with widely rounded posterior angles. Humeri widely rounded ..... *Ectromopsis* Ant.
- 28 (25). Body slender, elongate, moderately convex. Humeri widely or narrowly rounded. Eyes large, reniform, transverse ..... *Eustenomacidius* gen. n.

The genus *Adelphinus* Fairmaire, 1866 of the subtribe Nephodina is not included in the key; *Adelphinus* clearly differs from all the mentioned genera in the capability to fly and in the corresponding characters (elytral base carinate, 1.5–2.0 times as wide as base of pronotum).

Genus *EUSTENOMACIDIUS* Nabozhenko, gen. n.

Type species *Helops luridus* Ménétriés, 1848.

**Description.** Body slender, oval dorso-ventrally in cross-section. Anterior margin of clypeus straight. Head with deep transverse depression along frontoclypeal suture. Eyes large, distinctly prominent. Ocular sulcus not or weakly pronounced, short and superficial. Antennae long, in male no less than 3 apical segments projecting beyond base of pronotum. Ultimate antennal segment elongate, lanceolate or weakly asymmetrical, never strongly asymmetrical (banana-shaped). Propleura smooth, with sparse punctation, longitudinally wrinkled in lower part. Posterior angles of pronotum distinct.

Vertical basal margin of elytral base pronounced, occasionally gently sloping. Humeri noticeable, widely or narrowly rounded. Epipleura not reaching sutural angle of elytra. Upper edging of epipleura (lateral

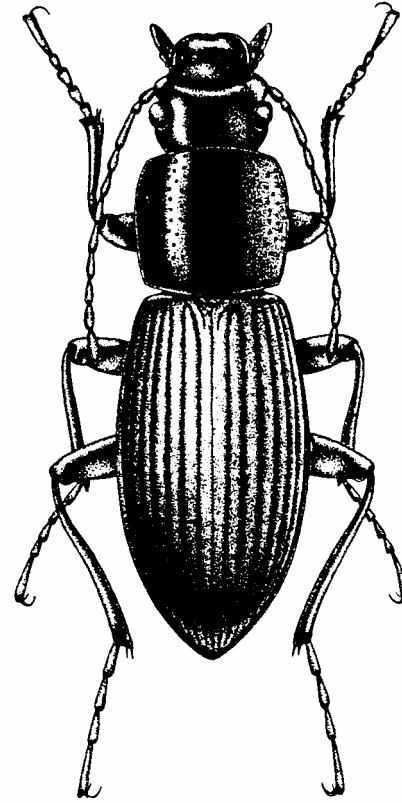


Fig. 1. *Eustenomacidius luridus* (Mén.), male, general view.

edging of elytra) distinct along entire length. Tibiae straight, tarsi of male not widened.

Parameres of males weakly sclerotized, distinctly elongate, produced at apex into keel compressed or dorso-ventrally flattened. Penis with one apex, tapered apically, with free sclerites.

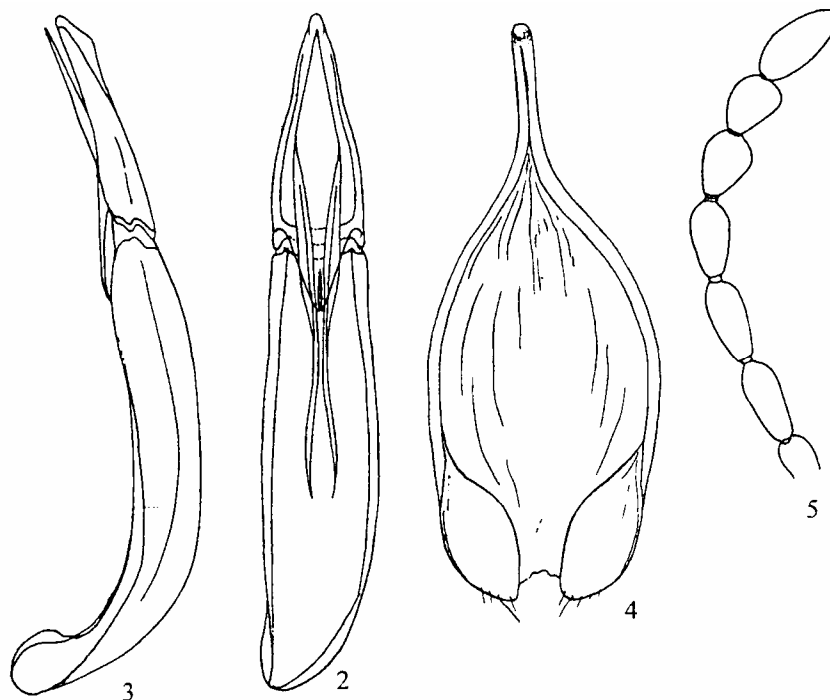
Female genital tubes of nalassoid type: spermatheca simple, without lateral processes and reservoirs, basal spermathecal duct short. Spermathecal gland short, not longer than spermatheca. In representatives of the subgenus *Caucasohelops* subgen. n. structure of spermatheca different (see below).

**Comparative diagnosis.** *Eustenomacidius* gen. n. is most closely related to the genus *Turkmenohelops* G. Medvedev, 1987, differs from it in the absence of a deep entire transverse depression originating from the lower margin of the eyes from both sides and running slightly below the prementum, and also in the much shorter and wider parameres of the male.

*Eustenomacidius* (s. str.) *luridus* (Ménétriés, 1848), comb. n. (Figs. 1–5)

Ménétriés, 1848 : 27; 1849 : 243, t. 4, f. 11 (*Helops*); Allard, 1877 : 258 (*Stenomax*); Seidlitz, 1896 :





**Figs. 2–5.** *Eustenomacidius luridus* (Mén.), male: (2) aedeagus, ventral view; (3) aedeagus, lateral view; (4) spiculum gastrale; (5) apex of antenna.

729 (*Helops*; nota).—*laevicollis* Kraatz, 1882 : 333 (*Stenomax*); Seidlitz, 1896 : 792 [*Hedyphanes* (*Stenomacidius*)]; Reitter, 1922 : 8 [*Catomus* (*Stenomacidius*)]; Medvedev, Nepesova, 1985 : 151 (*Catomus*), **syn. n.**—*lucidicollis* Kraatz, 1882 : 333 (*Stenomax*), **syn. n.**—*provocator* Reitter, 1922 : 9 [*Catomus* (*Stenomacidius*)], **syn. n.**

**Data in catalogs.** Gebien, 1943 : 409 (788) [*Catomus* (*Stenomacidius*) *laevicollis*, *C. (Stenomacidius) provocator*], 419 (798) [*Helops* (?) *luridus*].

**Description. Male.** Body slender, elongate, dark brown, shining. Head widest at level of eyes. Eyes distinctly convex, ratio of width of head in its widest part to distance between eyes 1.43–1.64 (1.53). Ventral side of body entirely covered with recumbent golden hairs. Anterior margin of clypeus straight or slightly arcuately projecting. Emargination at junction of gena and clypeus absent or inconspicuous. Genae strongly rounded in middle, with outer margins straight or slightly rounded from middle to clypeus. Temples slightly rounded and distinctly beveled toward neck constriction. Head with deep transverse depression along frontoclypeal suture. Underside of head covered with fine recumbent hairs. Ocular sulcus not pronounced. Punctuation of head moderately coarse and dense, average distance between punctures twice

puncture diameter. Labrum punctate similar to head. Antennae long, with 3 apical segments extending beyond pronotum. Third antennal segment 2.4 times as long as 2nd and 1.4 times as long as 4th. Ultimate antennal segment strongly elongate, weakly asymmetrical, slightly compressed in apical half.

Pronotum slightly wider than long (width to length ratio 1.07–1.1), widest in, or slightly before middle. Sides weakly and regularly rounded, occasionally straight from widest part to base. Anterior margin straight; base weakly rounded, with emargination in middle, occasionally slightly emarginate at sides. Lateral margins finely, but always distinctly edged; edging of anterior margin frequently obliterated. Disc regularly weakly convex, not flattened laterally. Anterior angles of pronotum slightly obtuse-angled, with rounded apices; posterior angles also slightly obtuse-angled, very shortly rounded or angular. Punctuation of pronotum similar to that of head. Propleura not flattened laterally, with smoothed vague wrinkles and sparse punctuation. Prosternal process weakly convex in lateral view. Prosternum and process rather densely covered with long golden hairs.

Elytra elongate, oval (length to width ratio 1.95–2). Elytral base wider than base of pronotum. Humeri obtuse-angled, widely rounded. Intervals of elytra

strongly convex, with indistinct punctation. Punctures in rows deep, merging into entire striae only on elytral declivity. Epipleura, gradually narrowing, disappearing before elytral apex. Upper edging of epipleura (projecting lateral margin of elytra) distinct and visible in dorsal view. Mesepisterna with coarse, moderately dense punctation.

Visible abdominal sternites with moderately dense punctation. All sternites with rather dense golden hairs. Fifth visible (anal) abdominal sternite entirely edged at apex, edging occasionally vague.

Fore tibia slightly S-curved, with outer margin attenuate forwards. Inner surfaces of tibiae, femora, trochantins, and coxae densely covered with golden hairs; 1st–4th segments of fore tarsus slightly widened. Claws large and distinctly curved. Sole surfaces of tarsi with dense brushes of long golden hairs. Hind tibia distinctly incurved.

Length of body 5–10 mm.

**Female.** Body more robust. Pronotum more transverse than that of male (width to length ratio 1.12–1.2). Intervals of elytra flattened or only slightly convex. In largest specimens, odd-numbered intervals occasionally weakly cariniform (which typical of many species of the subtribe *Cylindronotina*). Antennae short, only one or two apical segments projecting beyond base of pronotum.

Length of body 5–10 mm.

**Variability.** The species widely varies in the external characters, both between populations and within one population, which can account for a great number of synonyms. For example, females from a population from the northern shore of Lake Issyk Kul differ in the black coloration, more flattened pronotal disc, and less rounded sides of the pronotum. In specimens from southern Uzbekistan, southern Tajikistan, and Kughitang, the hind tibia is distinctly curved in the basal half and then parallel-sided up to the apex. The shape of the pronotum rather widely varies (even within one population): sides can be emarginate at the posterior angles (a population from the western part of the northern slopes of the Zeravshanskii Mt. Range), or strongly rounded or, on the contrary, nearly straight. The pronotum can be widest in, before, or even behind the middle. Sizes of the females and males significantly vary. In contrast to the widely varying external features, characters of the male genitalia and female genital tubes remain constant across the entire range.

**Mode of life.** The species is common in the low and mid-altitude mountains, occurring there from early April to late May and being characterized by a wide range of ecological requirements. In particular, in the hills of the Northern Tien Shan, emergence of adults is shifted to earlier terms (late March–early April); the beetles are associated with xerophytic foothill steppes and semideserts, are active at twilight, and occur under stones and in soil cracks in the afternoon. In the mid-altitude mountains of the Western Tien Shan and His-saro-Darvaz (1500–2300 m), *Eustenomacidius luridus* inhabits light forests, occurs there on open areas, and hides in the afternoon under bark of deciduous trees (maple, walnut-tree, etc.).

**Distribution.** The Western and Northern Tien Shan, western part of the Hissarskii Mts., Kughitang-Tau. The specimen from Mangyshlak [ZMMSU] is evidently mislabeled.

**Type material.** *Helops luridus*, lectotype (♀) with handwritten label by Ménétré: “*helops luridus* Menetr.? turcom.” Lectotype is designated here. The species is described from collections made by a zoologist of the Kazan University, M. Lehman, in the environs of Samarkand (1839–1841). The lectotype is deposited in the ZIN collection.

*Helops laevicollis*, holotype (♂) with labels: “Samarkand,” “Holotypus” (added by curators of the collection), “*Stenomax laevicollis* Samark. mihi,” “*laevicollis* Kr. Typ. det. Schuster,” “Coll. Kraatz.” The holotype is deposited in DEI.

*Helops lucidicollis*, holotype (♀) with labels: “Samarkd.,” “Syntypus” (added by curators of the collection), “*Stenomax lucidicollis* Samark. mihi,” “*laevicollis (lucidicollis)* Kr. Type det. Schuster,” “Coll. Kraatz.” The holotype is deposited in DEI.

*Catomus provocator*, lectotype (♂) is designated here, with labels: “Turcmenien Reitter, Leder,” “Type,” “*Catomus provocator* Rtt. det. Hlisnikovský, 1942,” “Paratypus *Catomus provocator* Reitter, 1922” (pined up by curators of the collection), “*Catomus-Revision laevicollis* Schawaller 1987.” Paralectotype: ♀, with labels: “Turcmenien Reitter, Leder,” “Type,” “*Catomus provocator* Rtt. det. Hlisnikovský, 1942,” “Paratypus *Catomus provocator* Reitter, 1922,” “*provocator* m. n. sp. 1918,” “*Catomus-Revision laevicollis* Schawaller 1987;” paralectotype: ♀, with labels: “Turcmenien Reitter, Leder,” “*provocator*,” “Reitter det.,” “cotypus,” “Paratypus *Catomus provocator* Reitter, 1922,” “*Catomus-Revision laevicollis* Schawaller

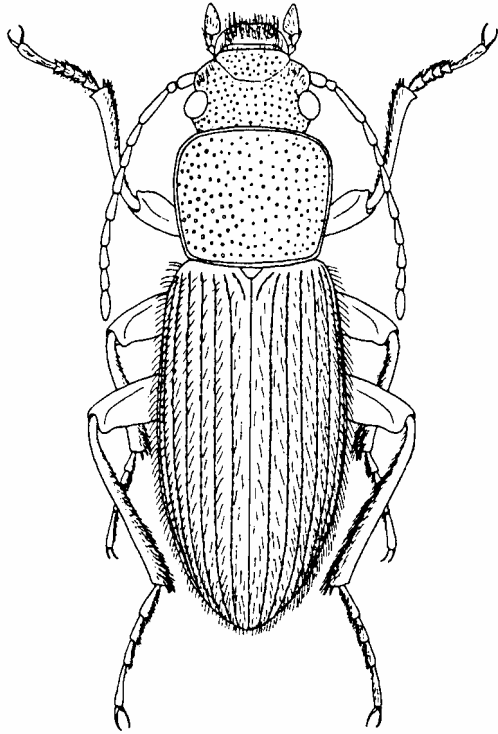


Fig. 6. *Eustenomacidius hirtipennis* (Seidl.), male, habitus.

1987." All three specimens are deposited in HNHM. One paralectotype, not examined by me, is deposited in G. Frey's collection in Basel (Kulzer, 1963).

**Material.** Uzbekistan: Margelan (Staudinger), 2 ♀ [ZMIB]; Uzun-Bulak, 16.III.1906 (E. Fischer), 1 ♀ [ZIN]; Turcestan, 1.V.1911 (V. Arnoldi), 1 ♀ [ZMMSU]; N of Termez, Dzhar-Kurgan, 1.VI.1969 (G. Medvedev), 2 ♀ [ZIN]. Kirghizia: Issyk Kul, 9.IV.1901 (Rükbeil), 1 ♂, 1 ♀ [ZIN]; Issyk Kul, Tamgi, 6.IV.1956 (Zaslavskii), 2 ♀ [ZIN]; Taldy-Bulak, 8.V.1973, 1 ♂ [ZIN]; Besh-Aral Nature Reserve, Aratskaya forest valley (V. Grebennikov), 1 ♀ [ZIN]; right bank of Chatkal River, junction with Akbulak River, 3.V.1991 (A. Puzyk), 1 ♀ [RSU]. Tajikistan: Hissarskii Mt. Range, Kondara, 1300 m, under bark of maple, 2.V.1962 (E. Gur'jeva), 2 ♂, 1 ♀ [ZIN]; Zeravshanskii Mt. Range, Lakes Marguzorskii, 9.IV.1967 (V. Mikhailov), 1 ♀ [ZIN]; same locality, 19.V.1967 (I. Lopatin), 1 ♂, 1 ♀ [ZIN]; Zeravshanskii Mt. Range, Sudzhino, 17.V.1967 (I. Lopatin), 1 ♀ [ZIN]; Zeravshanskii Mt. Range, Panzhrud, 24.V.1967 (I. Lopatin), 1 ♀ [ZIN]; Dzhambangul Mt. Range, 30 km W of Shurab, 16.V.1969 (G. Medvedev), 3 ♂, 5 ♀ [ZIN]; Varzob River valley, Gushary, 26.IV.1985, under bark of walnut-tree (A. Kompantsev), 4 ♂, 1 ♀ [ZIN], 1 ♀ [MSPU]. Turkmenistan: Turcmenien

(E. Reitter, H. Leder), 4 ♂, 3 ♀ [ZMIB]; as above, 1 ♀ [ZMMSU]; as above, 5 ♂, 2 ♀ [ZMMSU]; Kughitang-Tau Mt. Range, Svintsovyi Rudnik, 2300 m, 10.V.1959 (G. Medvedev), 1 ♂ [ZIN]. Kazakhstan: Karatau Mt. Range, Arys River valley, 20.IV.1932 (F. Lukjanovitsh), 1 ♀ [ZMMSU]; ? Mangyshlak, 7.V.1967, dense loamy sands (Shevchenko), 2 ♀ [ZMMSU]; Western Tien Shan, Koksut Mt. Range, Aliam Pass, 2000 m, 3.VI.1997 (I. Kabak), 3 ♂, 1 ♀ [ZIN].

**Notes on the nomenclature.** Allard (1877) indicated Transcaucasia as the distribution area of this species. Despite the correctly indicated authorship, Allard misidentified this species and based its description on the female of *Odocnemis recticollis* (Allard, 1876). In Gebien's (1943) catalogue, the species name *luridus* is cited with the authorship of Allard and as a synonym *Odocnemis recticollis*. Misidentification of this taxon does not give the right to use it with the authorship of Allard. Thus, the name *Eustenomacidius luridus* should be used only with the authorship of Ménétrés.

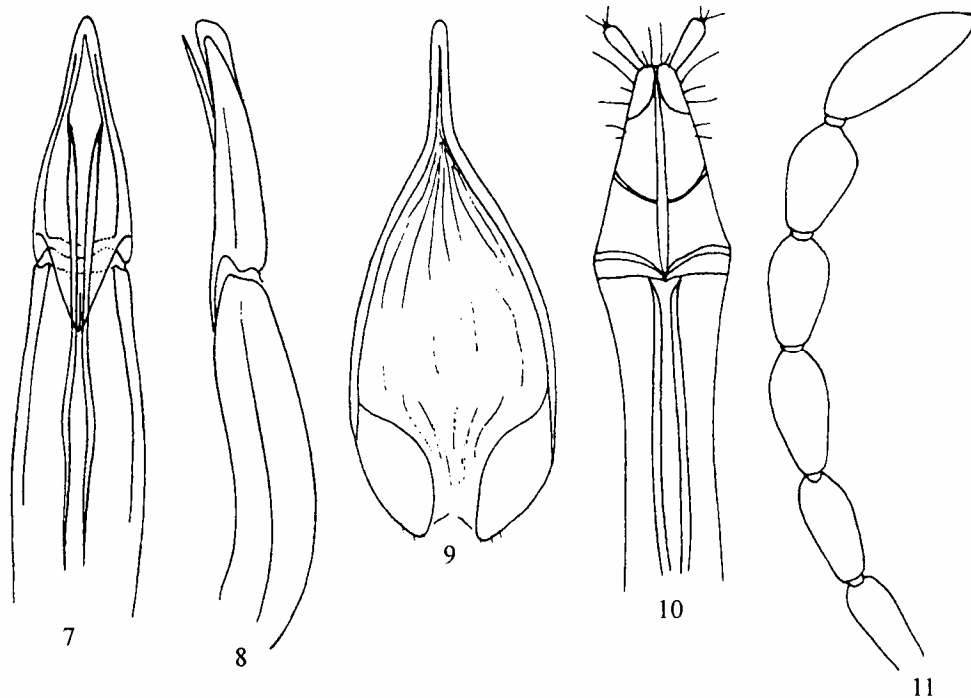
*Eustenomacidius* (s. str.) *hirtipennis* (Seidlitz, 1896), comb. n. (Figs. 6–11)

Seidlitz, 1896 : 792, 797 [*Hedyphanes* (*Stenomacidius*)]; Reitter, 1922 : 9 [*Catomus* (*Stenomacidius*)].

**Data in catalogs.** Gebien, 1943 : 409 (788) [*Catomus* (*Stenomacidius*) *hirtipennis*].

**Description. Male.** Body slender, elongate, brownish, shining. Legs and antennae paler. Pronotum frequently paler and more shining than elytra. Elytra covered with erect hairs. Entire underside of body covered with recumbent pale hairs.

Head widest at level of eyes. Eyes convex, ratio of width of head in its widest part to distance between eyes 1.55–1.57. Anterior margin of clypeus straight or weakly curved. Emargination at junction of gena and clypeus absent or inconspicuous. Genae regularly rounded along entire length. Temples straight or slightly rounded. Anterior part of head with deep trapeziform depression along frontoclypeal suture. Orbital furrows absent, superficial smoothed furrows present only in some specimens. Punctuation of head moderately coarse and moderately dense (distance between punctures twice puncture diameter). Antennae long, with 3 or 3.5 apical segments projecting beyond base of pronotum. Ultimate antennal segment



**Figs. 7–11.** *Eustenomacidius hirtipennis* (Seidl.), male and female: (7) aedeagus, ventral view; (8) aedeagus, lateral view; (9) spiculum gastrale; (10) ovipositor; (11) apex of antenna.

strongly elongate, 1.5 times as long as 10th one, weakly asymmetrical, with depression on inner side.

Pronotum slightly wider than long (width to length ratio 1.06–1.10, 1.08 on average), widest before middle. Sides weakly rounded. Anterior margin and base straight. Angles slightly obtuse-angled, strongly rounded apically. Edging entire, finer along anterior margin than at base. Disc weakly and regularly convex. Punctuation of pronotum rather coarse, moderately dense. Propleura shining, with smoothed delicate wrinkles and sparse punctuation.

Elytra elongate, covered with long erect hairs sparser at center of disc. Intervals flattened, weakly convex only on declivity and on sides of elytra. Punctuation of intervals coarse. Rows of punctures on elytra merging into entire striae frequently interrupted at center. Upper edging of epipleura (lateral margin of elytra) rather wide, well visible in dorsal view. Humeri widely rounded, vertical basal margin of elytral base distinctly slanting.

Abdominal sternites densely punctate, covered with recumbent hairs. Anal sternite distinctly edged at apex.

All tibiae straight, regularly widened toward apices. Occasionally, hind tibia weakly incurved in basal 1/3.

First to fourth segments of fore tarsus distinctly longer than wide, slightly wider than those of middle tarsus.

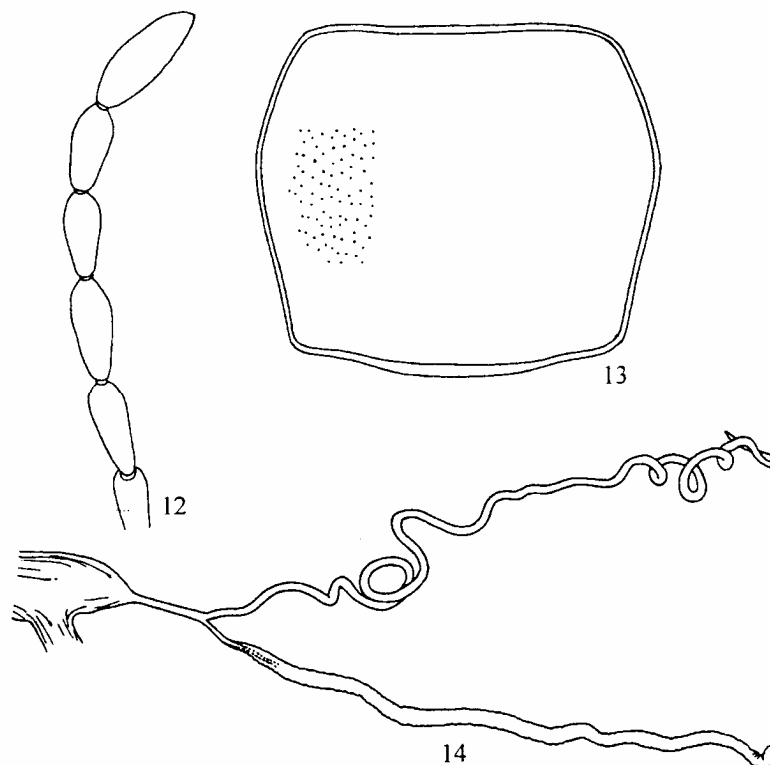
Length of body 5–8 mm.

**Female.** Body larger and more robust than that of male. Antennae shorter, with only 1–2 apical segments projecting beyond base of pronotum. Pronotum more transverse than that in male (as long as wide), widest in middle. Punctuation of elytra usually vague, intervals frequently with transverse wrinkles. Length of body 7–11 mm.

**Mode of life.** Similar to the preceding one, this species inhabits steppe slopes in the middle belt of mountains.

**Distribution.** The Talas Mt. Range, Zailiiskii Ala Tau.

**Type material.** Seidlitz described this species from Staudinger's collections made in the Kirghiz Mt. Range (Alexandergebirge), without indication of number and sex of the type specimens. A specimen (♂) with Seidlitz's original label is designated here as lectotype: "*hirtipennis* n. sp. Alexandergebirge, [illegible inscription], autorie." The lectotype is deposited in ZMIB in Amsterdam. 1 ♂ and 2 ♀ with Staudinger's handwritten label "Alexander-Geb, Turcestan,



Figs. 12–14. *Eustenomacidius turcmenicus* (G. Medv.), female: (12) apex of antenna, (13) pronotum, (14) genital tubes.

Staudinger” [ZMIB] and 1 ♂ and 2 ♀ labeled “Turcestan, Staudinger” [ZMIB] were also examined. Probably, these specimens also belong to the type series.

**Material.** Kirghizia: Trkst. [Turkestan], 1888, 1 ♀ [ZIN]; Talas, Semirech’e, 2 ♀ [ZIN]; Talas, 19.IV.1910 (E. Fischer), 7 ♂, 1 ♀ [ZIN]; Aulie-Ata (E. Willberg), 2 ♂, 4 ♀ [ZIN]; same locality, 3–5.IV.1906, III.1906 (E. Fischer), 4 ♂, 5 ♀ [ZIN]; Talas, V.1956 (A. Bogačev), 1 ♂ [ZMMSU]; Boroldai Mt. Range, Chokpak, 5.V.1973 (Kh. Atamuradov), 3 ♂ [ZIN]. Kazakhstan. N foothills of Talas Mt. Range, Dzhambul, IV.1956 (A. Bogačev), 3 ♂ [ZMMSU].

*Eustenomacidius* (s. str.) *turcmenicus* (G. Medvedev, 1964), comb. n. (Figs. 12–14)

Medvedev, 1964 : 652 [*Catomus* (*Stenomacidius*)]; Medvedev, Nepesova, 1985 : 151 (*Catomus*).

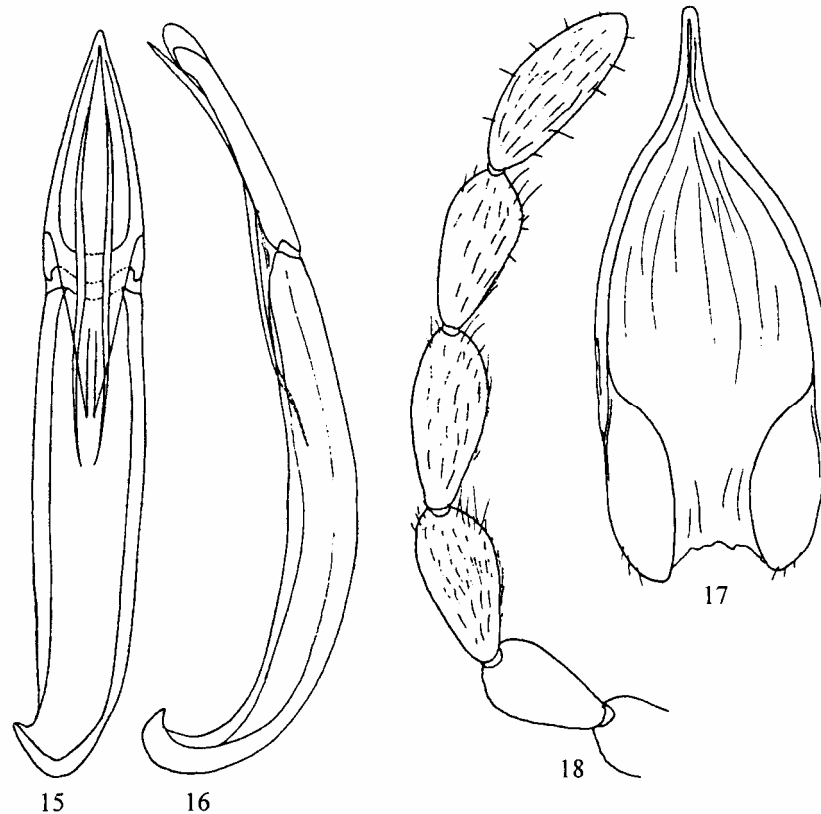
**Description. Female.** Body slender, brownish, with weak or moderate shine, hairless dorsally and ventrally. Anterior margin of clypeus straight or very weakly arcuately projecting. Head widest at level of eyes. Eyes distinctly convex. Rather deep transverse depression running along frontoclypeal suture. Lateral margin of head at junction of gena and clypeus with weak obtuse-angled emargination. Punctuation of head

moderately coarse. Underside of head with short superficial ocular sulcus. Antennae long, with two apical segments projecting beyond base of pronotum.

Pronotum somewhat wider than long (width to length ratio 1.1–1.25), widest before middle, 1.2–1.3 times as wide there as head. Sides very weakly rounded, almost straightly narrowed toward base. Anterior angles obtuse-angled, moderately rounded apically; posterior angles sharply obtuse-angled. Base and sides of pronotum finely edged, anterior margin very finely entirely edged. Punctuation coarse, moderately dense. Distance between punctures slightly exceeding puncture diameter; punctures round, superficial. Propleura hairless, with very fine, smoothed wrinkles.

Elytra elongate (length to width ratio 1.9–2.3), 1.4 times as wide as pronotum. Punctures in rows on elytra forming sharp, but superficial, frequently interrupted striae. Intervals flattened, finely and distinctly punctate. Epipleura shallowly depressed along entire length. Mesothorax densely covered with fine recumbent hairs. Metathorax hairless.

Abdominal sternites hairless, with delicate wrinkles at sides. Legs long and slender, femora and tibiae covered with delicate recumbent hairs on inner surfaces.



**Figs. 15–18.** *Eustenomacidius mongolicus* (Kasz.), male: (15) aedeagus, ventral view; (16) aedeagus, lateral view; (17) spiculum gastrale; (18) apex of antenna.

Tarsal segments narrow, with dense brushes of pale setae on sole surfaces.

Length of body 6–11 mm.

**Male** unknown.

**Mode of life.** The species occurs under stones in the mountain steppes with bushes. Nepesova (1980) placed this species in a group of dendrobionts.

**Distribution.** Central and Western Kopet Dagh.

**Type material.** Holotype (♀): Turkmenistan, Kopet Dagh, Kertyk, V–VI.1897 (K. Angher) [ZIN].

**Material.** Turkmenistan: Firyuza, 27.III.1975 (from KhES), 2 ♀ [ZIN, RSU]; Nizhnii Ai-Dere, 8–10.IV.1984, 700–800 m (V. Yanushev), 2 ♀ [ZIN]; Kopet Dagh Nature Reserve, Sherlovka locality, 13.IV.1990 (A. Napolov), 1 ♀ [ZIN].

*Eustenomacidius* (s. str.) *mongolicus* (Kaszab, 1968), comb. n. (Figs. 15–18)

Kaszab, 1968 : 395 [*Catomus* (*Stenomacidius*)]; Medvedev, Kaszab, 1973 : 109 [*Catomus* (*Stenomaci-*

*dius*)]; Medvedev, 1990 : 242 [*Catomus* (*Stenomacidius*)].

**Data in catalogs.** Medvedev, Lobanov, 1990 : 202 [*Catomus* (*Stenomacidius*)].

**Description. Male.** Body slender, shining, rufous brownish, entirely hairless. Head widest at level of eyes. Eyes small, moderately convex. Ratio of width of head in its widest part to distance between eyes 1.45. Anterior margin of clypeus straight. Genae weakly rounded. Junction of gena and clypeus with obtuse-angled emargination occasionally smoothed and, thus, making lateral margin of head appearing widely emarginate. Mandible tapered at apex in dorsal view; in front view, apical tooth shortly rounded, and preapical one somewhat shifted toward base. Head with superficial, but distinct transverse depression along frontoclypeal suture. Punctuation of head coarse and dense (puncture diameter 1.5–2.0 times distance between punctures). Ventral surface of head hairless. Ocular sulcus distinct, but not deep. Antennae long and slender, with 3 apical segments projecting beyond base of pronotum. Ultimate (11th) antennal segment very long, lanceolate, 1.7 times as long as 10th.

Pronotum somewhat wider than long (width to length ratio 1.2), widest before middle. Sides and base weakly rounded, anterior margin nearly straight. Angles slightly obtuse-angled, shortly rounded apically. Sides and base finely edged, anterior margin not edged. Punctuation of pronotal disc fine, moderately dense (puncture diameter subequal to distance between punctures); punctures lateral to midline elongate. Propleura with fine longitudinal wrinkles. Outer margin of propleura very narrowly flattened. Prosternum covered with short and fine recumbent hairs. Prosternal process between fore coxae weakly convex. Posterior part of pronotum forming vertical basal margin below posterior angles, against which elytral base resting.

Elytra elongate (twice as long as wide). Punctures in rows on elytra merging into very fine interrupted striae. Intervals flat, very finely punctate. Vertical basal margin of elytral base, against which base of pronotum resting, gently sloping, more distinct near humeri. Humeri widely rounded, weakly projecting. Upper edging of epipleura (lateral margin of elytra) well defined, but narrow and visible in dorsal view not along entire length, but only at elytral base and apex. Epipleura slightly depressed along entire length, smoothly narrowing, not reaching elytral apex.

Abdominal sternites hairless, finely punctate. Legs slender and straight. Segments of fore and middle tarsi not widened, with dense brushes of white hairs on sole surfaces.

Length of body 7–8 mm.

**Female.** Body larger and more robust than that in male. Antennae short, with only ultimate segment projecting beyond base of pronotum.

Length of body 9–12 mm.

**Mode of life.** The species inhabits arid low and mid-altitude mountains (1200–2000 m), occurring, in particular, in the shrubby landscapes with *Anabasis brevifolia*.

**Distribution.** Western Mongolia.

**Type material.** Holotype (♀) [HNHM], with labels: “Mongolia Bajan-chongor Aimak, zw. Somon Bajangobi u. Somon Bajanleg, 26 km SO von Bajanleg, 1450 m. Exp. Dr. Z. Kaszab, 1967,” “Nr. 875 1–2.VII.1967,” “Holotypus *Catomus mongolicus* 1968 Kaszab.”

**Material** (all from ZIN). Mongolia. Bayan-Hongor aimak: 17 and 53 km S of Shine-Dzhinst, 20 and

30.VIII.1981 (B. Korotyayev), 1 ♂, 2 ♀; same locality, 7.V.1977 (Tserendolgor), 1 ♀; Dzun-Mod locality, 70 km S of Shine-Dzhinst, 10–11.VIII.1969 (M. Kozlov), 1 ♀; N slope of Tsagan-Bogdo-Ula Mt., 1700–1900 m, 15.VIII.1969 (E. Gur'jeva), 1 ♂; Ömnögovi aimak: 110 km SE of Bayan-Obo, 21.VI.1971 (G. Medvedev), 1 ♀; 65 km SSE of Nomgon (A. Emeljanov), 1 ♂; Hovd aimak, Ulyastain-Gol River, 20 km N of Bulgan, 30.VI.1980 (G. Medvedev), 1 ♀.

*Eustenomacidius* (s. str.) *wagnae* (Ren, 1999),  
comb. n.

Ren in Ren, Youzhi, 1999 : 312, 392, fig. 211 [*Catomus* (*Stenomacidius*)].

**Description** (after Ren in Ren, Youzhi, 1999). **Male.** Pronotum widest in middle. Scutellum widely triangular, half as wide as base of pronotum. Pronotum and elytra sparsely punctate.

Length of body 11 mm.

**Mode of life** unknown.

**Distribution.** Northwestern China: Gansu.

**Type material.** Holotype (♂): China, Gansu: An Xi (Lin Guan), 24.VII.1992 (Ren Guodong's collections). The holotype is deposited in the collection of the author and has not been examined by me.

**Material.** Known only from type material.

Subgenus *Caucasohelops* Nabozhenko, subgen. n.

Type species *Eustenomacidius svetlanae* sp. n.

**Description.** Body slender, flattened dorso-ventrally, dark brown, hairless. Head with deep transverse depression along frontoclypeal suture. Anterior margin of clypeus straight. Eyes large, convex. Antennae elongate, with 3 and 2 apical segments projecting beyond base of pronotum in male and female, respectively. Ultimate antennal segment lanceolate, symmetrical. Pronotum slightly wider than long. Disc weakly convex, not flattened laterally. Propleura smooth, sparsely punctate, with not flattened outer margin. Posterior angles of pronotum rectangular or acute-angled, distinct apically. Humeral angles of elytra distinct, narrowly rounded apically. Epipleura not reaching elytral apex. Sutural margin of elytra acute. Upper edging of epipleura pronounced along entire length, well visible in dorsal view. Rows of punctures on elytra forming deep striae. Intervals convex, with

very fine reticulate microsculpture. Ventral side of body hairless. Legs slender. Tibiae straight. Tarsi of male not widened.

Aedeagus. Parameres very long, flattened dorso-ventrally, 0.70–0.87 times as long as phallobase. Phallobase distinctly curved in lateral view. Penis tapered at apex, with free sclerites.

Spiculum gastrale. Baculiform sclerites of spiculum gastrale fused into rather long common shaft, rather widely placed in dorsal view, very weakly S-curved in lateral view.

Female genital tubes. Spermatheca combined, complex in structure. Basal spermathecal duct absent, gland and spermatheca opening into vagina in one place. Spermathecal duct branching into three ducts, among which two bearing finer and shorter ducts. Basal part of spermathecal duct with several short lateral processes before branching. Spermathecal gland rather long, with its duct sclerotized at base.

**Comparative diagnosis.** *Caucasohelops* differs from species of the nominotypical subgenus in the smooth propleura, fine reticulate microsculpture of the dorsal side of the body, strongly elongate parameres of male flattened dorso-ventrally, and in structure of the spermatheca.

*Eustenomacidius (Caucasohelops) svetlanae*

Nabozhenko, sp. n. (Figs. 19–23)

**Description. Male.** Body dark brownish, weakly lustrous. Elytra with fine reticulation, head and pronotum shining. Legs, antennae, and mouthparts pale brownish. Head widest at level of eyes. Eyes large, convex. Ratio of width of head at level of eyes to distance between eyes 1.5. Anterior margin of clypeus straight. Genae strongly rounded at base, straight in anterior part. Junction of gena and clypeus without emargination. Head with wide deep depression along frontoclypeal suture. Temples distinctly rounded. Underside of head with short superficial ocular sulcus in form of depression. Punctuation of head moderately coarse, not dense (distance between punctures twice puncture diameter). Antennae long, with 3 apical segments projecting beyond base of pronotum. All antennal segments distinctly longer than wide. Length to width ratio of 2nd–11th antennal segments: 1.1, 3.0, 2.2, 2.2, 2.5, 2.5, 2.1, 1.6, 1.6, 1.9. Third antennal segment 3 times as long as 2nd and 1.35 times as long as 4th; 11th segment 1.2 times as long as 10th.

Pronotum cordate, somewhat wider than long (width 1.2 times length), widest before middle, 1.3–1.4 times as wide as head. Sides weakly rounded from widest part up to anterior margin, widely emarginate to base; base very shallowly trisinate; anterior margin straight. Anterior angles obtuse-angled, shortly rounded apically; posterior angles rectangular, tapered apically. Sides and base finely edged; edging of anterior margin widely interrupted in middle. Disc weakly convex, punctate similarly to head. Propleura smooth, shining, without reticulation, finely and sparsely punctate. Prosternal process not convex.

Elytra elongate, 2.6 times as long, and 1.3 times as wide as pronotum. Elytral angles distinct, with narrowly rounded apices. Vertical basal margin of elytral base distinct. Epipleura smooth, reaching elytral apex, rounded apically. Outer margin of epipleura well visible in dorsal view. Rows of punctures on elytra deep, punctures in rows connected by fine stria. Intervals weakly convex, with fine distinct punctuation well seen against background of microsculpture.

Visible abdominal sternites hairless, finely and sparsely punctate. Butt-end of anal sternite entirely edged at apex.

Tibiae slender, straight. Fore tarsus not widened. Process of sole surface of ultimate tarsal segment between claws truncate at apex. Tarsal segments with dense hair brushes on sole surfaces.

Length of body 8 mm.

**Female.** Body larger and more robust. Antennae with only one apical segment projecting beyond base of pronotum. Ratio of width of head in its widest part to distance between eyes 1.6. Pronotum 1.4 times as wide as head.

Length of body 8.5–10.5 mm.

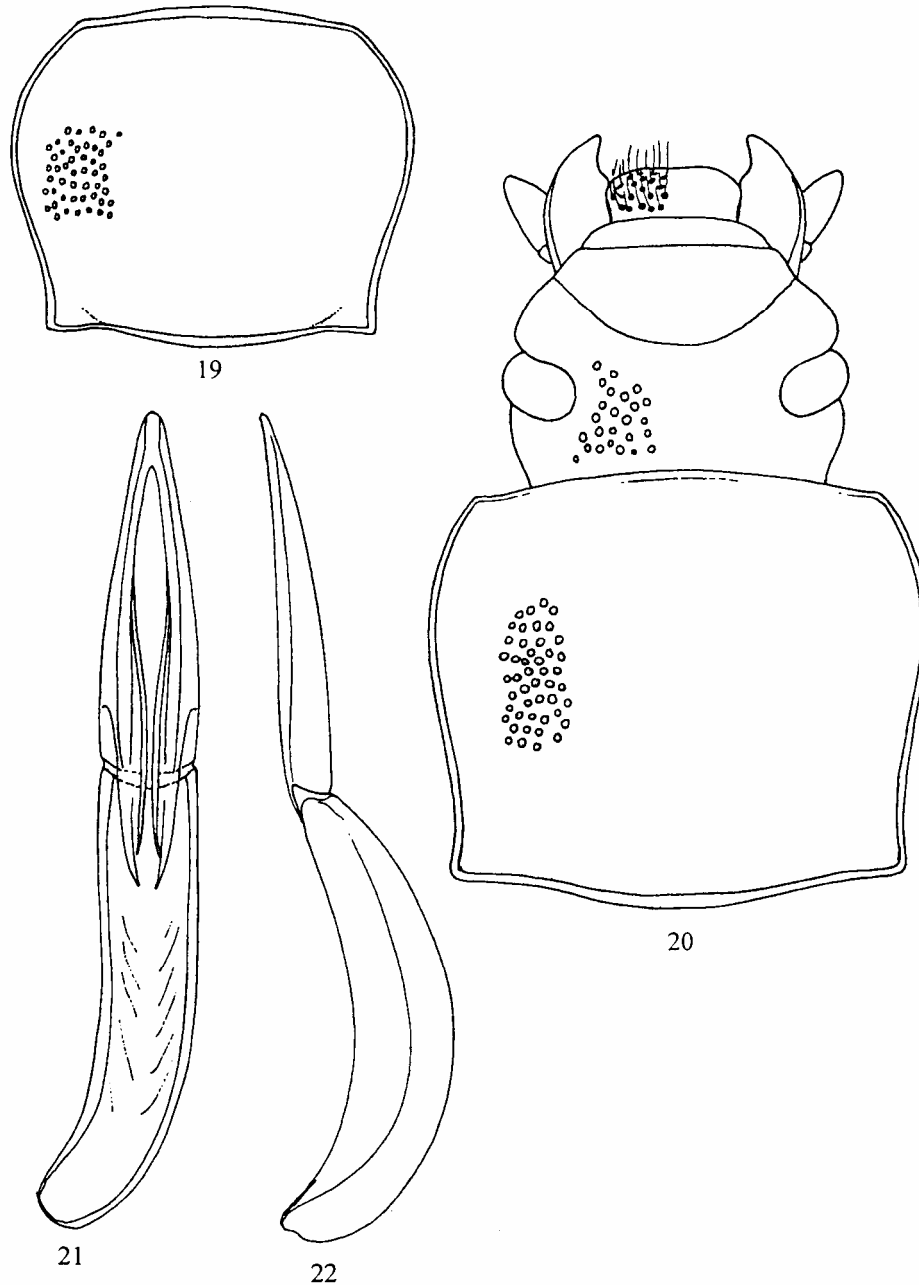
**Mode of life.** The species inhabits mountain steppes in the middle belt of mountains.

**Etymology.** The species is named for my wife Svetlana Nabozhenko.

**Distribution.** Southeastern Azerbaijan (Talysh).

**Type material.** Holotype: ♂, southeastern Azerbaijan, pass near Mistan, 28.V.1976 (Petrenko) [ZIN]. Paratypes: 1 ♀, southern Azerbaijan, Zuvand, Gosmolian, 22.V.1988 (K. Makarov) [ZIN]; 1 ♂, 1 ♀, “mont. Talysh, Zuvant, mons Barnasar, 13.V.1936, xerophyt. (A. Bogačev)” [ZMMSU].





**Figs. 19–22.** *Eustenomacidius svetlanæ* sp. n.: (19) pronotum of male; (20) head and pronotum of female; (21) aedeagus, ventral view; (22) aedeagus, lateral view.

**Comparative diagnosis.** The species is similar to *E. turcmenicus* in habitus, but differs from it in the dense microsculpture and convex intervals of the elytra and in the shape of the pronotum. For the differences from *E. svetlanæ araxi* subsp. n., see a key below. *E. svetlanæ* differs from the other species of *Eustenomacidius* in the parameres of the cylindronotoid type (flattened dorso-ventrally, without apical keel).

***Eustenomacidius (Caucasohelops) svetlanæ araxi***  
Nabozhenko, subsp. n. (Figs. 24–26)

**Description. Male.** Body brownish, matte. Head, pronotum, elytra, propleura, and epipleura with fine reticulation. Ratio of width of head at level of eyes to distance between eyes 1.4 in male and 1.5 in female. Anterior margin of clypeus straight in middle, shallowly emarginate near outer angles. Emargination at junction of gena and clypeus distinct, obtuse-angled.

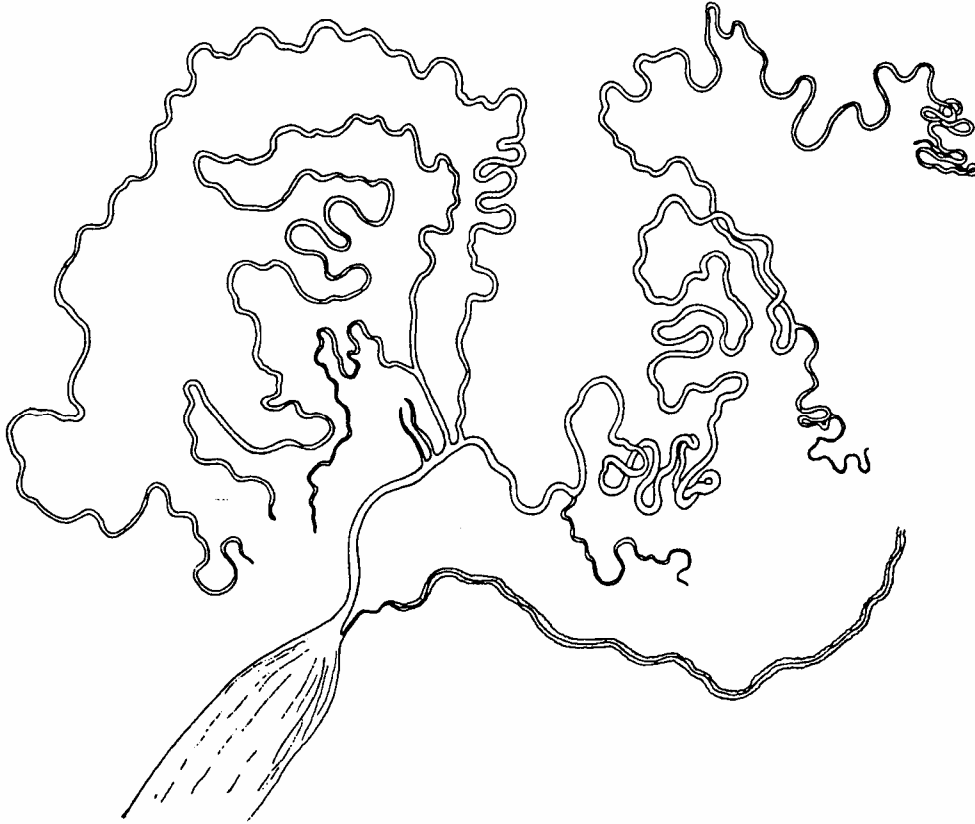


Fig. 23. *Eustenomacidius svetlanae* sp. n., female genital tubes.

Anterior margin of pronotum widely emarginate in middle; sides from widest part to anterior margin straight, widely emarginate to base.

Elytra 2.8 times as long as pronotum. Punctures in rows on elytra deep, but not merging into entire striae. Intervals of elytra with very fine and sparse punctation hardly visible against background of microsculpture. Epipleura not reaching elytral apex.

**Female** differing in wide head (0.77–0.87 times as wide as pronotum) and shorter antennae.

Length of body 6.5–9 mm in male and 8.5–10 mm in female.

**Etymology.** The name of subspecies originates from the name of the Araks River flowing in the Nakhichevan Autonomous Republic.

**Mode of life.** The subspecies inhabits high-mountain steppes at a height of 3000 m.

**Distribution.** Azerbaijan (Nakhichevan).

**Type material.** Holotype: ♂, Azerbaijan, Nakhichevan, 16.IV.1982 (M. Danilevskii) [ZIN]. Paratypes:

1 ♀, same locality, 24.IV.1982 (M. Danilevskii) [MSPU]; 4 ♂, 2 ♀, Nakhichevan, Ag Yurt Mt., 3000 m, 27.V.1933 (A. Bogačev) [2 males in IZAZ, 4 paratypes in ZMMSU].

**Comparative diagnosis.** For differences from the nominotypical subspecies, see the key.

*A Key to Species of the Genus Eustenomacidius gen. n.*

- 1 (4). Abdominal sternites covered with recumbent pale hairs. Ocular sulcus absent.
- 2 (3). Pronotum widest in middle. Elytra hairless, without pubescence of erect hairs. Intervals of elytra convex in male, flattened in female. Length of body 5–11 mm ..... *E. luridus* (Mén.).
- 3 (2). Pronotum widest before middle. Elytra covered with pale erect hairs more distinct at sides and at apices. Elytral intervals of males and females flat. Length of body 6–11 mm .....  
..... *E. hirtipennis* (Seidl.).
- 4 (1). Abdominal sternites hairless, without recumbent pale hairs. Lower margins of eyes with short su-

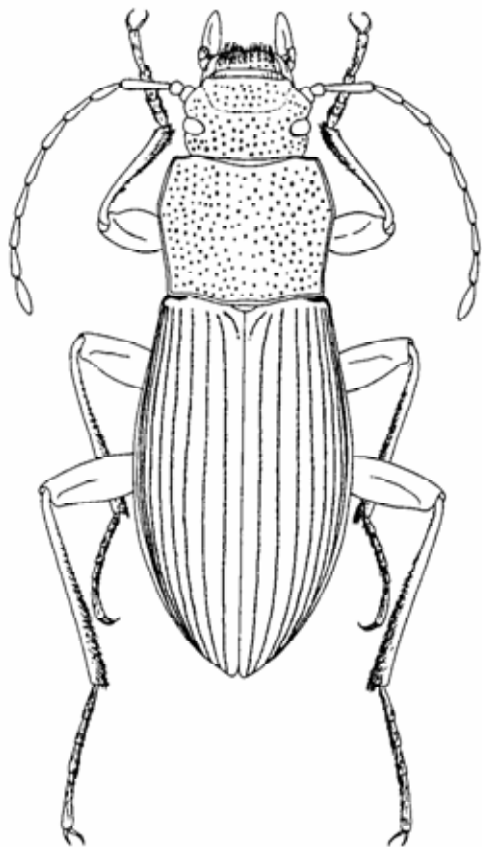


Fig. 24. *Eustenomacidius svetlanae araxi* subsp. n., male, general view.

perforial infraorbital furrow extending at either side of eyes.

- 5 (10). Propleura smooth or smoothly wrinkled, but always punctate. Body dark brown.
- 6 (7). Propleura with smoothed wrinkles and sparse punctation, narrowly flattened along outer margin. Posterior angles of pronotum narrowly rounded at apex. Intervals of elytra flattened. Punctures in rows on elytra small and superficial. Surface of elytra and pronotum smooth, without microsculpture. Body shining.—Length of body 7–11 mm. .... *E. turcmenicus* (Medv.).
- 7 (6). Propleura smooth and shining, with distinct punctation, not flattened along outer margin. Posterior angles of pronotum tapered apically. Intervals of elytra convex. Punctures in rows on elytra large and deep. Elytra and, to lesser degree, pronotum with fine microsculpture. Body weakly shining.
- 8 (9). Epipleura reaching elytral apex. Ratio of width of head at level of eyes to distance between eyes

1.5 in male, 1.6 in female. Junction of gena and clypeus without emargination, only with widely rounded depression. Anterior margin of pronotum not emarginate in middle, straight or widely rounded. Pronotum of female 1.4 times as wide as head. Length of body 8–10.5 mm .....  
..... *E. svetlanae* sp. n.

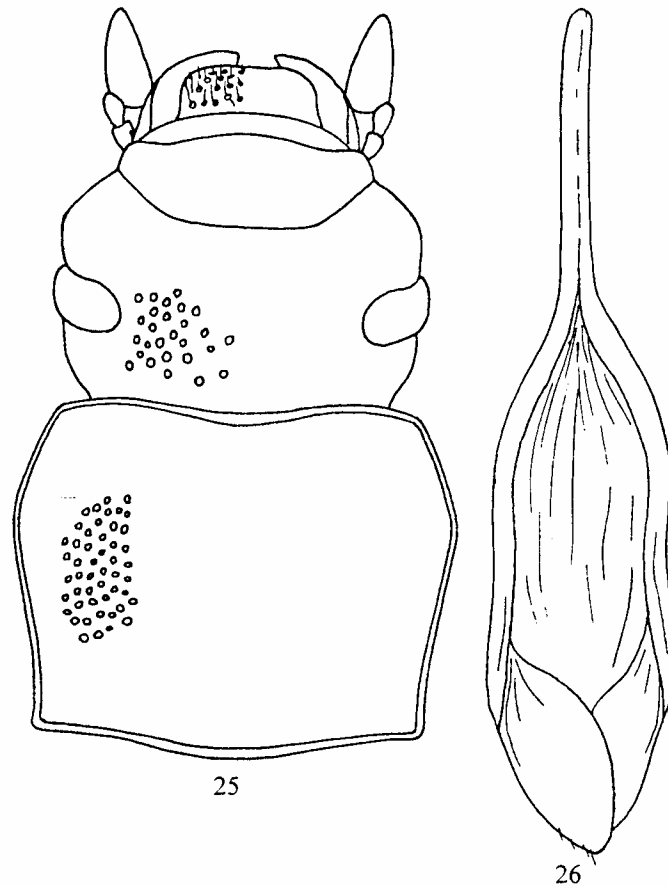
- 9 (8). Epipleura not reaching elytral apex. Ratio of width of head at level of eyes to distance between eyes 1.4 in male, 1.5 in female. Emargination at junction of gena and clypeus distinct, obtuse-angled. Anterior margin of pronotum shortly emarginate in middle. Female frequently with very wide and robust head, which 0.77–0.87 times or, rarely, 0.71 times as wide as pronotum. Length of body 6.5–9 mm .....  
..... *E. svetlanae araxi* subsp. n.
- 10 (5). Propleura sharply wrinkled, impunctate. Body dark ochrous or rufous.
- 11 (12). Pronotum widest before middle. Width of scutellum constituting 1/3 of width of pronotal base. Length of body 9–12 mm .....  
..... *E. mongolicus* (Kasz.).
- 12 (11). Pronotum widest in middle. Width of scutellum constituting half width of pronotal base. Length of body 11 mm ..... *E. wagnae* (Ren).

Genus *XANTHOHELOPS* Nabozhenko,  
gen. n.

Type species *Xanthohelops karakumicus* Nabozhenko et Medvedev, sp. n.

**Description.** Body very slender, elongate, ochrous-yellow, dorsally covered with very short, fine, inconspicuous hairs. Eyes strongly convex, head with deep transverse depression along frontoclypeal suture. Mandibles long, strongly and sharply curved (at nearly right angle). Apical half of mandibles narrow, strongly elongate, slightly compressed dorso-ventrally in area of flexure in lateral view. Apical tooth acute and narrow; preapical tooth also acute, strongly shifted toward base. Underside of head with short fine hairs. Ocular sulcus absent.

Prothorax cylindrical, oblong in male, slightly transverse in female, curved in longitudinal direction. Propleura with very delicate wrinkles and smoothed punctation, covered with fine hairs. Prosternal process between fore coxae flat, gently sloping in lateral view. Posterior part of prothorax forming no vertical basal



**Figs. 25, 26.** *Eustenomacidius svetlanae araxi* subsp. n.: (25) head and pronotum of female, (26) spiculum gastrale.

margin below posterior angles, against which elytral base should rest.

Elytra narrow and elongate (length to width ratio 2.5–2.8), strongly narrowing toward apices, cylindrical. Epipleura narrow, not reaching elytral apex. Upper edging of epipleura absent, therefore, they situated steeply. Surface of elytral disc pubescent, with very short fine hairs. Humeri and vertical basal margin of elytral base absent.

Legs long, tibiae slender and straight. First to third segments of fore tarsus of male slightly widened, 1st and 2nd segments wider than, or as wide as long.

Male genitalia of nalassoid type. Parameres weakly sclerotized, semitransparent, produced at apex into short keel. Penis tapered at apex, with free sclerites.

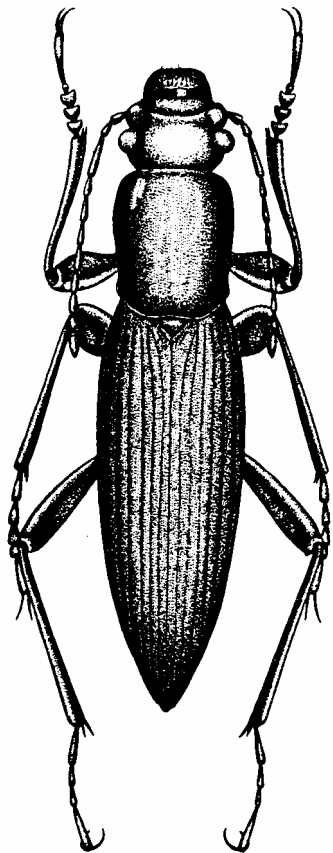
Female genital tubes. Vagina transformed into bursa copulatrix at apex. Basal spermathecal duct absent, gland and spermatheca running into vagina separately, though their ducts distinctly approximated before opening. Spermatheca very short, wide in cross-section. Gland short, but 4–5 times as long as sper-

matheca. Inner duct of gland entirely sclerotized, and covered on outer side with glandular cells.

**Comparative diagnosis.** The genus is most closely related to *Turkmenohelops* G. Medvedev, 1987 and *Eustenomacidius* gen. n., but differs from both in the structure of the mandibles, absence of a vertical basal margin at bases of the prothorax and elytra, absence of humeri, structure of the epipleura (upper edging of epipleura absent, epipleura gently turning into elytral sides), and structure of the ovipositor and genital tubes of the female. The new genus additionally differs from *Turkmenohelops* in the absence of ocular sulcus or deep transverse depression on the underside of the head.

*Xanthohelops karakumicus* Nabozhenko et Medvedev, sp. n. (Figs. 27–32)

**Description. Male.** Body very slender, strongly elongate, ochrous-yellow (beetles teneral), shining, covered dorsally with very short subrecumbent hairs, ventrally with longer recumbent hairs. Head widest at level of eyes. Eyes large, convex. Ratio of maximum



**Fig. 27.** *Xanthohelops karakumicus* Nabozhenko et G. Medvedev, sp. n., male, general view.

width of head to distance between eyes 1.3. Surface of head with deep transverse depression along frontoclypeal suture. Genae strongly rounded, lateral margin of head with small, but distinct emargination at junction of gena and clypeus. Anterior margin of clypeus straight. Labrum with smoothed punctation and long erect hairs. Mandibles long, strongly and sharply curved (at nearly right angle). Apical half of mandibles narrow, strongly elongate, slightly compressed dorso-ventrally near flexure in lateral view. Apical tooth acute and narrow; preapical one also acute, strongly shifted toward base. Underside of head covered with short fine hairs. Ocular sulcus absent. Punctation of head sparse, moderately coarse, and smoothed.

Antennae long and slender, with 2–3 apical segments projecting beyond base of pronotum. Length and width of 2nd–11th antennal segments (length to width ratio in brackets; MBS-9, objective  $\times 7$ , eyepiece  $\times 8$ ): 1/0.8 (1.25); 3/0.7 (4.3); 1.8/0.7 (2.57); 1.7/0.7 (2.42); 1.7/0.7 (2.42); 1.7/1 (1.7); 1.7/1 (1.7); 1.7/1.2 (1.4), 2/0.9 (2.22); 2/0.9 (2.22); 2.1/0.9 (2.33).

Third segment 3 times as long as 2nd and 1.6 times as long as 4th.

Prothorax cylindrical, oblong (1.1–1.15 times as long as wide), weakly cordate, widest slightly before middle, strongly curved in longitudinal direction. Sides very weakly rounded, frequently almost straight, widely emarginate from widest part to posterior angles. Anterior margin arcuately rounded, base also rounded and shallowly emarginate at center. Sides and base very finely edged, anterior margin not edged. Punctation of disc coarse and dense at sides, sparse and fine at center. Surface of disc with fine short hairs. Propleura with very delicate wrinkles, smoothed punctation, and fine hairs. Prosternal process between fore coxae flat, gently sloping in lateral view. Prosternum covered ventrally with fine recumbent hairs. Posterior part of prothorax without vertical basal margin below posterior angles of pronotum, against which elytral base should rest.

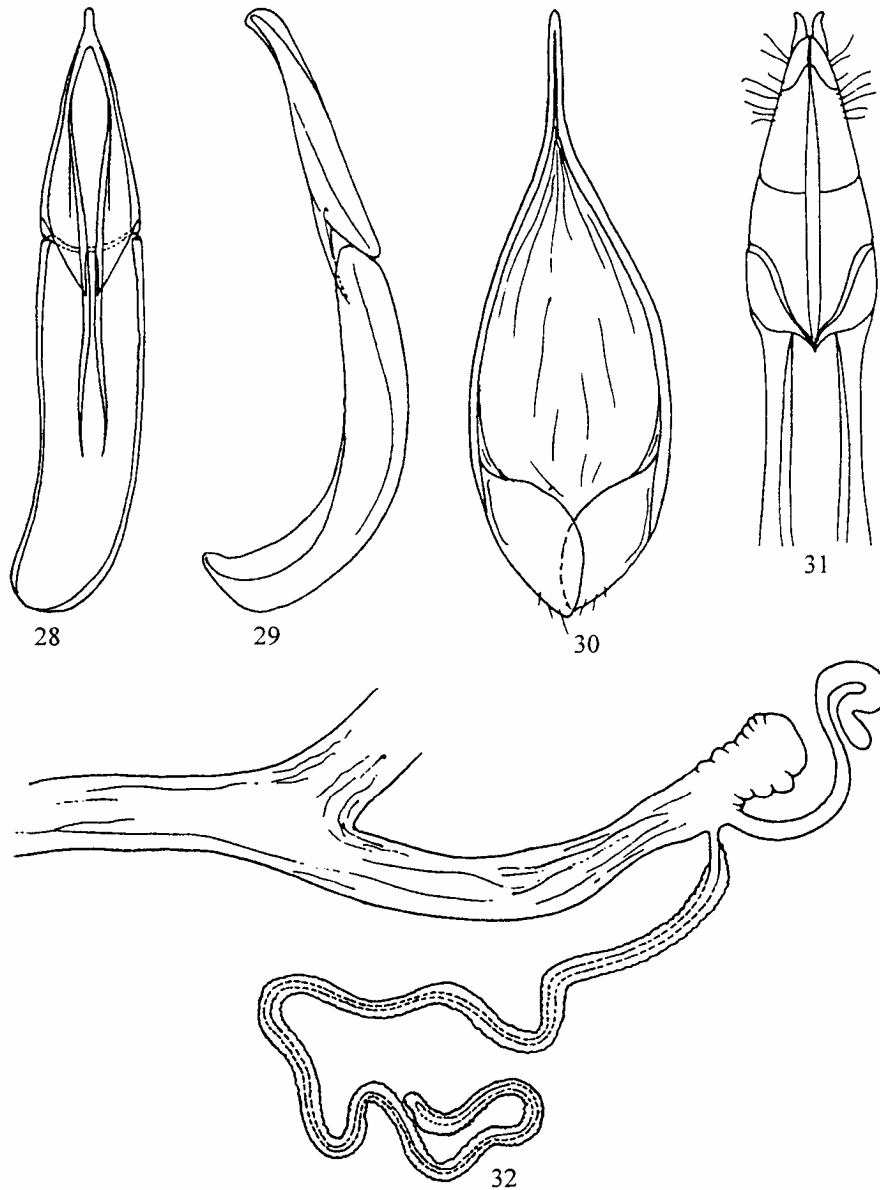
Elytra narrow and elongate (length to width ratio 2.5–2.8), strongly narrowing toward apex, cylindrical. Elytra at base somewhat wider than pronotum in its widest part (1.1–1.2 times as wide). Punctures in rows on elytra merging into superficial entire striae. Intervals weakly, but distinctly convex, finely punctate. Epipleura narrow, not reaching elytral apex. Upper edging of epipleura absent, therefore, they situated vertically. Surface of elytral disc pubescent, with very short fine hairs. Humeri and vertical basal margin of elytral base absent. Mesepisterna coarsely, but sparsely punctate. Mesothorax with short sparse hairs.

Abdominal sternites with moderately coarse and rather fine punctation, densely covered with recumbent hairs. First and second visible sternites with denser and long erect hairs at center.

Legs long, tibiae slender and straight. First to third segments of fore tarsus of male slightly widened. Length and width of 1st–3rd segments of fore tarsus (MBS-9, objective  $\times 7$ , eyepiece  $\times 8$ ): 1/1.2, 1/1, 0.9/0.6. Middle and hind tarsi very long, middle tarsus 0.65 times as long as middle tibia, hind tarsus 0.57 times as long as hind tibia. Claws fine and long. Fore tarsus with dense hair brush on sole surface, middle and hind tarsi with long sparse hairs.

Length of body 5–6 mm.

**Female.** Body larger and more robust. Antennae shorter than those in male, with only ultimate segment projecting beyond base of pronotum. Styli of oviposi-



**Figs. 28–32.** *Xanthohelops karakumicus* Nabozhenko et G. Medvedev, sp. n.: (28) aedeagus, ventral view; (29) aedeagus, lateral view; (30) spiculum gastrale; (31) ovipositor; (32) female genital tubes.

tor tightly adjoining apex of gonostyli, widened from base to apex, rounded apically, heavily sclerotized, without tactile sensilla. Length of body 7–8 mm.

**Etymology.** The species name refers to the Kara Kum Desert, where the species has been found.

**Mode of life.** The species inhabits saxaul forests.

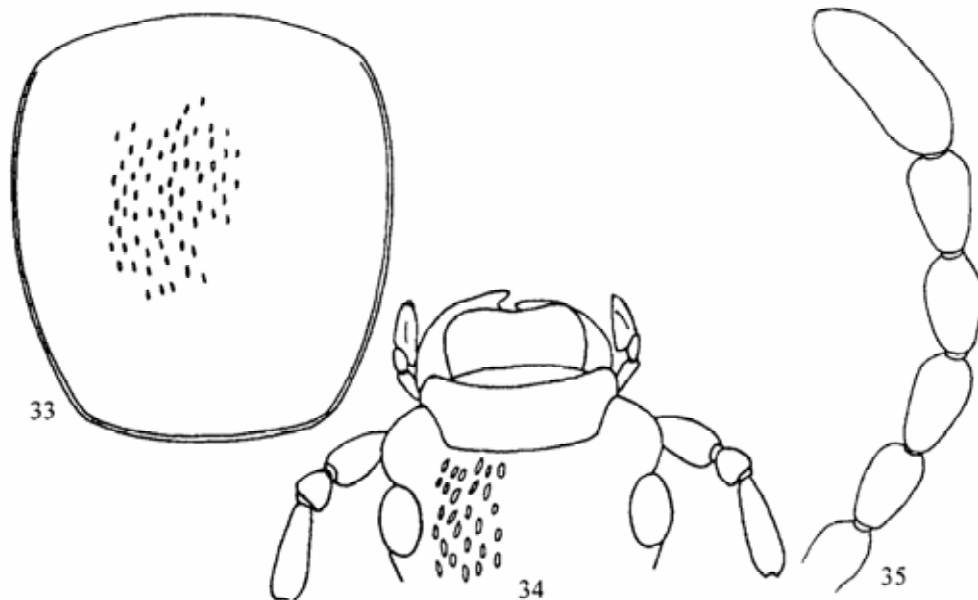
**Distribution.** The central Kara Kum Desert.

**Type material.** Holotype: ♂, Turkmenistan, Erbent, 20–30.XI.1987 (Kh. Atamuradov); paratypes (6 ♂, 7 ♀), same data. All are deposited in ZIN.

#### Genus *CATOMUS* Allard, 1876

Type species *Catomus persicus* Allard, 1876, by subsequent designation (Gebien, 1943).

Allard, 1876 : 4; 1877 : 17, 45, 185; Seidlitz, 1896 : 698, 748, 788 (*Helops* subgen.); Vauloger, 1899 : 679, 694, 714; Reitter, 1922a : 7; Antoine, 1947 : 142; Iablokoff-Khuzorian, 1964 : 305; Bogačev, 1965 : 32; Medvedev, 1970 : 393; Español, Viñolas, 1986 : 181–184; Medvedev, Nepesova, 1985 : 51, 151; Medvedev, 1987 : 97; 1990 : 52, 241; Abdurakhmanov, Medvedev, 1994 : 37, 117, 189.—*Catomidius* Seidlitz, 1896 : 792 (*Hedyphanes* subgen.).



**Figs. 33–35.** *Catomus fragilis* (Mén.), male: (33) pronotum, (34) head, (35) apex of antenna

*Catomus* (s. str.) *fragilis* (Ménétriés, 1848)  
(Figs. 33–41)

Ménétriés, 1848 : 27 (*Helops*); Allard, 1877 : 259; Seidlitz, 1896 : 793 [*Hedyphanes* (*Catomidius*)]; Medvedev, Nepesova, 1985 : 151.—*subniger* Reitter, 1901 : 181; 1922 : 11; Skopin, 1964 : 278, **syn. n.**

**Data in catalogs.** Gebien, 1943 : 410 (798) (*C. fragilis*, *C. subniger*).

**Description. Male** (paralectotype). Body pale brownish, shining. Clypeus widely emarginate. Genae strongly rounded in middle, weakly rounded in anterior part. Outer margin of head with wide obtuse-angled emargination at junction of gena and clypeus. Punctuation of head moderately coarse, not dense (puncture diameter 2/3 of distance between punctures); punctures round or weakly elongate at center of frons, distinctly elongate on rest of head surface.

Pronotum oblong (1.07 times as long as wide), widest slightly before middle. Sides weakly rounded; angles widely rounded, obtuse-angled; sides and base finely edged. Punctuation rather fine, not dense (distance between punctures 1.5–2.0 times puncture diameter). Propleura with very fine wrinkles and sparse punctuation.

Elytra elongate-oval. Punctures in rows on elytra rounded, not merging into entire striae or merging into interrupted striae. Intervals flat, coarsely and sparsely punctate.

Abdominal sternites hairless, last one occasionally with hairs.

Tibiae straight. Segments of fore tarsus widened, oblong.

**Female.** Body larger and more robust. Antennae short, with 1–2 apical segments projecting beyond base of pronotum. Pronotum widest in middle.

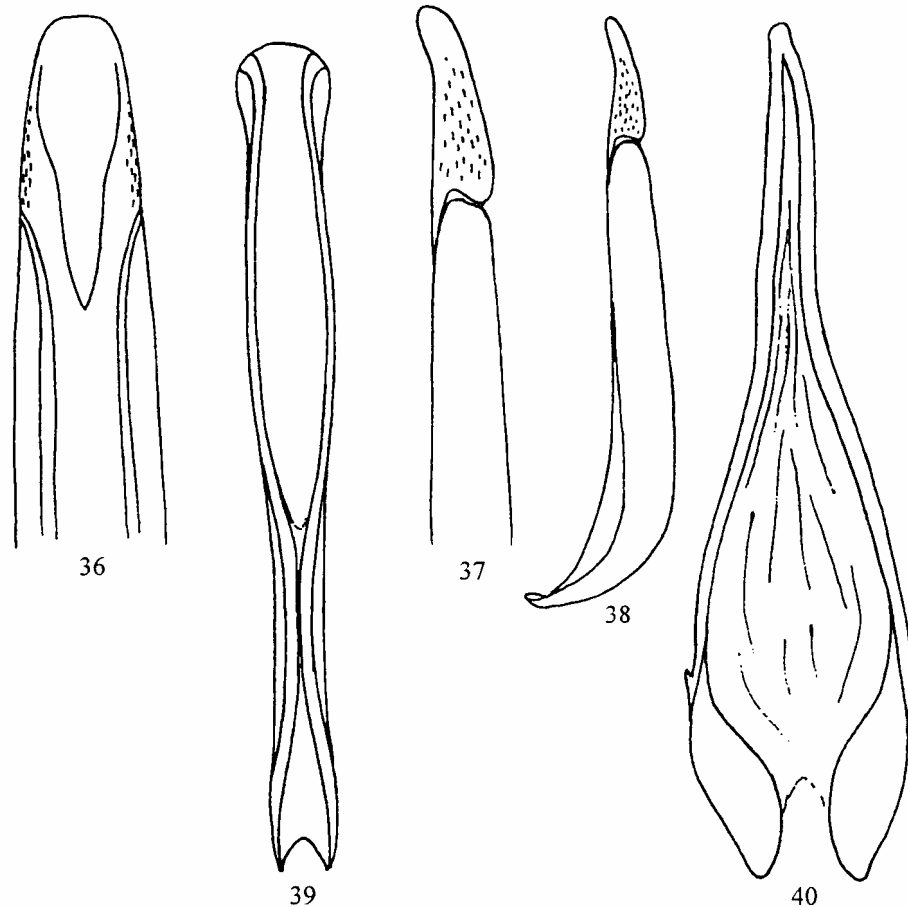
Length of body 4–8 mm.

**Variability.** Specimens from the low mountains of Central Kopet Dagh dark brownish; propleura with fine longitudinal wrinkles, impunctate. Disc more coarsely and densely punctate than that in specimens from Mangyshlak and Ustyurt.

**Mode of life.** The species inhabits deserts with dense clay and sandy-loam soils. On the Ustyurt Plateau, where the clay deserts are predominated by wormwoods and salt-worts, *C. fragilis* occurs in the lowlands with small-dune sands, occupied with saxaul (Pirnazarov, 1973).

**Distribution.** Western Kazakhstan (Mangyshlak) as far in the east as the Aral Sea, western Uzbekistan (Ustyurt), western Turkmenistan (foothills and low mountains of Central Kopet Dagh).

**Type material.** *Helops fragilis*: lectotype (♀) with E. Ménétriés's handwritten label "*helops fragilis. turcom.*" and a golden square; paralectotype (♂) with the label "*helops fragilis* Var. B" and a golden square.



**Figs. 36–40.** *Catomus fragilis* (Mén.), male: (36) parameres, ventral view; (37) parameres, lateral view; (38) aedeagus, lateral view; (39) penis; (40) spiculum gastrale.

Lectotype is designated here. The lectotype and paralectotype of *Helops fragilis* are deposited in ZIN.

Ménétriés apparently had received unlabelled material from M. Lehman, as he wrote on his label “turcom” with question-mark, and made in the description the evidently erroneous indication of Novo-Aleksandrovskaya (northwestern Kazakhstan).

*Catomus subniger*: lectotype (♀) designated here, labeled “Tr. Casp. Gr. Balchan,” “Coll. Reitter,” “*Catomus subniger* m.,” “Holotypus *Hedyphanes subinteger* Reitter 1901,” “*fragilis* Mén. det. Kaszab,” “*Catomus*-Revision *fragilis* ♀ Schawaller 1987.” Paralectotypes (2 ♀) labeled: “Tr. Casp. Gr. Balchan,” “Coll. Reitter,” “Paratypus *Hedyphanes subinteger* Reitter 1901,” “*Catomus*-Revision *fragilis* ♀ Schawaller 1987.” All specimens are deposited in HNHM.

**Material.** Uzbekistan. Kara-Kalpak: eastern shore of Aral Sea, 18.V.1971 (B. Pirnazarov), 1 ♂, 1 ♀ [ZIN]; western Ustyurt, Kosbulak, 7–8.V.1968, 7–8.V.1969, 18.V.1971, 14.VI.1971 (B. Pirnazarov),

3 ♂, 6 ♀ [ZIN]; Ustyurt, Baigubek Cape, Murun, 21.V.1971 (B. Pirnazarov), 1 ♀ [ZIN]; Ustyurt, Baigubek Cape, 23.V.1971 (B. Pirnazarov), 1 ♀ [ZIN]; northwestern Ustyurt, Uzen Vill., 6.V.1962 (I. Skopina), 1 ♂, 1 ♀ [ZIN]; Mangyshlak Peninsula, 40 km SW of Beineu, Monashi River, 23.V.1978 (G. Medvedev), 1 ♂, 1 ♀ [ZIN]. Turkmenistan. Krasnovodsk, 1905 (F. Kulygin), 1 ♀ [ZIN]; western Turkmenistan, Meshed-Messer, 22.IV.1971 (G. Medvedev), 5 ♂, 6 ♀ [ZIN]; Chandyr, Kyzyl-Iman, 24.IV.1971 (G. Medvedev), 1 ♂ [ZIN]; foothills of Central Kopet Dag, Germab, 6.V.1971 (G. Medvedev), 1 ♂, 3 ♀ [ZIN]; 15 km SW of Geok-Tepe, 8.V.1971 (G. Medvedev), 2 ♂, 1 ♀ [ZIN]; Bakhardenskii Distr., 17.IV.1984 (M. Danilevskii), 1 ♀ [MSPU].

*Catomus* (s. str.) *karakalensis* G. Medvedev, 1964 (Fig. 42)

Medvedev, 1964 : 652–653; Medvedev, Nepesova, 1985 : 151.—*dolini* G. Medvedev (Medvedev, 2004 : 575), **syn. n.**



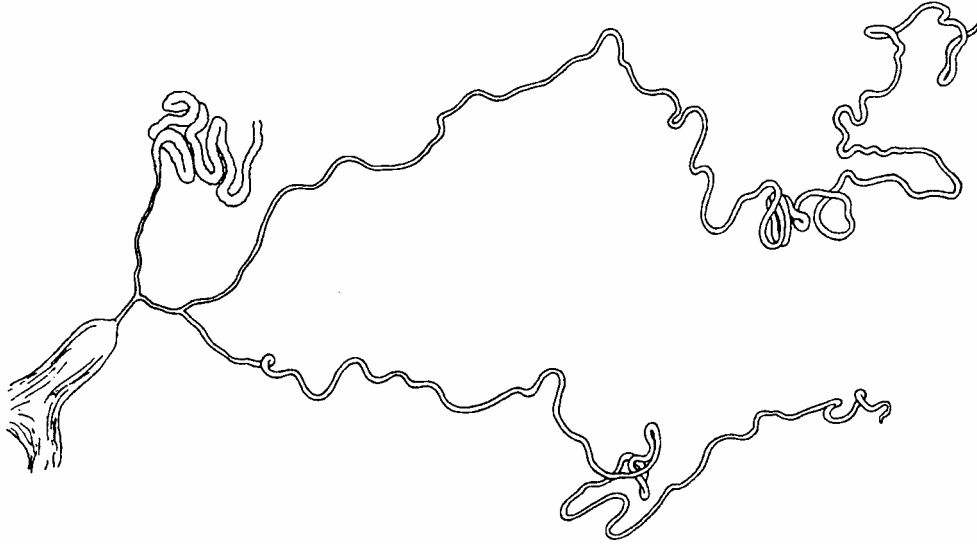


Fig. 41. *Catomus fragilis* (Mén.), female genital tubes.

**Description. Male.** Body brownish or dark brownish, with greasy lustre. Anterior margin of clypeus widely emarginate. Genae strongly rounded in middle. Outer margin of head with distinct obtuse-angled emargination at junction of gena and clypeus. Clypeus with wide transverse depression. Punctuation of head coarse and dense (puncture diameter 1.5 times distance between punctures), punctures elongate. Antennae long, with 3 apical segments projecting beyond base of pronotum, 11th segment 1.75 times as long as 10th.

Pronotum transverse (1.1–1.5 times as wide as long), widest in middle, with strongly rounded sides and weakly rounded base and anterior margin. Punctuation coarse and dense (puncture diameter equal to distance between punctures or 2/3 of this distance). Angles obtuse-angled, widely rounded. Sides and base with distinct edging. Disc and propleura quite often weakly flattened at sides. Propleura with fine longitudinal wrinkles.

Elytra elongate, with weakly rounded sides. Punctures in rows on elytra merging into short, deep striae. Intervals only slightly convex, frequently with coarse or smoothed transverse wrinkles, finely and sparsely punctate.

Abdominal sternites hairless, anal sternite with short recumbent hairs at apex.

Tibiae straight; fore tarsus of male widened, with oblong segments.

**Female.** Body larger and more robust than that in male. Antennae short, with 2 apical segments projecting beyond base of pronotum. Fore tarsus not widened.

Length of body 5–8 mm.

**Variability.** In specimens from Central Kopet Dagh, elytra smooth, not wrinkled, with rows of round punctures not merging into entire striae.

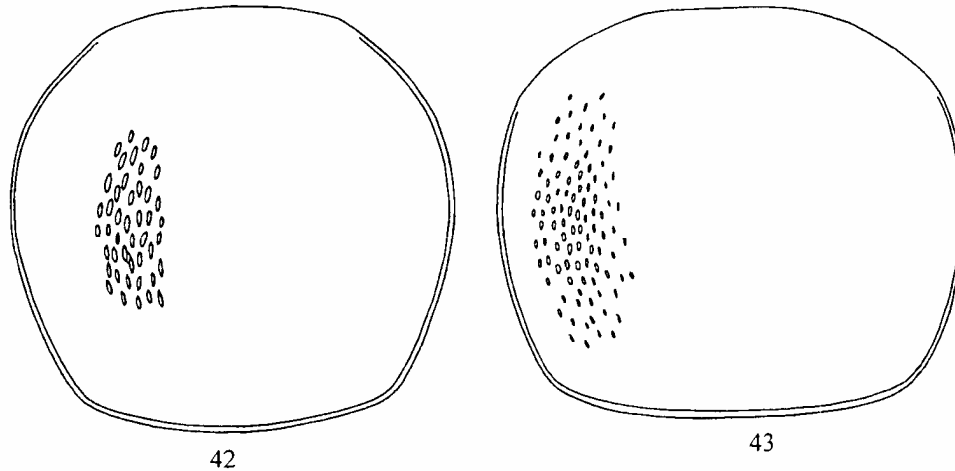
**Mode of life.** The species inhabits mountain-steppe areas at heights above 1000 m, active at twilight, and hides in soil cracks under bush roots in the daytime. The seasonal activity falls on March–May.

**Distribution.** Middle and upper mountain belts of Western and Central Kopet Dagh, northeastern Iran (Khurasan, eastern part of Mazandaran Province).

**Type material** (all in ZIN). Holotype (♂) and paratypes (1 ♂, 3 ♀): *C. karakalensis*: Turkmenistan, 25 km E of Kara-Kala, Sumbar River valley, 28.IV.1957 (G.S. Medvedev).

Holotype (♂) *C. dolini* with labels: “Turkmenistan, Kerki, Uzboi, 22.IV.1985, V. Dolin” and “Holotypus *Catomus dolini* sp. n., det. G. Medv.”

**Material.** Turkmenistan. Gaudan, 15.III.1897, 17–20.IV.1897 (Filipovich), 2 ♂, 3 ♀ [ZIN]; Anau, 7.V.1928 (V. Gussakovskii), 1 ♂ [ZIN]; Kopet Dagh, Ai-Dere, 30.IV.1930 (E. Shestoporov), 1 ♂ [ZIN]; Nukhur, 18.V.1930 (E. Shestoporov), 1 ♂ [ZIN]; environs of Ashkhabad, 4.III.1962 (E. Fraiberg), 1 ♂, 1 ♀ [ZIN]; Central Kopet Dagh, environs of Ashkhabad, Chuli Canyon, 1.V.1975 (V. Yanushev), 2 ♀ [ZIN]; Kopet Dagh, Ai-Dere, 21.IV.1976 (V. Yanushev), 1 ♂, 1 ♀ [ZIN]. Iran. Prov. Mazandaran, Alborz Mts., 15 km S Amol, 52°21'46" E, 36°19'42" N, 17.IV.2000 (Kalman, K. Székely), 2 ♂, 3 ♀ [HNHM]; Prov. Ma-



Figs. 42, 43. *Catomus* Alld., pronotum of males: (42) *C. karakalensis* G. Medv., (43) *C. niger* (Kr.).

zandaran, Razi, 1900 m, 55°25'10" E, 36°48'40" N, 24.IV.1999 (Gy. Fábián, L. Nádai, Z. Rahmé, K. Székely), 1 ♂ [HNHM]; Prov. Khorasan, Asadli, 1200 m, 56°17'18" E, 37°16'18" N, 26.IV.1999 (Gy. Fábián, L. Nádai, Z. Rahmé, K. Székely), 1 ♂ [HNHM]; Prov. Khorasan, Dasht, 600 m, 27.IV.1999 (Gy. Fábián, L. Nádai, Z. Rahmé, K. Székely), 1 ♀ [HNHM].

*Catomus* (s. str.) *niger* (Kraatz, 1882) (Figs. 43–49)

Kraatz in: Heyden, Kraatz, 1882 : 332 (*Hedyphanes*); Seidlitz, 1896 : 794 [*Hedyphanes* (*Catomi-dius*)]; Reitter, 1922 : 14.

**Data in catalogs.** Gebien, 1943 : 411 (790).

**Description. Male.** Body hairless, black, with greasy lustre; legs pale brown or reddish-brown. Anterior margin of clypeus shallowly widely emarginate. Genae strongly rounded in middle, weakly rounded in anterior part. Junction of gena and clypeus wide obtuse-angled emargination. Head with wide depression along frontoclypeal suture. Punctuation of head moderately coarse, not dense (distance between punctures 1.5–2.0 times puncture diameter). Antennae long, with 4 apical segments projecting beyond base of pronotum. Ultimate antennal segment 1.5 times as long as penultimate segment, widened toward apex.

Pronotum transverse (1.1–1.17 times as wide as long), widest in or before middle. Punctuation moderately coarse, not dense (at center of disc, puncture diameter subequal to distance between punctures), denser at sides. Punctures round at center of disc, elongate at sides. Sides of pronotum distinctly rounded, anterior margin weakly rounded; base with emargination in middle. Angles of pronotum obtuse-

angled and widely rounded. All margins of pronotum, except for anterior one, finely edged. Propleura with longitudinal wrinkles.

Elytra elongate-oval. Rows of punctures obsolete, intervals flat. Punctures in rows on elytra elongate, not merging into entire striae. Punctuation of intervals moderately coarse, not dense.

Abdominal sternites hairless, only apex of last sternite with subrecumbent hairs.

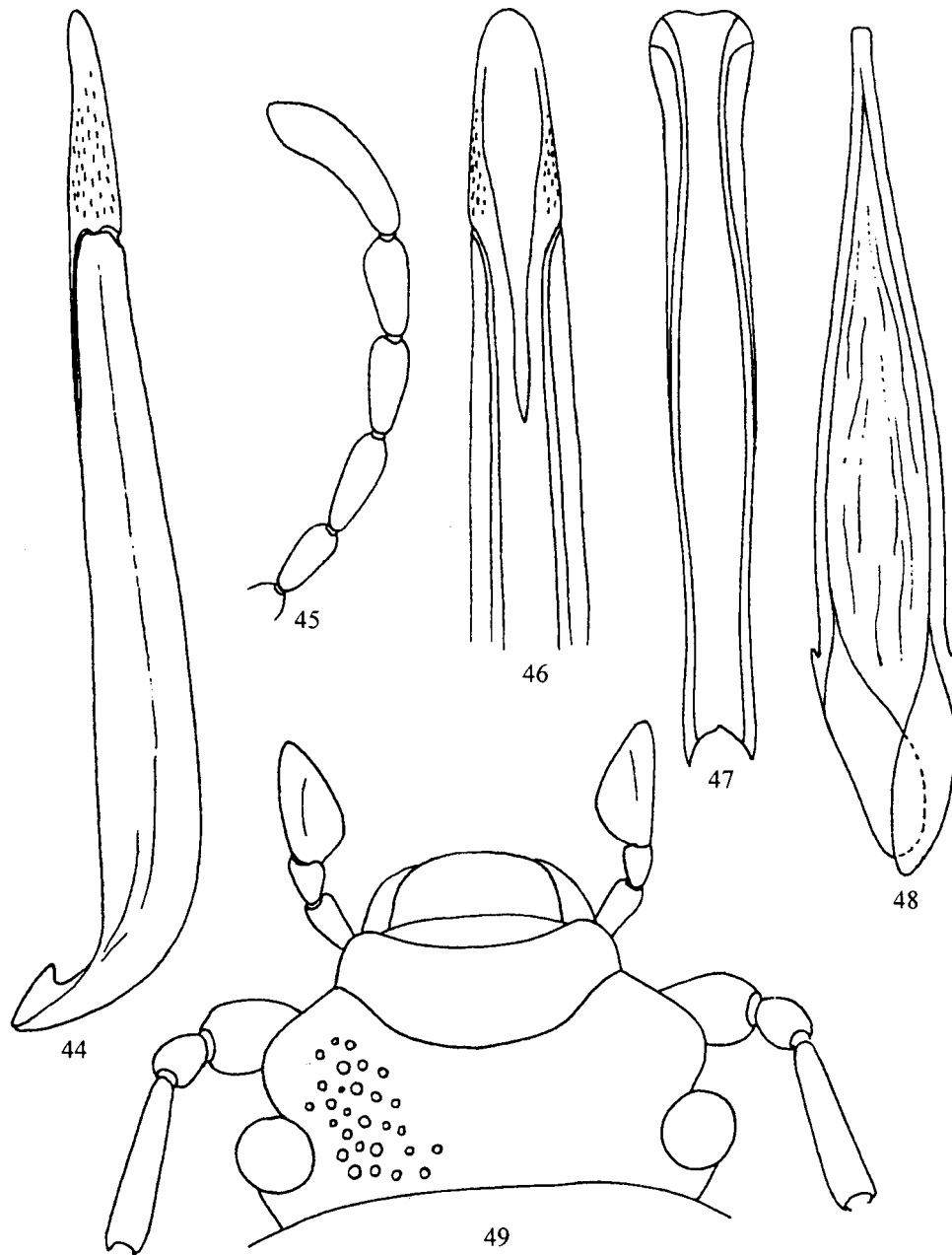
Tibiae straight. Fore tarsus widened, its 1st and 4th segments oblong, 2nd as long as wide, and 3rd somewhat wider than long.

**Female.** Body larger and more robust than that of male, fore tarsus not widened. Pronotum widest in middle, more transverse than that in male. Antennae shorter, with only 2 apical segments projecting beyond base of pronotum.

**Mode of life.** The species inhabits semideserts with firm clay soils, arid foothills, and low mountains. It leads the nocturnal mode of life, hides in the daytime in cracks and hollows of soil, at roots of semi-shrubs and shrubs (wormwood, boyalych (= *Salsola arbuscula* Pall.), etc.), and under stones. The species is active from April till May; it is saprophagous and can feed on living plants in early spring.

**Distribution.** Eastern Uzbekistan (foothills and low mountains of western Tien Shan), southern Kazakhstan.

**Type material** [DEI]. Lectotype (♀) and paralectotypes (3 ♀) on one pin, with labels: "106," "108," "Samarkd. Stdgr. 81," "Syntypus," "*Hedyphanes niger* mihi Samark.," "Coll. Kraatz," "*niger* Kr." (Seidlitz's

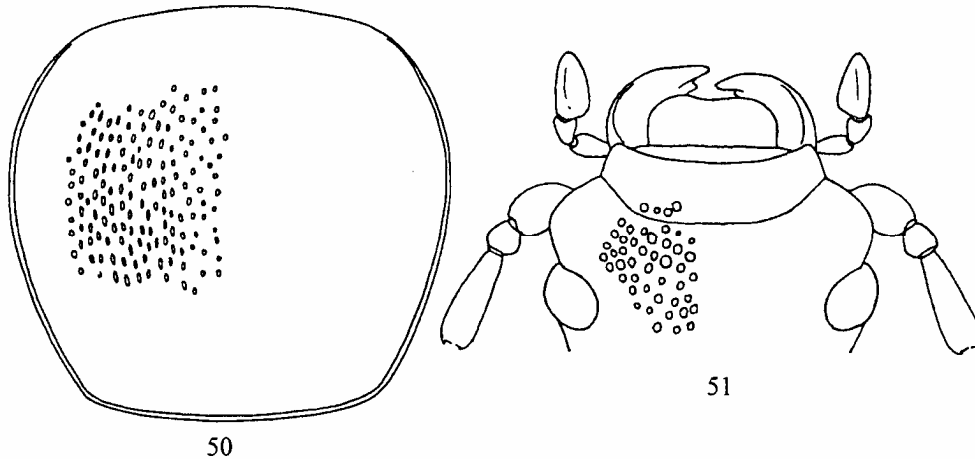


**Figs. 44–49.** *Catomus niger* (Kr.), male: (44) aedeagus, lateral view; (45) apex of antenna; (46) apex of aedeagus, ventral view; (47) penis; (48) spiculum gastrale; (49) head.

handwritten label). The upper specimen on the pin is designated here as lectotype.

**Material.** Uzbekistan. Margelan, 1872, 1 ♂ [ZIN]; Turkestan, 1878, 1 ♀ [ZIN]; Kainar, 1892 (D. Glazunov), 2 ♂ [ZIN]; Sansar, 1892 (D. Glazunov), 1 ♀ [ZIN]; Dzhizak, 1892 (D. Glazunov), 2 ♂, 1 ♀ [ZIN]; Samarkand 1 ♂ [ZMMSU]; W of Bukhara, Khum-Kala, 1892 (D. Glazunov), 1 ♀ [ZIN]; Tair-Teikh, 26.IV.1892, 24.IV.1897, 1.V.1897 (Sokolov), 2 ♂, 2 ♀ [ZIN]; Zeravshanskii Mt. Range, Serbent, 1892

(D. Glazunov), 1 ♀ [ZIN]; Samarkand (Staudinger), 2 ♀ [ZMIB]; Samarkand, 1910 (M. Siyazov), 1 ♀ [ZIN]; Ferghana, 11.IV.1920 (N. Zarudnyi), 4 ♂, 3 ♀ [ZIN]; Ursat'evskaya St., 9.V.1920 (I. Ivanov), 3 ♀ [ZIN]; same locality, 19.V.1920 (N. Zarudnyi), 1 ♀ [ZIN]; same locality, 20.V.1920 (Chernovskii), 1 ♂, 2 ♀ [ZIN]; Dragamirovo St., 9.V.1922 (N. Zarudnyi), 1 ♂, 2 ♀ [ZIN]; Aryst St., 30.IV.1920 (L. Chernovskii), 1 ♀ [ZIN]; near Kara-Tau, Karnak, 5.V.1931 (K. Arnoldi), 2 ♀ [ZMMSU]; Kammashi, 1.IV.1932,



Figs. 50, 51. *Catomus sulcatus* G. Medv., male: (50) pronotum, (51) head.

13.V.1932 (A. Rodd), 1 ♂, 1 ♀ [ZIN]; Dzhakkabad, 15.IV.1942 (K. Arnoldi), 1 ♂ [ZMMSU]; Zafarabad, 7.IV.1967 (Valiakhmedov), 1 ♂, 1 ♀ [ZIN]. Kazakhstan. Upper course of Syr-Daria River, Arys River, 20.IV.1932 (F. Lukjanovitch), 2 ♀ [ZMMSU]; Sarysu, 50 km N of Karakengir River mouth, 24.V.1962 (G. Medvedev), 1 ♀ [ZIN]; southern part of Betpak-Dala Desert, 6, 10–11.V.1954 (L. Serkova), 5 ♂, 2 ♀ [ZIN]; S Kazakhstan, Yany-Kurgan, 10.IV.1967 (N. Skopin), 2 ♂, 2 ♀ [ZIN]; S Kazakhstan, steppe between Torchkul and Chayan, 17.V.1964 (N. Skopin), 1 ♀ [ZIN]; S slopes of Karatau Mt. Range above Talas, 10.V.1967 (N. Skopin), 1 ♀ [ZIN]. Tajikistan. Shakhristan, 400 m, 18.V.1961 (A. Bogachev), 3 ♂ [ZMMSU].

*Catomus* (s. str.) *sulcatus* G. Medvedev, 1964  
(Figs. 50–58)

Medvedev, 1964 : 652.

**Description. Male.** Body hairless dorsally, brownish, shining; legs pale brownish. Anterior margin of clypeus widely emarginate. Emargination at junction of gena and clypeus distinct, obtuse-angled. Genae strongly rounded in middle, straight in anterior part. Temples only slightly rounded in dorsal view. Punctuation of head coarse, moderately dense (distance between punctures subequal to puncture diameter). Antennae long, with 3 apical segments projecting beyond base of pronotum. Pronotum weakly oblong (length to width ratio 1.05–1.06), widest slightly before middle. Sides weakly rounded; base and anterior margin weakly rounded. All margins of pronotum (except anterior one) finely edged. Punctuation of pronotum dense, moderately coarse (distance between punctures

2/3 of puncture diameter at sides and subequal to puncture diameter at center of disc). Propleura with longitudinal fine wrinkles.

Elytra elongate, with weakly rounded sides, subparallel sides. Intervals flat, with coarse and sparse punctuation. Punctures in rows on elytra merging into entire deep striae.

Abdominal sternites pubescent at center, moderately coarsely and rather shallowly punctate.

Segments of fore tarsus widened, somewhat wider than long; segments of middle tarsus weakly widened, oblong.

**Female.** Body larger and more robust, antennae shorter than those in male, with 2 apical segments projecting beyond base of pronotum. Pronotum somewhat wider than long (width to length ratio 1.08).

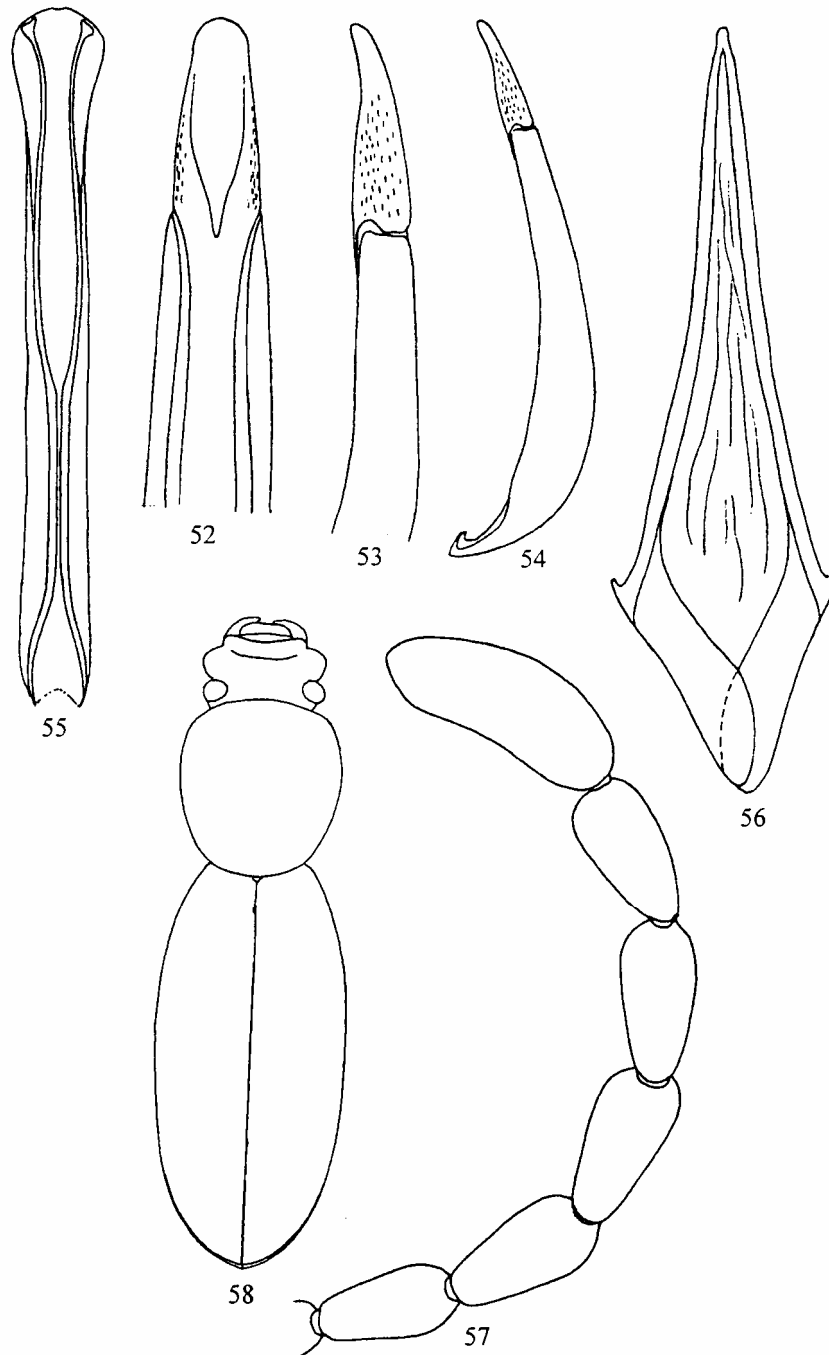
Length of body 5–7 mm.

**Mode of life.** The species is common in the foothills and low mountains, not occurring above 1000 m. Its mode of life is similar to that of *C. niger*.

**Distribution.** Eastern Uzbekistan: Nuratinskii Mt. Range (foothills), Ferghana Valley.

**Type material** [ZIN]. Holotype (♂): Uzbekistan, Margelan, spring 1903 (K. Aris). Paratypes. Uzbekistan: Samarkand, 1892 (Hertz), 1 ♀; Ukhum, Nuratau Mt. Range, 1892 (D. Glazunov), 4 ♀; Darbaza St., 15.III.1911, 1 ♂; Skobelev St., 13.V.1920 (I. Ivanov), 1 ♀; Margelan, 1 ♂.

**Material.** Uzbekistan, Margelan, 1 ♀; near Skobelev, 13.V.1920 (N. Zarudnyi), 2 ♂, 2 ♀ [ZIN]; Tashkent, 19.VIII.1905 (E. Fischer), 1 ♂ [ZIN]; Uzun-Bulak, 19.III.1906 (E. Fischer), 1 ♂ [ZIN].



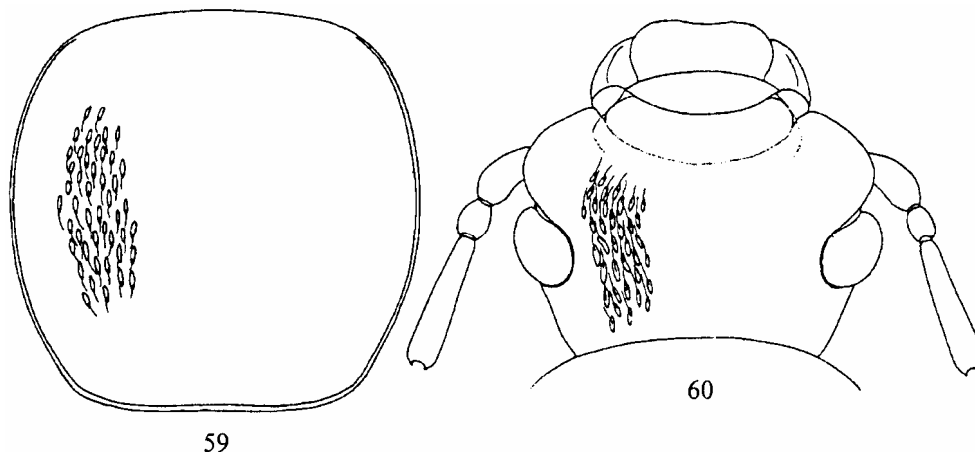
**Figs. 52–58.** *Catomus sulcatus* G. Medv., male: (52) parameres, ventral view; (53) parameres, lateral view; (54) aedeagus, lateral view; (55) penis; (56) spiculum gastrale; (57) apex of antenna; (58) habitus.

*Catomus* (s. str.) *antennatus* Bogačev, 1963  
(Figs. 59–67)

Bogačev, 1963 : 100 [*Catomus* (*Stenomacidius*)];  
Tadzhibaev, 1972 : 275, 276.

**Description. Male.** Body brownish with weak shine, entirely covered with pale hairs; legs pale brownish. Elytra with erect hairs. Anterior margin of

clypeus strongly emarginate, with projecting angles. Genae strongly rounded, elevated. Surface of clypeus forming in area of angles elevated, convex triangular prominence separated from genae by clypeal suture. Central part of clypeus with flat transverse depression. Emargination at junction of gena and clypeus deep, obtuse-angled. Temples straight in lateral view. Punctuation of head coarse, moderately dense (puncture



Figs. 59, 60. *Catomus antennatus* Bog., male: (59) pronotum, (60) head.

diameter subequal to distance between punctures), punctures on frons weakly elongate. Antennae very long (projecting beyond middle of elytra), with 4 apical segments projecting beyond base of pronotum; 3rd antennal segment 3.1 times as long as 2nd and 1.45 times as long as 4th. Ultimate antennal segment strongly elongate, asymmetrical, and curved.

Pronotum nearly as wide as long, only slightly transverse (width to length ratio 1.01–1.02), widest in middle or, rarely, slightly before middle. Sides regularly rounded, finely edged; base edged, weakly rounded, emarginate in middle. Anterior margin weakly rounded, not edged. Angles widely rounded, indistinct. Punctuation coarse and dense, punctures fusiform. Propleura with very fine longitudinal wrinkles.

Elytra elongate, pubescent. Intervals slightly convex, with fine sparse punctuation. Punctures in rows on elytra merging into entire striae interrupted in places.

Abdominal sternites regularly pubescent, with rounded punctures. First to third segments of fore tarsus widened, oblong.

**Female.** Body larger; antennae shorter, with 3 segments extending beyond base of pronotum. Pronotum more transverse (1.1–1.3 times as wide as long).

Length of body 6.0–10.5 mm.

**Mode of life.** Tadzhibaev (1972) reported this species living on dense soils of the semi-desert altitudinal belt and lower part of the mountain-steppe belt (450–1000 m). The species frequently occurs under wormwood bushes in the belt of xerophilous light forest;

according to the labels, it sometimes occurs in agricultural territories (in gardens under the bark of peach, *Prunus divaricata*, apricot trees, on fields of ploughed cultures and perennial grasses).

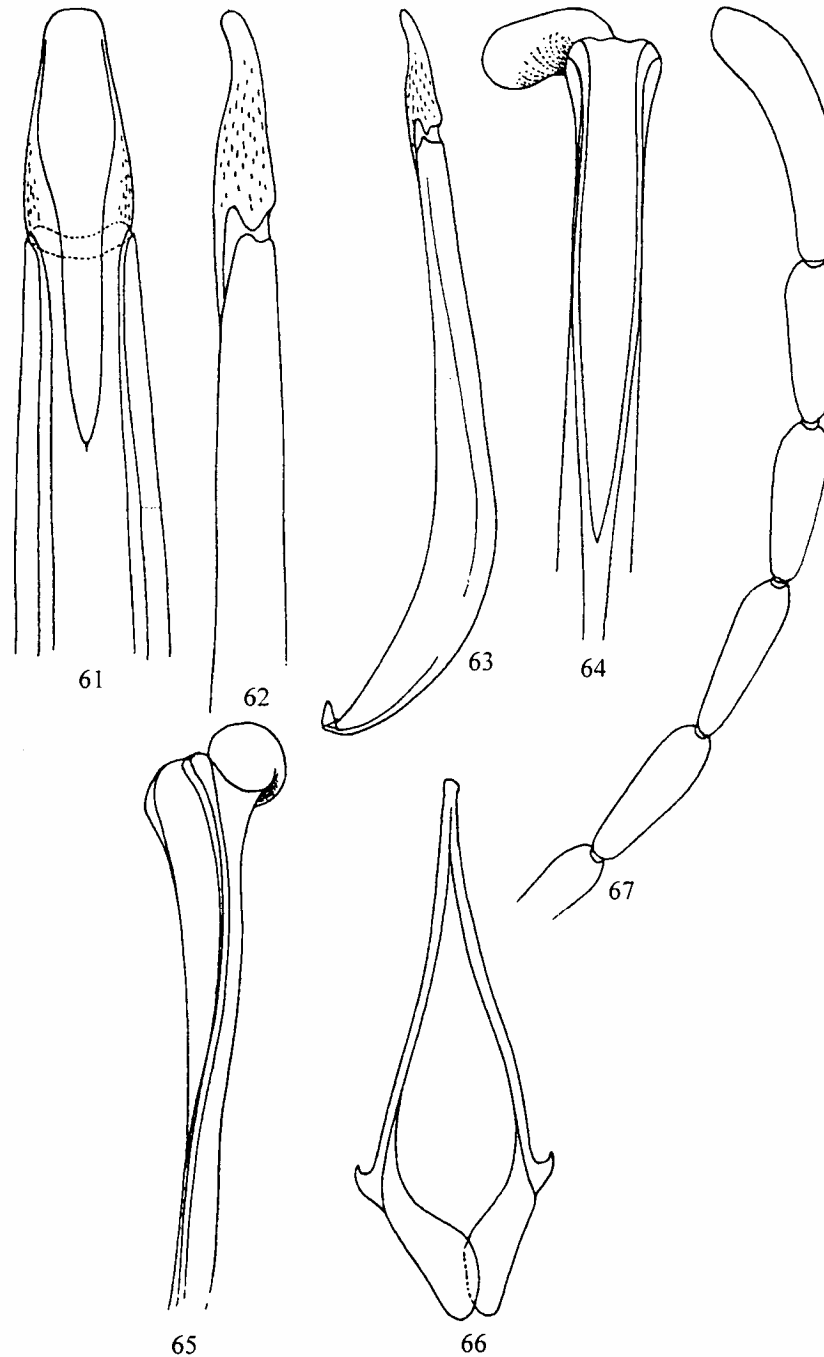
**Distribution.** The low and mid-altitude mountains of western Tajikistan.

**Type material.** Holotype (♂) with golden circle and labels: “Tadzhikistan. Dushanbe, 15.IV.1957 I. Lopatin,” “*Catomus antennatus* sp. n. Typ. A. Bogačev det.,” “Holotypus” [ZMMSU]. Paratypes: 1 ♂, labeled as holotype, only without “Holotypus;” 1 ♂ labeled “Tadzhikistan, Dushanbe, 20.II.1960, A. Bogačev” and “*Catomus antennatus* sp. n. cotyp. A. Bogačev det.” [ZMMSU]; 1 ♀, with same labels [ZIN].

**Material.** Tajikistan. Stalinabad [now Dushanbe], 2–8.IV.1943 (Kiritshenko), 7 ♂, 6 ♀ [ZIN]; same locality, 13.IV.1956 (P. Kulinich), 1 ♀ [ZIN]; same locality, 17.III.1963 (A. Bogačev), 1 ♂; valley between Vakhsh and Dandara rivers, 8.IV.1963, on dry stems of *Ferula* (A. Bogačev), 1 ♂ [ZMMSU]; 18 km of Muminabad, 22.V.1957 (V. Baeva), 3 ♂, 1 ♀ [ZIN]; 55 km SE of Dushanbe, 27.V.1966 (B. Valiakhmedov), 1 ♂, 1 ♀ [ZIN]; Varzobskoe Canyon, Khorongon River, 1000 m, Dekhnavaki-bolo, 1.IV.1983 (T. Verechagina, B. Korotyayev), 1 ♂ [ZIN]; Khedzhi-Maston Mt. Range, 16.IV.1985 (V. Chikatunov), 1 ♂ [ZIN]; Pyandzhskii Karatau Mt. Range, Astana Mt., 23.IV.1991 (V. Grachev), 2 ♂ [MSPU].

*Catomus* (s. str.) *antoniae* Reitter, 1890 (Figs. 68–74)

Reitter, 1890 : 172; 1922 : 8 [*Catomus* (*Stenomacridius*)]; Seidlitz, 1896 : 793 [*Hedyphanes* (*Catomiidius*)]; Bogačev, 1938 : 142.

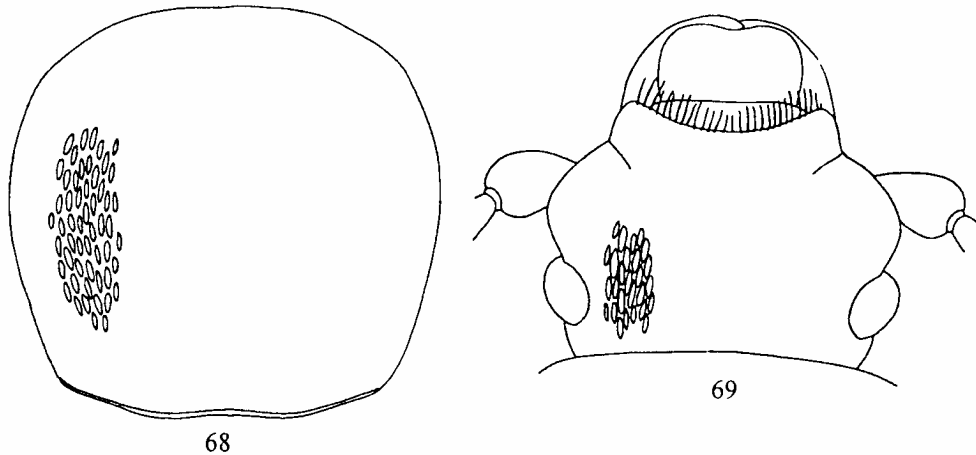


**Figs. 61–67.** *Catomus antennatus* Bog., male: (61) parameres, ventral view; (62) parameres, lateral view; (63) aedeagus, lateral view; (64) penis with everted endophallus, ventral view; (65) penis with everted endophallus, lateral view; (66) spiculum gastrale; (67) apex of antenna.

**Data in catalogs.** Gebien, 1943 : 409 (788); Abdurakhmanov, Medvedev, 1993 : 189.

**Description. Male.** Body slender, rufous brownish, shining. Head widest at level of eyes. Eyes distinctly convex, strongly slanting forwards. Anterior margin of clypeus widely emarginate. Labrum densely punctate. Head with obtuse-angled emargination at junction of

gena and clypeus. Genae strongly rounded, distinctly projecting. Temples not rounded behind eyes, straightly converging toward neck constriction. Frontoclypeal suture with deep longitudinal depression. Punctuation of head coarse; punctures rounded at anterior margin and on underside, elongate on rest of surface. Antennae long, with 3 apical segments projecting



Figs. 68, 69. *Catomus antoniae* Rtt., male: (68) pronotum, (69) head.

beyond base of pronotum. Third antennal segment 3 times as long as 2nd and 1.5 times as long as 4th segment.

Pronotum as long as wide, widest before middle. Sides smoothly rounded in anterior part, straightly converging toward base in posterior half; anterior margin and base smoothly arcuately rounded. Anterior angles obtuse-angled and widely rounded; posterior ones obtuse-angled, well-defined. Sides and anterior margin not edged, base with very fine edging. Disc regularly covered with coarse, strongly elongate punctures. Propleura covered with dense longitudinal wrinkles, punctate only along outer margins.

Elytra elongate-oval; intervals flat, distinctly punctate. Punctures in rows on elytra merging into deep entire striae. Upper edging of epipleura very fine, not visible in dorsal view. Epipleura smooth, not wrinkled, situated obliquely relative to sagittal section of body.

Meso- and metathorax covered with fine recumbent golden hairs and coarse elongate punctures. First visible abdominal sternite with dense spot of long golden hairs, anal sternite with erect golden hairs along margin.

Tibiae straight, with golden recumbent hairs on inner margin. Segments of fore tarsus of male distinctly widened, middle tarsus very weakly widened; sole surfaces of fore and middle tarsi with dense hair brushes.

**Female.** Differing from male in shape of pronotum: sides shortly emarginate at base, posterior angles acute-angled. Fore and middle tarsi not widened; antennae shorter, with 2 apical segments projecting beyond base of pronotum.

Length of body 6 mm.

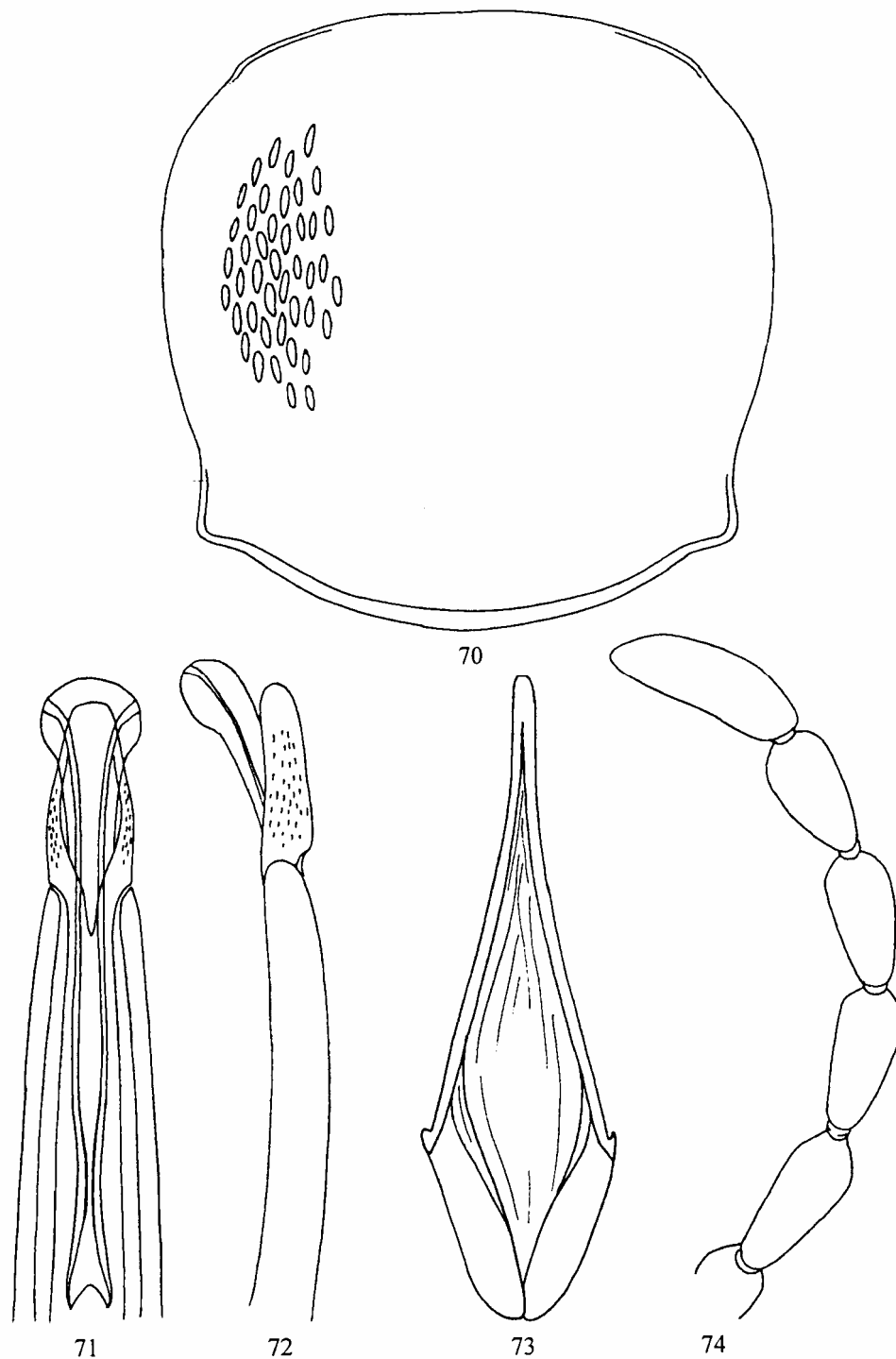
**Mode of life.** The species inhabits clay semideserts of the Araks River valley. The beetles hide in soil cracks in the daytime, are active during the twilight time.

**Distribution.** Southern Armenia and Nakhichevan.

**Type material.** Lectotype (♂) and paralectotype (♀) with identical labels: "Caucasus, Araxesthal. Leder, Reitter" and with "Holotypus *Catomus antoniae* Reitter 1890" and "Paratypus *Catomus antoniae* Reitter 1890," respectively. Two latter labels are written by curators of the collection. Lectotype is designated here. According to E. Reitter's description, the species is described from Ordubad (Azerbaijan, Nakhichevan). The types are deposited in HNHM. One paralectotype, according to Kulzer (Kulzer, 1963), is deposited in G. Frey's collection in Basel (Switzerland).

**Material.** Azerbaijan: Nakhichevan, 5.V.1933 (A. Bogačev), 1 ♀ [IZAz]; Nakhichevan, Araks, 30.IV.1923, 4.V.1923, 27.IV.1933 (A. Bogačev), 2 ♂, 1 ♀ [ZMMSU]; same locality, 11.V.1955 (S. Iablokoff-Khuzorian), 1 ♀ [IZAr]; Ilanludag, V.1933, 2000 m (A. Bogačev), 1 ♂, 1 ♀ [ZMMSU]; Nakhichevan, northern slope of Ilanludag, 22.V.1957 (S. Iablokoff-Khuzorian), 1 ♀ [CKh]; Armenia: Yerevan (Malyushenko), 1 ♂ [IZAr]; Megri, 30.IV.1938 (A.A. Richter), 1 ♂ [ZIN]; Ekhegnadzor Distr., Chai-kend, 22.VIII.1950 (S. Iablokoff-Khuzorian), 1 ♂ [CKh]; environs of Yerevan, Aigrmudz, 19.V.1952 (S. Iablokoff-Khuzorian), 1 ♀ [CKh]; Urts, Kyarki, 1180 m, 28.V.1958 (S. Iablokoff-Khuzorian), 1 ♂ [CKh].



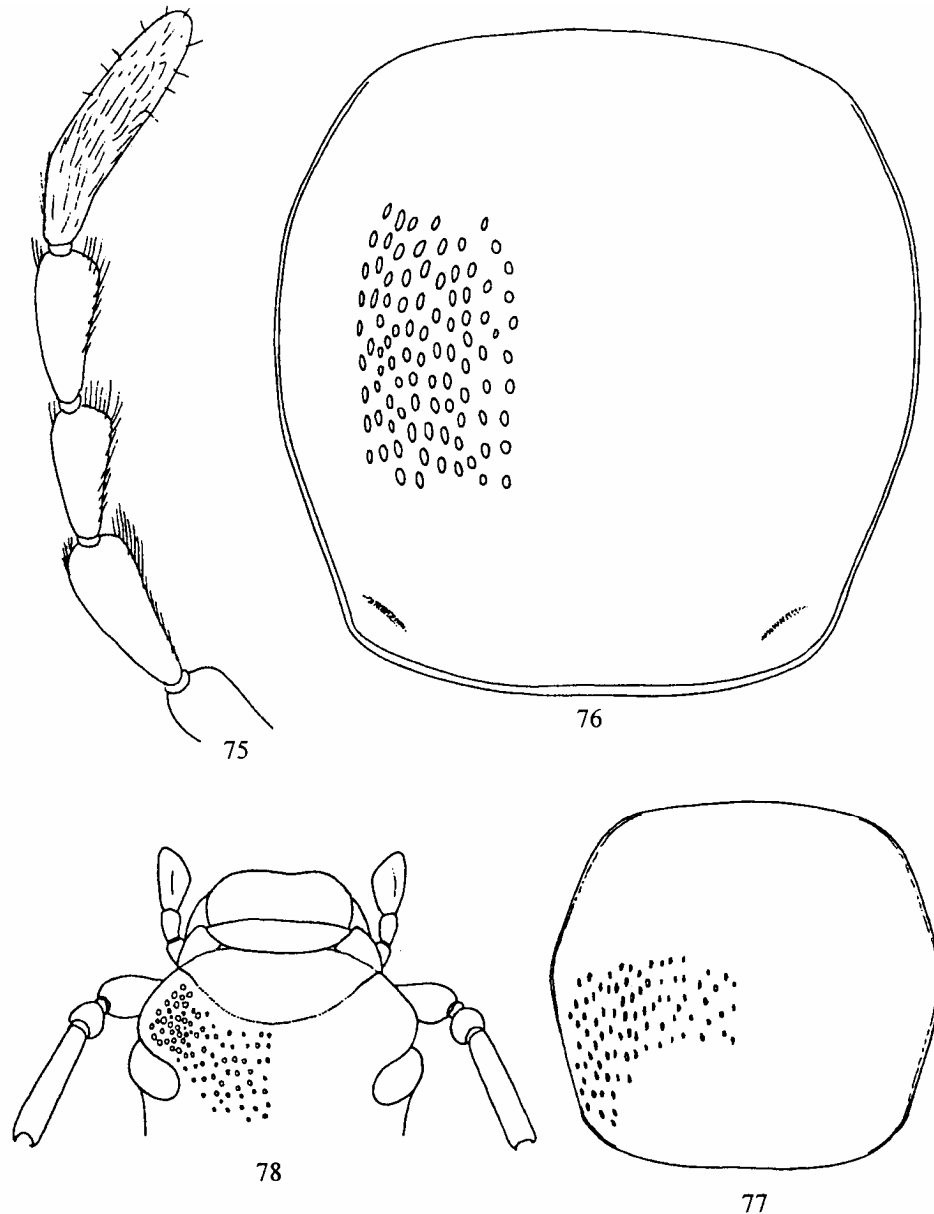


**Figs. 70–74.** *Catomus antoniae* Rtt.: (70) pronotum of female; (71) aedeagus, ventral view; (72) aedeagus, lateral view; (73) spiculum gastrale; (74) apex of antennae.

**Notes on systematics.** The species was placed by Reitter (1922) in the subgenus *Stenomacidius* on the basis of the pubescent abdominal sternites. The species possesses typical characters of *Catomus* s. str., and I include it in this subgenus.

*Catomus* (s. str.) *indubitatus* Nabozhenko, sp. n.  
(Figs. 75–84)

**Description. Male.** Body very slender, elongate, dark brown, rarely black. Antennae and legs dark brown. Surface with weak greasy lustre.

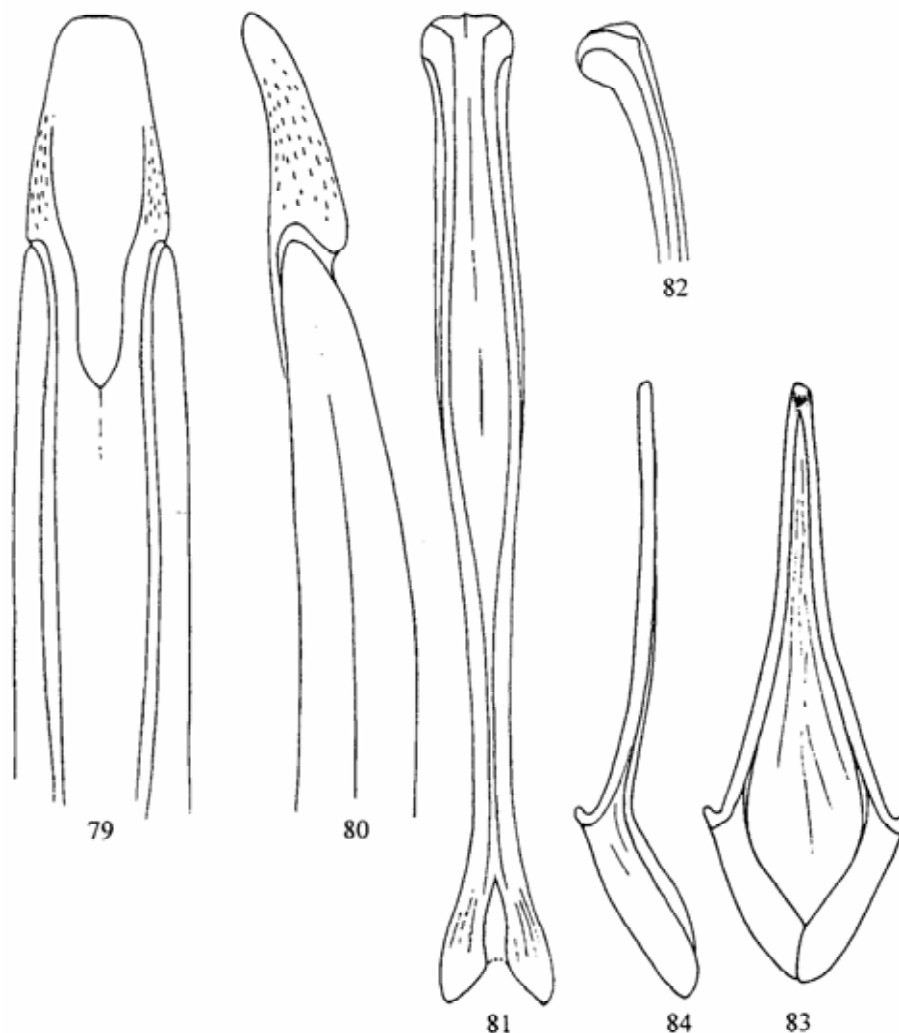


**Figs. 75–78.** *Catomus indubitatus* sp. n.: (75) apex of antenna of male, (76) pronotum of male, (77) pronotum of female, (78) head of male.

Head widest at level of eyes. Eyes convex, widely spaced. Ratio of width of head at level of eyes to distance between eyes 1.4. Temples in dorsal view inconspicuous, gently turning into neck constriction. Genal lobes elevated, outer sides of genae strongly rounded at base and straight up to clypeus. Outer sides of head forming obtuse angle at junction of gena and clypeus. Anterior margin of clypeus deeply emarginate. Surface of clypeus depressed from anterior margin up to of frons; only angles of clypeus convex, in form of triangle separated from genal lobes by suture. Punctuation of head not dense, moderately coarse. Distance between punctures twice puncture diameter. Antennae very

long, projecting beyond middle of elytra, with 5 apical segments projecting beyond base of pronotum. Length to width ratios of 2nd–11th antennal segments 1.0, 3.0, 2.0, 2.0, 2.25, 2.25, 2.2, 2.0, 2.2, 3.6. Third antennal segment 4 times as long as 2nd and 1.5 times as long as 4th segment; 11th segment strongly elongate, 1.65 times as long as 10th.

Pronotum weakly oblong (1.02–1.03 times as long as wide,  $n = 4$ ), widest in middle. Sides weakly rounded. Angles widely rounded, obtuse-angled. Punctuation not coarse and sparse, punctures slightly elongate, distance between punctures 2–4 times puncture



**Figs. 79–84.** *Catomus indubitatus* sp. n., male: (79) aedeagus, ventral view; (80) aedeagus, lateral view; (81) penis, ventral view; (82) apex of penis, lateral view; (83) spiculum gastrale, ventral view; (84) spiculum gastrale, lateral view.

diameter. Propleura with shallow, smoothed wrinkles and very sparse punctation. Scutellum widely triangular. All margins of pronotum, except for anterior one, finely edged.

Punctures in rows on elytra elongate, merging into deep entire striae in some specimens only. Intervals flat, with fine and sparse punctation. In some specimens, intervals with coarse transverse wrinkles. Upper edging of epipleura distinct only at apex, being as wide there as 9th interval. Metasternum with golden hairs in middle.

Abdominal sternites with very sparse and fine punctation, sternite I with sparse hairs, sternite V with denser pubescence at apex.

Trochantins with brushes of long erect hairs, femora and tibiae with golden subrecumbent hairs on inner

surfaces. Tibiae straight, tarsi with brushes of golden hairs on sole surfaces.

**Female.** Body more robust. Antennae short, with only 2 apical segments projecting beyond base of pronotum. Length to width ratios of 3rd–11th antennal segments: 4.2, 2.3, 2.5, 2.65, 2.4, 2.4, 2.3, 2.0, 2.4; 2nd segment transverse (1.2 times as wide as long). Third segment 5 times as long as 2nd and 1.8 times as long as 4th; 11th segment 1.4 times as long as 10th.

Pronotum only slightly transverse, nearly as wide as long (width only 1.06 times length), widest in middle, 1.25 times as wide as head, in form of regular hexagon. Sides strongly rounded in middle and weakly rounded before and behind middle, anterior margin and base regularly weakly rounded. Elytra elongate, cylindrical, twice as long as wide, 1.35 times as wide as pronotum.

Length of body 7–10 mm, maximum width 3.6 mm.

**Etymology.** The word “indubitatus” means “doubtless” in Latin.

**Mode of life.** According to the labels, the species inhabits the belt of semi-arid low mountains at a height of 900 m. A.V. Bogachev collected the beetles on pistachio trunks.

Holotype: ♂, Zeravshanskii Mt. Range, Lakes Marguzorskie, 19.V.1967 (I. Lopatin) [ZIN]. Paratypes. 1 ♀, Tajikistan, Koktau Mt. Range, Gandzhina Vill., NW of Kurgan Tyube, 3.IV.1964 (I. Lopatin) [ZIN]; 6 ♂, 2 ♀, same locality, with identical labels: “m-tes Koktau, Gandzhina, merid. versus ab Dushanbe, 900 m, on pistachio trunk, 2.IV.1964 (A. Bogačev) [ZMMSU].

**Comparative diagnosis.** The species is closely related to *C. antennatus* Bog. and different from it in the absence of dense pubescence on the dorsal and ventral sides of the body, in the sparser and fine punctation of the pronotum, and in the not asperate punctation of intervals of the elytra.

*Catomus* (s. str.) *noctivagus* Nabozhenko, sp. n.  
(Figs. 85)

**Description. Female.** Body dark brown, with greasy lustre, hairless dorsally, densely pubescent ventrally. Anterior margin of clypeus widely and deeply emarginate. Outer margin of head widely shallowly emarginate at junction of gena and clypeus, without sharp excision. Genae rounded in basal half, straight in anterior part. Eyes large, convex, with lower margin strongly slanting forwards; ratio of width of head at level of eyes to distance between eyes 1.4. Surface of head covered with pale recumbent hairs, middle of frons glabrous. Clypeus not separated from frons at center, surface of frons gently turning into that of clypeus. Clypeus not depressed at center, but with deep round depression at either side. Punctuation of head irregular: dense and fine on clypeus, coarse and dense at sides of frons (puncture diameter twice distance between punctures), and moderately coarse and sparse at center of head. Antennae rather long, with 2 apical segments projecting beyond base of pronotum. Antennal segments densely pubescent, each with long erect hairs at apex.

Pronotum strongly convex, nearly spherical, transverse, widest slightly before, or in middle. Sides and base regularly strongly rounded; anterior margin weak-

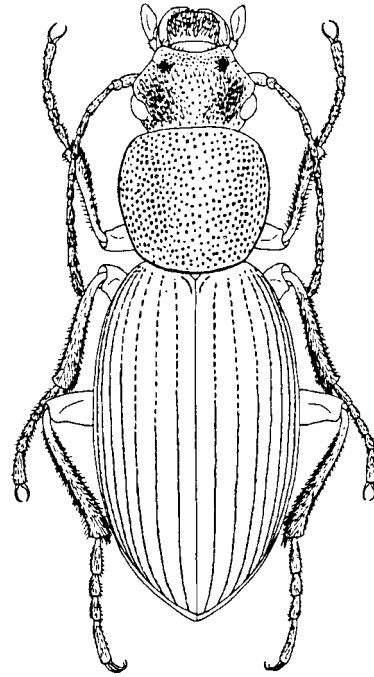


Fig. 85. *Catomus noctivagus* sp. n., female, habitus.

ly rounded. Angles smoothed, widely rounded, indistinct. Base and sides finely edged. Punctuation moderately coarse, not dense (puncture diameter equal to, or 1.0–1.5 times exceeding distance between punctures); punctuation at sides slightly coarser than that on disc, with slightly elongate punctures. Propleura with fine confused wrinkles and sparse punctation. Prosternal process between fore coxae not convex, nearly horizontally descending toward margin of prothorax in lateral view.

Elytra elongate-oval, intervals only slightly convex, with fine and sparse punctation. Punctures in rows not merging into entire distinct striae in medial parts of elytral disc in basal half.

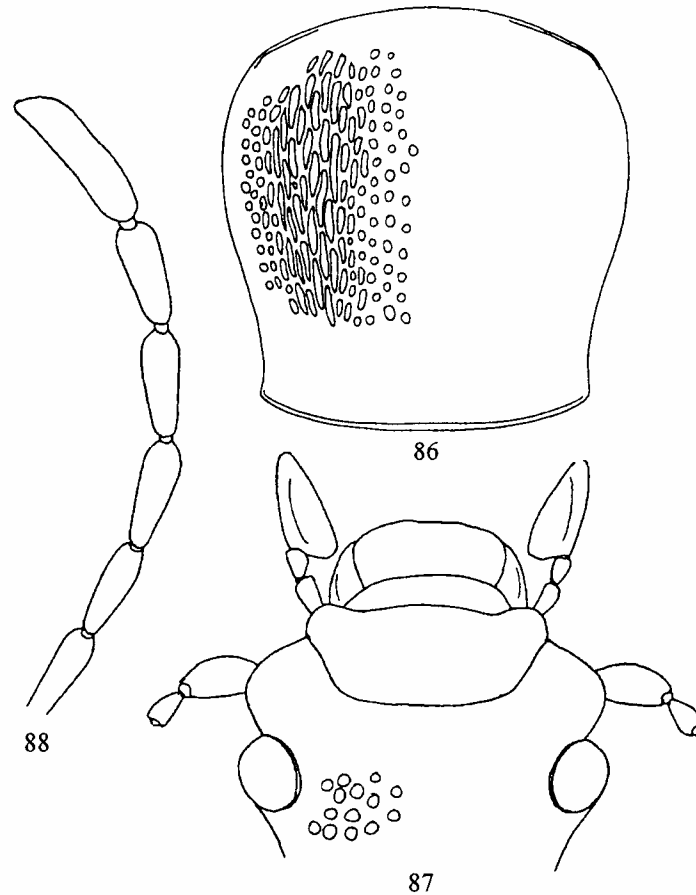
Abdominal sternites coarsely punctate, with long recumbent golden hairs.

Legs with very dense long erect and subrecumbent hairs. Fore tibia with erect hairs along outer margin. Hind tibia weakly widely incurved.

Length of body 8–9 mm.

**Etymology.** The name of species is translated from Latin as “wandering at night.”

Holotype: ♀, Uzbekistan: Ishkent, Tutak-ata, environs of Dzhakkabad, 1600 m, 3.V.1942 (K. Arnoldi). Paratype: ♀, Tutak-ata, environs of Dzhakkabad,



Figs. 86–88. *Catomus pilosulus* (Kr.), male: (86) pronotum, (87) head, (88) apex of antenna.

1800 m, 20.IV.1942 (K. Arnoldi). The types deposited in ZMMSU.

**Mode of life** is unknown. Judging from the labels, the species inhabits semi-arid areas of the mid-altitude mountains. The large convex eyes testify to the twilight or nocturnal activity.

**Comparative diagnosis.** The species is closely related to *Catomus antennatus* Bog. and *C. indubitatus* sp. n., but differs from them in the medially not depressed clypeus with not separated angles and in the strongly convex pronotum. It additionally differs from the first species in the simple punctation of the elytral intervals and in the hairless elytra; from *C. indubitatus* sp. n., the new species additionally differs in the ventrally pubescent body.

Subgenus *Montanocatomus* Nabozhenko, subgen. n.

Type species *Catomus grandis* G. Medvedev, 1978.

**Description.** Body large, slender, elongate. Head with deep transverse depression along frontoclypeal suture. Anterior margin of clypeus trisinate. Antennae long, with clearly elongate segments; ultimate

segment elongate, strongly asymmetrical (banana-shaped). Angular emargination at junction of gena and clypeus distinct at either side. Eyes large, clearly convex.

Posterior angles of pronotum acute-angled or rectangular apically, always distinct. Vertical basal margin of base of pronotum distinct, especially near posterior angles.

Vertical basal margin of elytral base, against which base of pronotum resting, distinct; humeri distinct, rounded apically. Upper edging of epipleura wide, visible dorsally. Epipleura nearly reaching elytral apex, but disappearing before very apex. Fore and middle tarsi of male not widened.

Penis with tripartite apex. Lateral apical lobes situated lower than central one, at level of sclerites.

**Comparative diagnosis.** *Montanocatomus* is closely related to the nominotypical subgenus, but differs from it in the trisinate clypeus, presence of humeral calli and vertical basal margin of the elytral base, distinct posterior angles of the pronotum, distinct upper

margin of the epipleura, not widened tarsi of the male, and shape of the penis.

*Catomus (Montanocatopus) pilosulus* (Kraatz, 1886)  
(Figs. 86–91)

Kraatz in Heyden, Kraatz, 1886 : 190; Seidlitz, 1896 : 794 [*Hedyphanes (Catomidius)*]; Reitter, 1922 : 9 [*Catomus (Stenomacidius)*].—*gracilicollis* Kraatz in Heyden, Kraatz, 1886 : 189 (*Stenomax*).

**Data in catalogs.** Gebien, 1943 : 409 (788) [*Catomus (Stenomacidius) pilosulus*, *C. (Stenomacidius) gracilicollis*].

**Description. Male.** Body slender, brownish, shining, covered dorsally with sparse recumbent hairs, more densely pubescent ventrally. Anterior margin of clypeus bisinuate. Genae strongly rounded in middle. Outer margin of head with distinct wide obtuse-angled emargination at junction of gena and clypeus. Surface of clypeus distinctly depressed relative to frons. Punctuation of head coarse and dense (puncture diameter 1.5 times distance between punctures), punctures round. Eyes rounded in dorsal view, reniform in lateral view. Antennae long, with 3 apical segments projecting beyond base of pronotum.

Pronotum weakly oblong (length 1.04 times width), cordate. Sides distinctly rounded, widely emarginate in basal 1/3. Anterior margin distinctly rounded, base weakly rounded; posterior angles slightly obtuse-angled, distinct, not rounded apically. Disc with weak slanting depression at either side near posterior angles. Sides not edged, base finely edged, anterior margin edged only at sides. Punctuation very coarse and dense at sides of disc; punctures there strongly elongate, merging into long grooves; round and not merging near lateral margins. At center of disc, punctuation rather sparse (puncture diameter subequal to distance between punctures). Propleura with asperate punctuation and recumbent pale hairs.

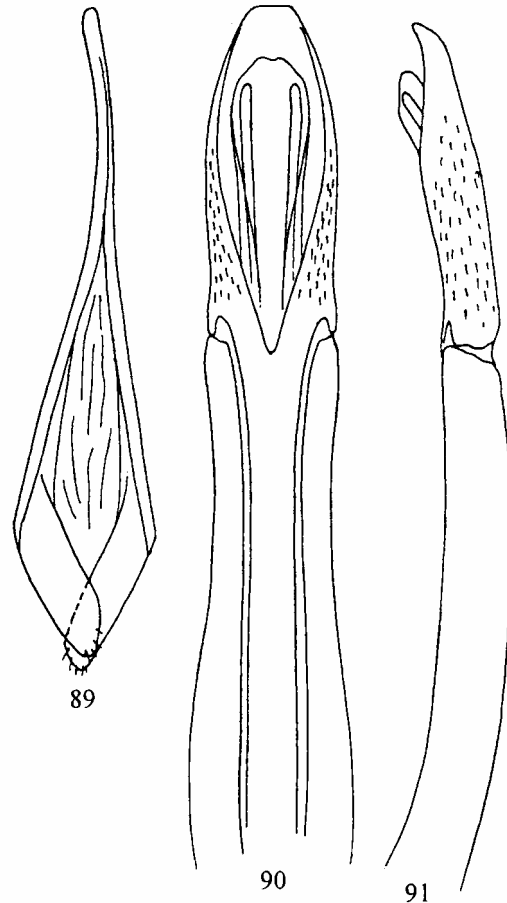
Elytra elongate, with weakly rounded sides. Intervals flat, with shallow rather fine asperate punctuation. Rows of punctures on elytra inconspicuous, punctures not merging into entire striae. Epipleura with shallow asperate punctuation.

Abdominal sternites with dense punctures merging into smoothed wrinkles at sides of sternites.

Tibiae slender, straight. Fore tarsus not widened.

**Female.** Body more robust. Pronotum transverse.

Length of body 8–12.5 mm.



Figs. 89–91. *Catomus pilosulus* (Kr.), male: (89) spiculum gastrale; (90) aedeagus, ventral view; (91) aedeagus, lateral view.

**Mode of life** unknown.

**Distribution.** Northern slopes of the Alai Mt. Range as far in the north as Ferghana.

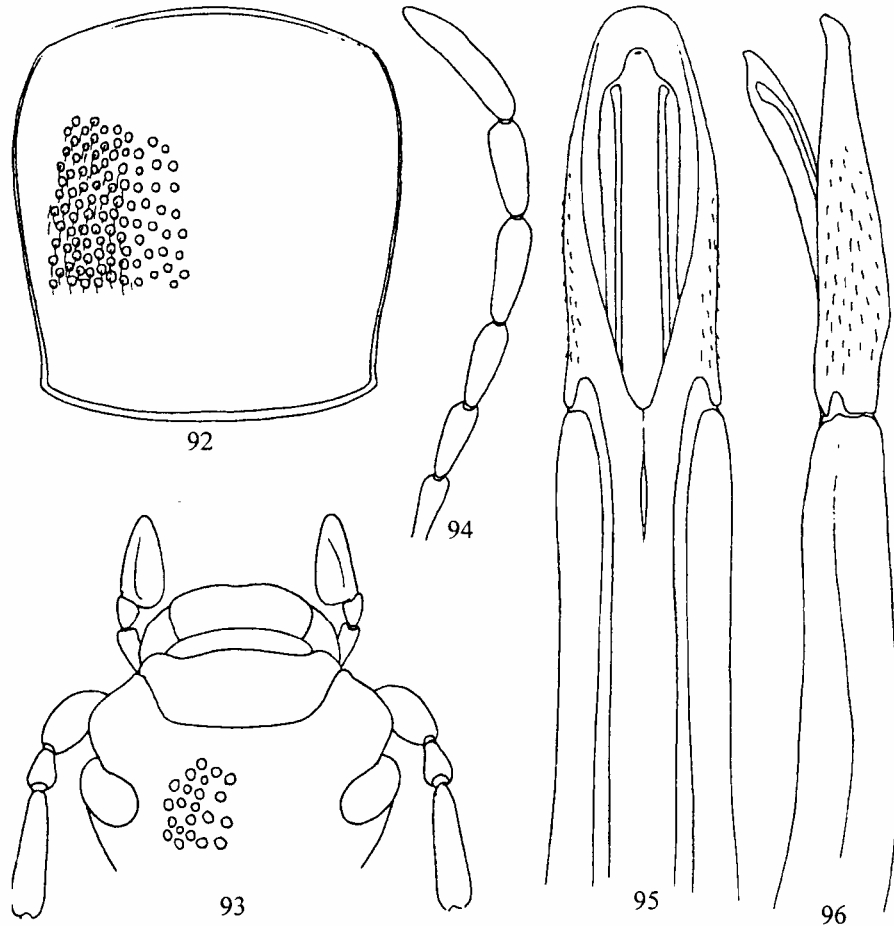
**Type material.** Holotype *Catomus pilosulus* (♀) [DEI]: “Ferghana Jakowleff,” “Holotypus” (added by curators of collection), “*Catomus pilosus* mihi 86,” a blue square.

Holotype *Catomus gracilicollis* (♂) [DEI]: “Alai Turcest. Staudingr.,” “293,” “Holotypus” (added by curators of collection), “*Helops gracilicollis* mihi 86,” a blue square.

**Material.** Only the type material has been examined.

*Catomus (Montanocatopus) reinigi*  
(Schuster in Reinig, 1931) (Figs. 92–96)

Schuster in Reinig, 1931 : 903 (*Stenomacidius*).—*alaensis* G. Medvedev {Medvedev, 1970 : 394–395 [*Catomus (Stenomacidius)*]}, **syn. n.**



**Figs. 92–96.** *Catomus reinigi* (Schust.), male: (92) pronotum; (93) head; (94) apex of antenna; (95) aedeagus, ventral view; (96) aedeagus, lateral view.

**Data in catalogs.** Gebien, 1943 : 409 (788) [*Catomus* (*Stenomacidius*) *reinigi*].

**Description. Male.** Body slender, brownish, shining, covered with recumbent pale hairs. Anterior margin of clypeus bisinuate. Outer margin of head with inconspicuous emargination at junction of gena and clypeus. Eyes reniform, strongly elongate. Surface of clypeus distinctly depressed against rest of head. Punctuation of head coarse and dense (puncture diameter twice distance between punctures). Head covered with long subrecumbent hairs. Antennae very long, nearly reaching middle of elytra, with 4 apical segments projecting beyond base of pronotum. Ultimate segment strongly elongate and curved.

Pronotum oblong (1.05 times as long as wide), widest before middle. Sides weakly rounded, shortly emarginate at base. Anterior margin and base weakly rounded, base shortly emarginate in middle; posterior angles distinct, rectangular, shortly rounded apically. Punctuation coarse, rather dense (puncture diameter

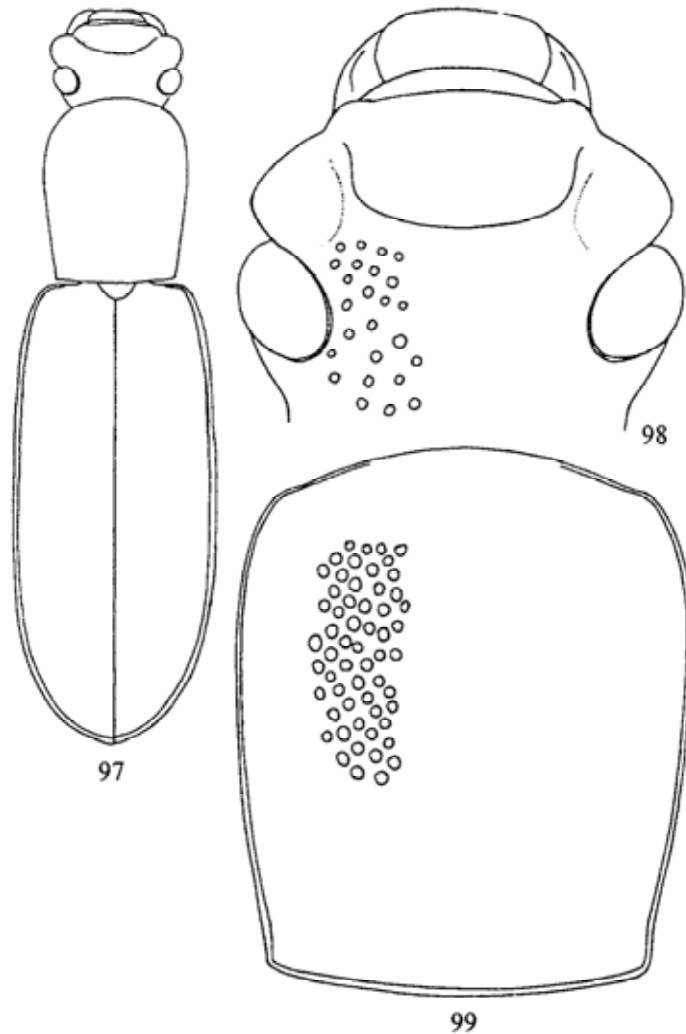
equal to, or 1.5 times as great as distance between punctures). Disc regularly convex, but posterior angles separated from surface of disc by slanting depression at either side. All margins finely edged. Propleura with coarse asperate punctation, densely covered with recumbent hairs.

Elytra strongly elongate, with weakly rounded sides. Humeri distinct, obtuse-angled, widely rounded apically. Rows of punctures on elytra inconspicuous, punctures not merging into entire striae. Intervals flat, with dense asperate punctation.

Abdominal sternites with fine, very dense, weakly asperate punctation.

Legs long, tibiae slender and straight.

**Female.** Body more robust. Antennae shorter, with only two apical segments projecting beyond base of pronotum. Pronotum somewhat wider than, or as wide as long.



Figs. 97–99. *Catomus badachshanicus* G. Medv., male: (97) habitus, (98) head, (99) pronotum.

Length of body 9–12 mm.

**Notes on taxonomy.** Until now, this species was often misidentified as *C. pilosulus*, from which *C. reinigi* differs in a number of constant characters in structure of the pronotum, elytra, and male genitalia. In addition, *C. reinigi* is distributed over the southern slopes of the Alai Mt. Range and to the south of the range, up to the Ishkashimskii Mt. Range at the border with Afghanistan, while *C. pilosulus* is known from the northern slopes of the Alai Mt. Range up to Ferghana in the north.

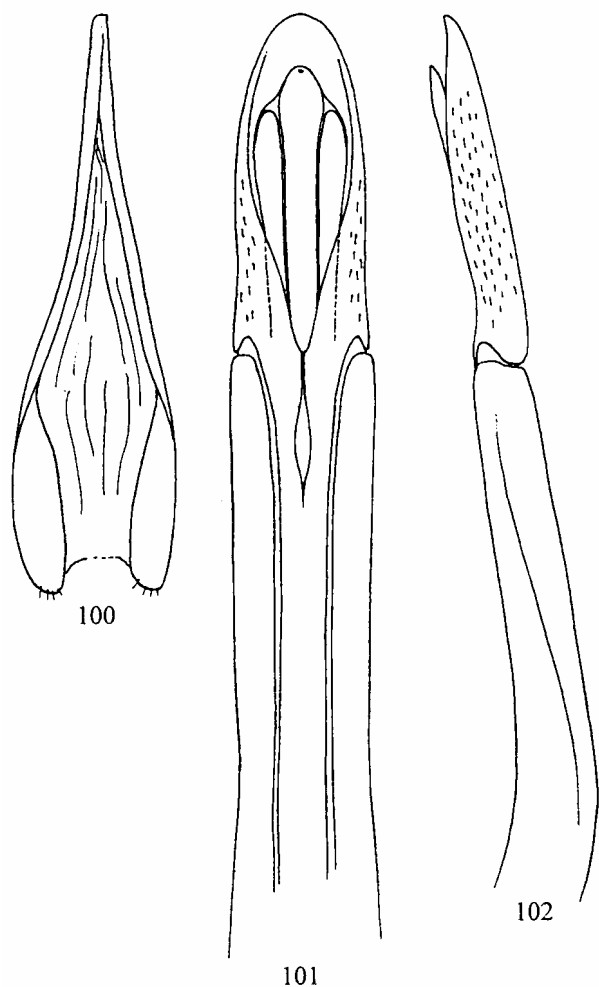
**Mode of life** unknown.

**Distribution.** The southern slopes of the Alai Mt. Range, western Pamir. The label “Issyk Kul, Tamga” is probably erroneous, at least the extensive material in the ZIN collection from the southern shore of Lake Issyk Kul does not confirm this record.

**Type material.** *Catomus reinigi*. Lectotype (♂) is designated here [ZMIB], labeled “West Pamir VII–X.28. leg. Reinig,” “Maz 3800 m und Stein 17/8,” “Typus,” “*Stenomacidius reinigi* m. n. sp. det. Schuster,” “Collectie C. et O. Vogt. Acq. 1960.” Paralectotypes [ZMIB]: 3 ♀ with labels: “West-Pamir VII.-X. 28 leg. Reinig” “Altin-Mazar 27.IX. 2800 m.,” “Collectie C. et O. Vogt. Acq. 1960;” 1 ♀ with labels: “West-Pamir VII–X.28 leg. Reinig,” “Maz 3800 m. 15–19.VIII,” “Collectie C. et O. Vogt. Acq. 1960.” Part of paralectotypes is in G. Frey’s collection in Basel (Kulzer, 1963).

*Catomus alaensis*, holotype (♀) [ZIN]: Alai, 14–15.VI.1889 (B. Grombchevskii). G.S. Medvedev indicated in the description that from June, 14 till June, 15, 1889, the B. Grombchevskii’s expedition was in Dzhekandy near Katta-Karamuk in the Kyzylsu River valley at the border between Tajikistan and Kyrgyzstan.





**Figs. 100–102.** *Catomus badachshanicus* G. Medv., male: (100) spiculum gastrale; (101) aedeagus, ventral view; (102) aedeagus, lateral view.

**Material.** Tajikistan. Alai, 20.VII.1960 (A. Bogačev), 1 ♂, 1 ♀ [ZMMSU]; Ishkashimskii Mt. Range, 6 km N of Ishkashim, slopes of Abkharv River canyon, 15.VII.1989 (L. Egorov), 2 ♀ [ZIN]; Kirghizia. Southern shore of Issyk Kul, Tamga, VII.1946 (A. Lyubishchev), 1 ♀ [ZMMSU]; Alai Valley, Daraut-Kurgan, 2800 m, 2.VII.1971 (Emets), 1 ♀ [ZIN]; Alai Mt. Range, near Taldyk Pass, 3500 m, 16.VI.1961 (Zaslavskii), 1 ♀ [ZIN]; western part of Zaalaiskii Mt. Range, Tersagar Pass, 3600 m, 24–25.VII.1971 (Emets), 1 ♂ [ZIN].

*Catomus (Montanocatomus) badachshanicus*  
G. Medvedev, 1970 (Figs. 97–102)

Medvedev, 1970 : 393–394 [*Catomus (Stenomacidius)*].

**Description. Male.** Body slender, hairless, brownish, with greasy shine.

Anterior margin of clypeus widely rounded. Genae angularly rounded at center, weakly rounded in anterior part. Outer margin of head with widely obtuse-angled, rarely distinct emargination at junction of gena and clypeus. Eyes large, reniform. Punctuation of head moderately coarse, not dense (puncture diameter on frons equal to distance between punctures, or to 2/3 of this distance). Gular emargination on underside of head forming acute tooth-shaped prominence at either side.

Pronotum oblong (1.2 times as long as wide), cordate, widest before middle. Sides very weakly rounded, only slightly emarginate at base; anterior margin and base weakly rounded; posterior angles distinct, very narrowly rounded and obtuse-angled apically. All margins of pronotum very finely edged, edging of anterior margin obliterated in middle. Punctuation coarse, moderately dense (puncture diameter equal to, or 1.3–2.0 times exceeding distance between punctures). Propleura with dense simple punctuation and very fine wrinkles.

Elytra elongate, nearly parallel-sided. Humeri distinct, obtuse-angled, narrowly rounded apically. Punctures in rows on elytra elongate, merging into entire striae. Intervals flat, with coarse, sparse punctuation.

Abdominal sternites with fine recumbent golden hairs.

Length of body 7.5 mm.

**Mode of life** unknown.

**Distribution.** The southern part of Badakhshan (Shakhdarinskii Mt. Range)

**Type material.** Holotype (♂) [ZIN]: Tajikistan, Gorno-Badakhshanskaya Autonomous Region, Shakhdarinskii Mt. Range, Kukhilal (60 km S of Khorog), 7.VII.1964 (G.S. Medvedev). The holotype is damaged; fore legs, one middle and one hind legs, and also antennae are missing.

**Material.** Only the holotype has been examined.

*Catomus (Montanocatomus) grandis* G. Medvedev, 1978 (Figs. 103–107)

Medvedev, 1978 : 50–51 [*Catomus (Stenomacidius)*].

**Description. Male.** Body slender, black or dark brown, with greasy shine, hairless dorsally. Head covered with recumbent pale hairs. Anterior margin of

clypeus straight, bisinuate, or widely emarginate. Genae strongly rounded. Outer margin of head with obsolete (rarely distinct) emargination. Eyes large, with lower margin slanting forwards in dorsal view. Punctuation of head coarse and dense (puncture diameter twice distance between punctures). Antennae very long, 4 apical segments projecting beyond base of pronotum.

Pronotum weakly oblong (1.02 times as long as wide), cordate, widest before middle. Sides moderately rounded, widely emarginate in basal 1/3; base weakly rounded, anterior margin distinctly rounded. Posterior angles distinct, tapered apically; less frequently, narrowly rounded, acute, or rectangular, occasionally slightly obtuse-angled. Disc regularly convex, with wide slanting depression at posterior angles at either side, therefore, angles appearing elevated. All margins of pronotum finely edged, edging of anterior margin obliterated in middle. Punctuation coarse and dense (puncture diameter 1.5–2.0 times distance between punctures). Propleura densely and coarsely punctate.

Elytra elongate, oval. Humeri distinct, rounded apically. Intervals flat, with simple, moderately coarse punctuation. Punctures in rows partly or entirely merging into entire striae, usually not merging in medial part of disc.

Abdominal sternites with pale recumbent hairs.

Fore and middle tibiae straight, hind tibia slightly incurved. Tarsi very long, middle tarsus 0.91 times as long as middle tibia, hind tarsus 0.83 times as long as hind tibia.

Length of body 8.0–13.2 mm.

**Mode of life.** The species inhabits the mountain-steppe belt. It is active at twilight, in the daytime occurs under stones and lumps of soil.

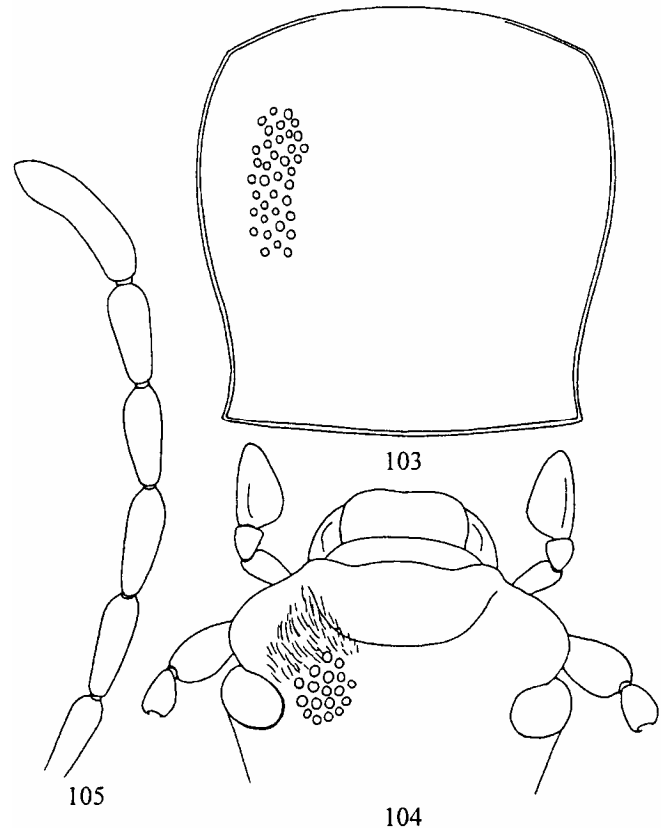
**Distribution.** The Alai Mt. Range, southern Badkhashan.

**Type material** [ZIN]. Holotype (♂) and paratypes (2 ♀): Kyrghyzstan, Alai Mt. Range, Osh–Sufi-Kurgan, 4.VI.1965 (G.S. Medvedev).

**Material.** Kyrghyzstan. Alai Mt. Range, 10 km S of Sopus-Korongon, Gulcha River valley, 2400 m, 14.VII.1989 (L.V. Egorov), 1 ♂, 2 ♀.

*Catomus (Montanocatomus) fabiani* Nabozhenko, sp. n. (Figs. 108–112)

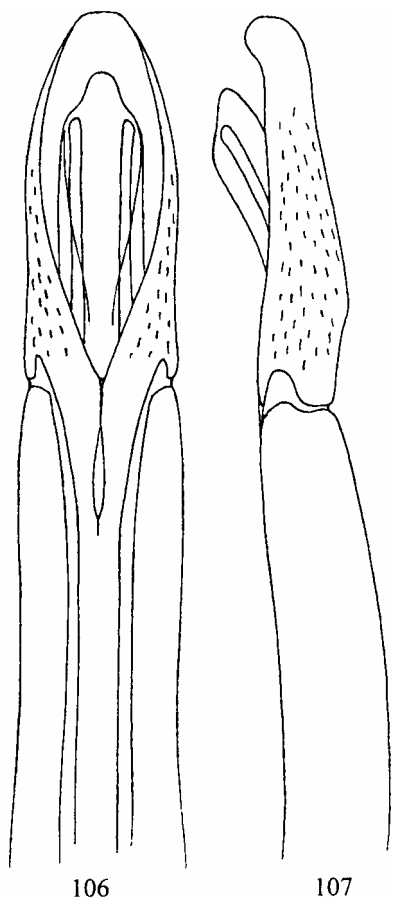
**Description. Male.** Body slender, cylindrical, shining, rufous brown. Head widest at level of eyes. Eyes



**Figs. 103–105.** *Catomus grandis* G. Medv., male: (103) pronotum, (104) head, (105) apex of antenna.

large, convex. Ratio of width of head at level of eyes to distance between eyes 1.5. Clypeus shallowly and widely emarginate. Junction of gena and clypeus with wide obtuse-angled emargination. Genae regularly strongly rounded, elevated above surface of head. Clypeus separated from frons by wide transverse depression. Punctuation of head coarse and dense; punctures deep, round, slightly elongate near eyes, separated by distance 2–3 times puncture diameter. Temples weakly rounded in dorsal view, nearly straight. Head covered with pale recumbent short hairs (in lateral view). Antennae long, with 4 apical segments projecting beyond base of pronotum, nearly reaching middle of elytra. Antennal segments fine; 3rd segment 2.6 times as long as 2nd and 1.3 times as long as 4th; 11th segment elongate, banana-shaped, 1.3 times as long as 10th.

Pronotum slightly transverse, widest before middle; width to length ratio 1.05. Sides weakly rounded only in anterior half, nearly straight from widest part up to base, weakly widely emarginate at posterior angles. Base rounded near posterior angles, shallowly emarginate in middle. Anterior margin regularly rounded.



**Figs. 106, 107.** *Catomus grandis* G. Medv., male: (106) aedeagus, ventral view; (107) aedeagus, lateral view.

Sides and base very finely edged. Posterior angles obtuse-angled, slightly projecting, narrowly rounded apically; anterior angles widely rounded, obtuse-angled. Disc longitudinally cylindrically convex, slightly elevated in area of posterior angles. Punctuation very coarse and dense (puncture diameter 3–4 times distance between punctures); punctures elongate at sides of disc, merging in places. Propleura very densely and coarsely covered with elongate, frequently merging punctures and very fine recumbent golden hairs.

Elytra elongate, cylindrical, nearly parallel-sided (only slightly rounded), 2.5 times as long, and 1.3 times as wide as pronotum. Punctures in rows merging into entire deep striae. Intervals only slightly convex, with transverse wrinkles and coarse simple punctures; 11th interval and elytral margin merging with it distinctly convex at apex. Epipleura punctate similar to intervals. Humeral angles obtuse-angled, widely rounded, distinct.

Body ventrally covered with recumbent golden hairs. Abdominal sternites with simple coarse punctuation, hairs on anal sternite suberect.

Holotype with fore tibia missing, middle and hind tibiae straight. First segment of hind tarsus 1.1 times as long as claw-segment.

**Aedeagus.** Apex of parameres evenly rounded, without truncate part. Sclerites of penis, in contrast to those in other species of the subgenus *Montanocatomus*, not diverging at apex.

Spiculum gastrale typical of the genus *Catomus*, differing from that in closely related species in the presence of teeth at base of baculiform sclerites.

Length of body 9 mm, width 2.9 mm.

**Female.** Body larger and more robust. Pronotum more transverse, disc strongly elevated and flattened near posterior angles, so that latter separated from rest of disc by superficial oblique groove at either side.

Antennae much shorter than those in male, with 3 apical segments projecting beyond base of pronotum, but reaching only 1/5 of length of elytra. Elytra elongate-oval, with weakly rounded sides; striae frequently interrupted; intervals absolutely flat, without transverse wrinkles.

Length of body 12.4 mm, width 4.4 mm.

**Material.** Holotype [HNHM]: ♂, labeled “Kazakhstan, Prov. Almaty, M. Toraygir, Charin valley, 7 km SE Pass Alasau, 1000 m, 79°24'E, 43°26'N, 13–15.V.1994, leg. Gy. Fábíán and I. Retezár,” “Holotypus *Catomus fabiani* sp. n., det. Nabozhenko.” Paratype [ZIN]: ♀, labeled “Kazakhstan, Prov. Almaty, Zailisky Alatau, Bokaydin-tau, 4 km S Malibay, 850–1450 m, 78°24'E, 43°26'N, 13–15.V.1994, leg. Gy. Fábíán and I. Retezár,” “Paratypus *Catomus fabiani* sp. n., det. Nabozhenko.”

**Comparative diagnosis.** The species is closely related to *Catomus (Montanocatomus) grandis* G. Medvedev, 1978. For the differences of these species, see key below.

**Etymology.** The species is named for Gy. Fábíán, one of the entomologists, who have collected the species.

Subgenus *Sinocatomus* Nabozhenko, subgen. n.

Type species *Catomus solitarius* sp. n.

**Description.** Body elongate, cylindrical, with bronze shine. Outer margin of clypeus widely and deeply emarginate. Ultimate antennal segment of female weakly asymmetrical and short, 1.05 times as

long as 10th segment, nearly lanceolate. Vertical basal margin of elytral base, against which pronotum should rest, and humeri absent; 8th elytral interval carinate at apex and connected with margin of elytra.

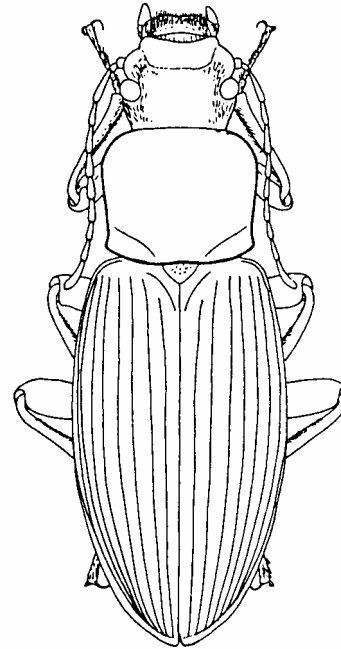
**Comparative diagnosis.** The subgenus differs from *Montanocatomus* and the nominotypical subgenus in the convex apex of 8th interval of the elytra. The 11th antennal segment in the representative of *Sinocatomus* is, in contrast to that in the above subgenera, weakly asymmetrical, nearly lanceolate. The new subgenus also differs from *Montanocatomus* in the absence of a vertical basal margin of the elytral base.

*Catomus (Sinocatomus) solitarius* Nabozhenko, sp. n.  
(Figs. 113, 114)

**Description.** Body elongate, cylindrical, dark brown, with bronze shine; legs and antennae dark brown.

Head widest at level of eyes. Eyes convex, widely spaced. Ratio of width of head at level of eyes to distance between eyes 1.4. Temples inconspicuous, straightly converging toward neck constriction. Genal lobe distinctly elevated, with strongly rounded outer margin. Outer margin of head forming obtuse, but distinct angle at junction of gena and clypeus. Outer margin of clypeus deeply emarginate, its surface depressed up to frontoclypeal suture; lateral areas of clypeus not depressed and levelling with genal lobe. Surface of head medial to eyes with short, recumbent pale hairs. Punctuation very coarse and dense, consisting of large and rounded punctures; puncture diameter 3–5 times distance between punctures. Antennae rather long, with 2 apical segments projecting beyond base of pronotum; 6–11th antennal segments distinctly flattened; ultimate segment symmetrical, weakly elongate; length to width ratio of 3rd–11th segments: 3.75, 1.9, 2.1, 2.4, 2.7, 2.55, 2.1, 1.7, 1.8; 2nd segment transverse (1.14 times as wide as long); 3rd segment 4.3 times as long as 2nd and 1.8 times as long as 4th; 11th only 1.05 times as long as 10th.

Pronotum as long as wide, widest before middle, 4.7 times as wide as head. Sides distinctly rounded only in anterior third, very weakly rounded from widest part of pronotum up to base. Base and anterior margin regularly rounded along entire length. Anterior angles obtuse-angled and widely rounded; posterior angles slightly obtuse-angled, more distinct apically. Base and sides very finely edged, anterior margin not edged in middle. Disc regularly strongly convex, with very dense and coarse punctuation sparser in middle of disc.



**Fig. 108.** *Catomus fabiani* sp. n., female, general view.

Punctuation of propleura similar to that of pronotum, but sparser. Prosternal process weakly convex, with small distinct carina only at apex.

Scutellum cordate, coarsely punctate.

Elytra strongly elongate, cylindrical, 2.6 times as long as pronotum, twice as long as wide. Punctures in rows elongate, not merging into entire striae. Punctuation of intervals distinct, consisting of round punctures, distance between punctures 2–3 times puncture diameter. Intervals flat, 8th one carinate at apex. Upper edging of epipleura visible dorsally only at elytral apex, very indistinct in anterior half, more distinct in apical third, constituting there half width of 9th interval.

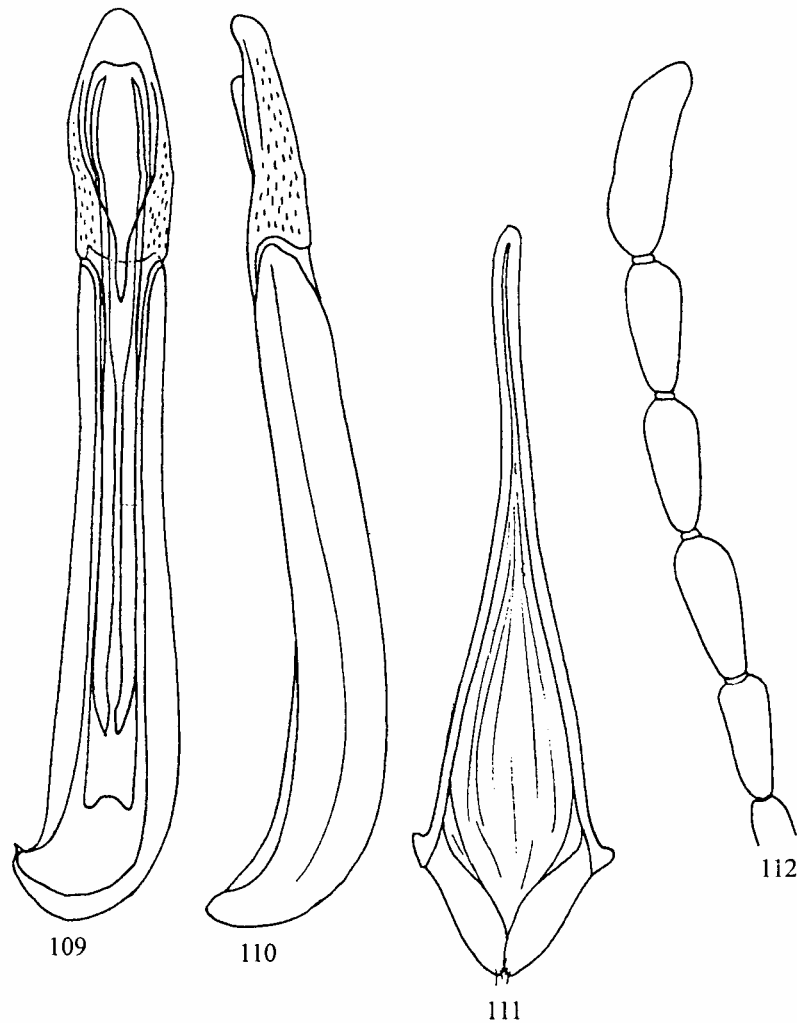
Mes- and metepisterna coarsely and densely punctate.

Abdominal sternites with sparse, moderately coarse punctuation, covered with recumbent pale hairs. Surface of 5th sternite edged at apex and densely covered with pale hairs.

Tibiae straight, densely covered with rufous hairs on inner side. Tarsal segments also with dense brush of rufous hairs on sole surfaces.

Length of body 13.5 mm, width 4.2 mm.

**Etymology.** The name of species is translated from Latin as “separately standing.”



**Figs. 109–112.** *Catomus fabiani* sp. n., male: (109) aedeagus, ventral view; (110) aedeagus, lateral view; (111) spiculum gastrale; (112) apex of antenna.

**Mode of life.** The species was collected from steppe slopes.

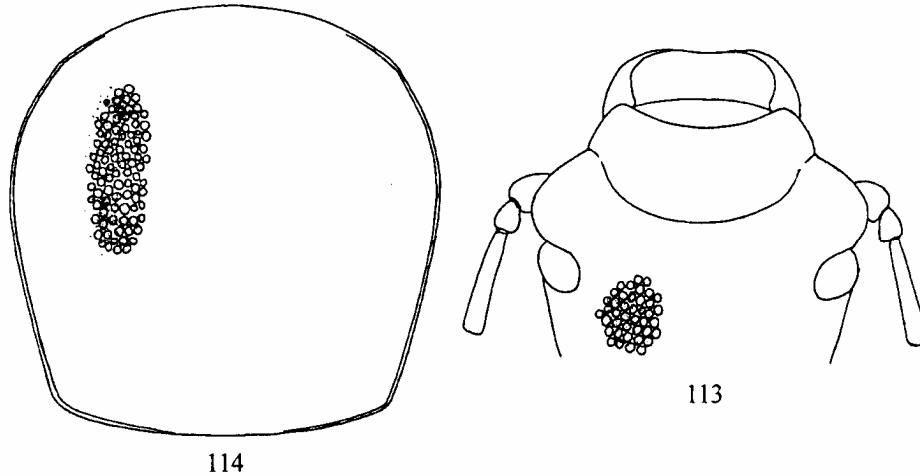
**Type material.** Holotype: ♀, China, Northern Sichuan, Nanping, 19.VI.2002 (I.V. Shokhin) [ZIN].

*A Key to Subgenera of the Genus Catomus Allard of the Fauna of China, Middle Asia, and the Caucasus*

- 1 (4). Elytra smoothly narrowed at base toward mesonotum, forming no fine vertical basal margin, against which base of pronotum usually resting. Humeral angles absent. Posterior angles of pronotum widely rounded. Anterior margin of clypeus always widely emarginate.
- 2 (3). 8th elytral interval at apex not convex and connected with 2nd interval. Ultimate antennal segment strongly elongate and asymmetrical, ba-

nana-shaped. Penis with bipartite apex .....  
..... *Catomus* s. str.

- 3 (2). Eight elytral interval at apex carinate and connected with margin of elytra. Ultimate antennal segment moderately elongate, lanceolate .....  
..... *Sinocatomus* subgen. n.
- 4 (1). Elytra forming at base fine vertical basal margin, against which base of pronotum resting. Humeri distinct, obtuse-angled, narrowly rounded apically. Posterior angles of pronotum with distinct apices, occasionally rectangular, obtuse-angled, or acute-angled. Anterior margin of clypeus with 3 shallow emarginations and slightly projecting lateral angles, very rarely widely emarginate. Ultimate antennal segment strongly elongate and strongly asymmetrical, banana-shaped. Penis



**Figs. 113, 114.** *Catomus solitarius* sp. n., female: (113) head, (114) pronotum.

with tripartite apex .....  
 ..... *Montanocatomus* subgen. n.

*A Key to Species  
 of the Subgenus Catomus of Middle Asia  
 and the Caucasus*

- 1 (4). Clypeus with elevated triangular prominences near angles separated from genae by clypeal suture. Central part of clypeus with flat transverse depression.
- 2 (3). Body covered with long recumbent hairs dorsally and ventrally. Intervals of elytra with asperate fine punctation. Punctation of pronotum coarse and dense, consisting of strongly elongate punctures ..... *C. antennatus* Bog.
- 3 (2). Body hairless dorsally and ventrally, only anal sternite with subrecumbent hairs. Intervals of elytra with simple punctation. Punctation of pronotum moderately coarse, rather fine, punctures at sides of disc weakly elongate .....  
 ..... *C. indubitatus* sp. n.
- 4 (1). Clypeus simple, separated from frons by depression. Angles of clypeus smoothly turning into, and leveling with rest surface of clypeus, not separated from genae by frontoclypeal suture. Occasionally, clypeus with round depression at either side.
- 5 (13). Posterior angles of pronotum widely rounded. Sides of pronotum edged, very rarely not edged or with obliterated edging; in this case, punctures on head rounded, and not elongate.
- 6 (11). Punctures on head round.

- 7 (8). Underside of body densely covered with long recumbent hairs. Sides of clypeus with deep rounded depression distinctly separated from angles of clypeus ..... *C. noctivagus* sp. n.
- 8 (7). Underside of body hairless, occasionally only with inconspicuous pubescence on prosternum and anal sternite.
- 9 (10). Body brownish. Punctures in rows on elytra merging into fine entire striae .....  
 ..... *C. sulcatus* G. Medv.
- 10 (9). Body black. Punctures in rows on elytra not merging into entire striae ..... *C. niger* (Kr.).
- 11 (6). Punctures on head elongate.
- 12 (13). Pronotum oblong; disc regularly convex, widest slightly before middle in male. Sides of pronotum weakly rounded. Punctation of pronotum moderately coarse or fine, rather sparse .....  
 ..... *C. fragilis* (Mén.).
- 12 (11). Pronotum transverse, quite often weakly flattened at sides, widest in middle in male. Sides of pronotum distinctly rounded. Punctation of pronotum coarse, dense .....  
 ..... *C. karakalensis* G. Medv.
- 13 (5). Posterior angles of pronotum narrowly rounded apically, distinct. Sides of pronotum not edged .....  
 ..... *C. antoniae* Rtt.

*A Key to Species of the Subgenus Montanocatomus  
 subgen. n.*

- 1 (4). Intervals of elytra with asperate punctation, turning into fine granulation on elytral sides. Surface

of elytra rather densely covered with erect pale hairs.

- 2 (3). Punctuation of pronotum very coarse and dense; punctures strongly elongate, merging into long striae at sides of disc. Sides of pronotum strongly rounded ..... *C. pilosulus* Kr.
- 3 (2). Punctuation of pronotum moderately coarse, dense only at sides of disc; punctures round, not merging. Sides of pronotum weakly rounded ..... *C. reinigi* (Schust. in Reinig).
- 4 (1) Punctuation of elytral intervals simple, without granules. Surface of elytra hairless.
- 5 (6). Outer margins of gular emargination forming tooth at either side.—Sides of pronotum weakly rounded, not emarginate, but straight in basal 1/3. Posterior angles of pronotum slightly obtuse-angled, nearly rectangular, shortly rounded apically ..... *C. badachshanicus* G. Medv.
- 6 (5). Outer margins of gular emargination of usual structure, without tooth.
- 7 (8). Body black or dark brown. Sides of pronotum distinctly rounded. Posterior angles of pronotum acute-angled or rectangular, tapered apically. Punctures at sides of pronotal disc not elongate and not merging. Propleura without recumbent pubescence ..... *C. grandis* G. Medv.
- 8 (7). Body rufous brown or pale brown. Sides of pronotum weakly rounded only in anterior part, then straight up to base. Posterior angles of pronotum obtuse-angled, rounded apically. Punctures of pronotal disc elongate at sides, merging in places. Propleura with fine recumbent hairs ..... *C. fabiani* sp. n.

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