

## A remarkable pair of syntopic nidicolous sibling species of *Quedius* Stephens, 1829 from the Caucasus (Coleoptera: Staphylinidae: Staphylininae)

### О необычной паре нидикольных совместно обитающих видов-двойников рода *Quedius* Stephens, 1829 (Coleoptera: Staphylinidae: Staphylininae) с Кавказа

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KEY WORDS: *Quedius*, *Microsaurus*, sibling species, new species, aedeagus, teratology.

КЛЮЧЕВЫЕ СЛОВА: *Quedius*, *Microsaurus*, виды-двойники, новый вид, эдеагус, уродство.

**ABSTRACT:** Two sibling staphylinid beetle species, *Quedius abdominalis* Eppelsheim and *Q. mirus* sp.n., differing from each other only in structure of aedeagus are treated. They are syntopic obligatory inhabitants of the burrows of *Prometheomys schaposchnikovi* Satunin, 1901 endemic Caucasian rodent. Since the taxonomy of *Q. abdominalis* hitherto remained ambiguous, type material is revised and the species is re-described. The other species, *Q. mirus*, previously confused with *Q. abdominalis* is described as new. For both taxa, data on distribution and bionomics are summarized. It is supposed that the very unusual shape of the aedeagus of *Q. mirus* represents a case of genetically fixed teratology caused the speciation.

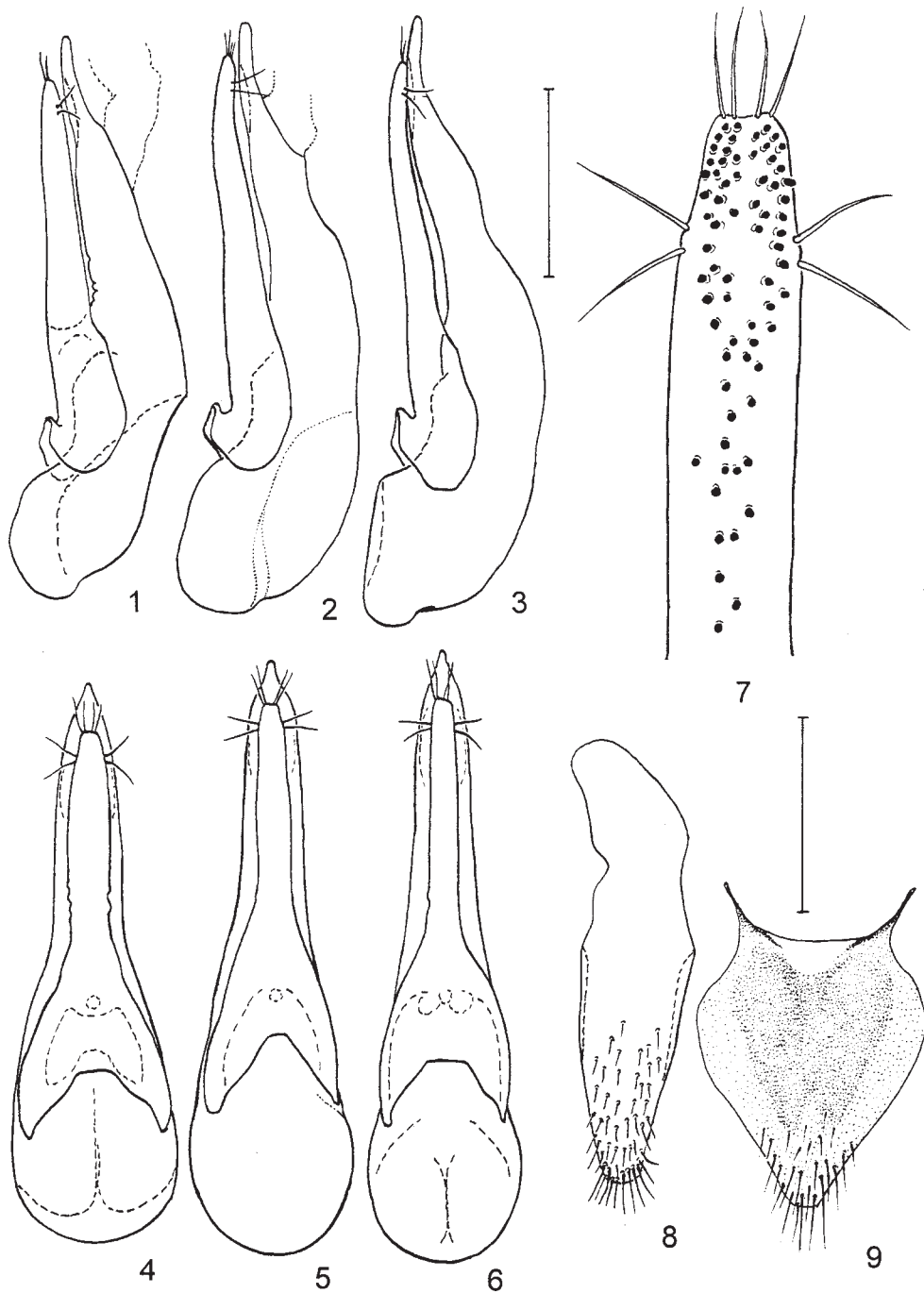
**РЕЗЮМЕ:** Два вида-двойника, *Quedius abdominalis* Eppelsheim, 1878 и *Q. mirus* sp.n. совместно обитают в гнездах эндемичного кавказского грызуна — прометеевой полевки (*Prometheomys schaposchnikovi* Satunin, 1901). Они отличаются друг от друга исключительно строением эдеагуса. Таксономия *Q. abdominalis* оставалась неясной, а *Q. mirus* sp.n. ошибочно определяли как *Q. abdominalis*. Для *Q. abdominalis* ревизован типовой материал, приводится переописание. Второй вид, *Q. mirus* sp.n., описан как новый для науки. Для обоих видов приводятся данные о распространении и экологии. Эдеагус нового вида обладает очень необычной формой, напоминающей уродство. Предполагается, что такая форма эдеагуса у *Q. mirus* sp.n. первоначально появилась как уродство, приведшее к возникновению нового вида.

#### Introduction

*Quedius abdominalis* Eppelsheim, 1878 was described based on a single male originating from an

ambiguous type locality (“Caucasus”) [Eppelsheim, 1878]. The later taxonomic treatment of this species in Gridelli [1924] was holotype-based, but it did not provide an illustration of the aedeagus which is important for a safe species diagnosis in *Quedius*. The next was Lyaster [1967] who reported *Q. abdominalis* from the Western Caucasus (Avadkhara, in Abkhazia) collected in large numbers (73 specimens) in the burrows of *Prometheomys schaposchnikovi* Satunin, 1901, the long-clawed mole-vole (for compillative summary on this rodent see Solodovnikov et al. [2000]). Because of the ambiguous concept of *Q. abdominalis*, the identity of the species on which this interesting record is based has remained doubtful. Figures of the aedeagus of *Q. abdominalis* were provided by Coiffait [1978], but, as indicated in the legend, they are based on non-type specimen(s?) from the Central Caucasus (Dzhava, in Georgia). Therefore, it has remained unclear whether the holotype of *Q. abdominalis*, the specimens from the burrows in Abkhazia, the material studied by Coiffait, and that recorded as *Q. abdominalis* by Solodovnikov [1998] are conspecific.

In order to clarify the identity of *Q. abdominalis*, the holotype and other available material was examined. This revealed that the interpretations of *Q. abdominalis* by Coiffait [1978] and Solodovnikov [1998] are correct, whereas “*Q. abdominalis*” of Lyaster [1967] is actually a mixture of two very similar species. One of them is the true *Q. abdominalis*; the other is the new species described below as *Q. mirus* sp.n. Based on standard morphological examination by means of a binocular microscope, externally and in the secondary sexual characters *Q. mirus* is identical with *Q. abdominalis*. The new species, however, differs strikingly from its congener in the structure of the aedeagus which in *Q. mirus* sp.n. is of a very unusual shape for *Quedius* in general. Diagnoses of these two similar species and related discussion are provided here.



Figs. 1-9: *Quedius abdominalis* Epp. 1-6 — aedeagus in lateral (1-3) and ventral (4-6) view: 1, 4: holotype, 2, 5 — specimen from Krestovoy Pass, 3, 6 — specimen from Mt. Aibga; 7 — apical portion of the paramere (underside); 8 — male sternite 9; 9 — male tergite 10. Scales: 1 mm.

Рис. 1-9: *Quedius abdominalis* Epp. 1-6 — эдеагус сбоку (1-3) и вентрально (4-6): 1, 4: голотип, 2, 5 — экземпляр с Крестового перевала, 3, 6 — экземпляр с горы Аибга; 7 — верхняя часть парамеры (нижняя сторона); 8 — 9-й стернит самца; 9 — 10-й тергит самца. Масштаб 1 мм.

### Material and methods

The holotype of *Quedius abdominalis* was borrowed for examination from the Museum of Natural History in Vienna (NHMW). The material of Staphylinidae collected by Yu.

Lyayster in the burrows of *Prometheomys schaposchnikovi* is kept in the Zoological Institute in St. Petersburg (ZIN). The holotype and most of the paratypes of *Q. mirus* sp. n. are left in the collection of the ZIN, but a few paratypes are deposited in the Field Museum of Natural History (FMNH), the Royal Belgian Institute of Natural Sciences (IRSNB), the Museum

of Natural History in Geneva (MNHG) and in NHMW. Some additional material studied is in the author's collection (cSol). The location of each examined specimen is specified in the respective sections of the descriptions.

Measurements of the beetles are given in mm; they are abbreviated as follows: HL — length of head (from front margin of clypeus to neck); HW — width of head (maximum); PL — length of pronotum (along median line); PW — width of pronotum (maximum, including eyes); EL — length of elytra (from base of humerus to elytral hind margin); EW — width of elytra (maximum, elytra closed along suture); FB — length of forebody (from apex of labrum to hind margin of elytra); TL — total length of body (from apex of mandibles to hind margin of tergite 10). Chaetotaxy of the head and pronotum follows Smetana [1971].

## Description of taxa

### *Quedius abdominalis* Eppelsheim, 1878 Figs 1–9.

*Quedius abdominalis* Eppelsheim, 1878: 419; Gridelli, 1924: 25; Lyayster, 1967: 190; Coiffait, 1978: 158; Solodovnikov, 1998: 342.

TYPE MATERIAL EXAMINED. Holotype (♂): Caucasus. dad Ribbe. leg. Haberhauer/ *abdominalis* mihi. type./ 6/ cEppels. steind. d./ *Quedius abdominalis* Epp. A. Solodovnikov det. 2000 (NHMW).

ADDITIONAL MATERIAL EXAMINED (all males). **Russia:** *Krasnodar Prov.*: 1 ex., Mt. Bambak, 1900 m, timber line, pitfall traps 1.VI–1.IX.1993 leg. V. Shchurov (cSol); 1 ex., eastern part of Aibgha Range, southern slopes, 1900 m, under stones, 29.VIII.1995 leg. V. Savitsky (cSol); **Georgia:** 1 ex., Abkhazia, Avadkhara, 15.VIII.1960, [in the tunnels of the burrow of *Prometheomys schaposchnikovi* Sat., leg. Yu. Lyayster] (ZIN); 1 ex., same data, but 18.VIII.1960 (ZIN); 2 ex., same data, but 21.VIII.1960 (ZIN); 1 ex., same data, but 21–22.VIII.1960 (ZIN); 2 ex., same data, but 22.VIII.1960 (ZIN); 2 ex., same data, but 27.VIII.1960 (ZIN); 2 ex., same data, but 3.IX.1960 (ZIN); 4 ex., Krestovy Pass, Voennogruzinskaya doroga [road], 23.V.1969 [in the tunnels of the burrow of *Prometheomys schaposchnikovi* Sat.], leg. Yu. Lyayster (ZIN); 1 ex., same data, but 28.V–2.VI.1969 (ZIN).

REDESCRIPTION. Measurements (range, arithmetic mean; n=16): HL: 1.26–1.57, 1.43; HW: 1.34–2.00, 1.87; PL: 1.71–2.00, 1.87; PW: 1.86–2.21, 2.03; EL: 1.86–2.14, 2.01; EW: 1.93–2.40, 2.12; FB: 4.9–5.8, 5.3; TL: 10.0–12.5, 11.2.

Brown to black, body glossy, abdomen slightly iridescent; antennae and legs brown, as dark as pronotum and elytra; palpi and protarsi paler; inner surface of meso- and metatibia dark brown to black, iridescent.

Head slightly transverse (HL/HW: 0.77–0.95, 0.88), parallel-sided behind eyes, with rounded hind angles; eyes flat, vaguely protruding over the lateral contours of head, tempora about 1.6 times longer than eyes (in dorsal view); infraorbital ridge distinct only in the posterior quarter of head; posterior frontal puncture situated equidistant between the posterior margin of eye and the hind margin of head to vaguely closer to the latter; temporal puncture situated closer to the posterior margin of head than to the posterior margin of eye; the two vertical punctures closer to the posterior margin of head than to the posterior frontal puncture; upper surface of head with dense and fine microsculpture of transverse waves and with sparse micropunctuation. Antennae moderately long; antennomeres: 3rd 1.5 times longer than 2nd, 4th and 5th as long as 2nd, 6th–10th gradually and vaguely becoming wider and shorter towards the apex of antenna, 9th and 10th as long as wide, 11th as long as 9th and 10th combined.

Pronotum slightly wider than long (PL/PW: 0.90–0.95, 0.92), widest behind the middle, narrowed anteriorly, with lateral portions at the broadly rounded hind angles slightly explanate; dorsal rows normally each with two punctures (posterior puncture of one or both rows sometimes absent; or, instead, three punctures in one of either row); sublateral rows each with three punctures (sometimes posterior puncture absent); waves of microsculpture similar to those on head, but directed along lateral and basal margins of pronotum; micropunctuation very minute, vaguely distinct.

Scutellum impunctate, with transverse microsculpture as on pronotum.

Elytra as long as wide (EL/EW: 0.89–1.00, 0.95), about as wide as pronotum, at sides indistinctly longer, at suture much shorter than pronotum; punctuation dense and moderately coarse, transverse interstices mostly slightly shorter than diameter of punctures, with minute irregularities; pubescence goldish.

Macropterous: wings fully developed.

Abdominal tergite 7 with palisade fringe; punctuation as coarse as on elytra, on the first two visible tergites as dense as on elytra, gradually becoming sparser towards the apex of abdomen; pubescence as on elytra; interspaces with dense but shallow transverse striae.

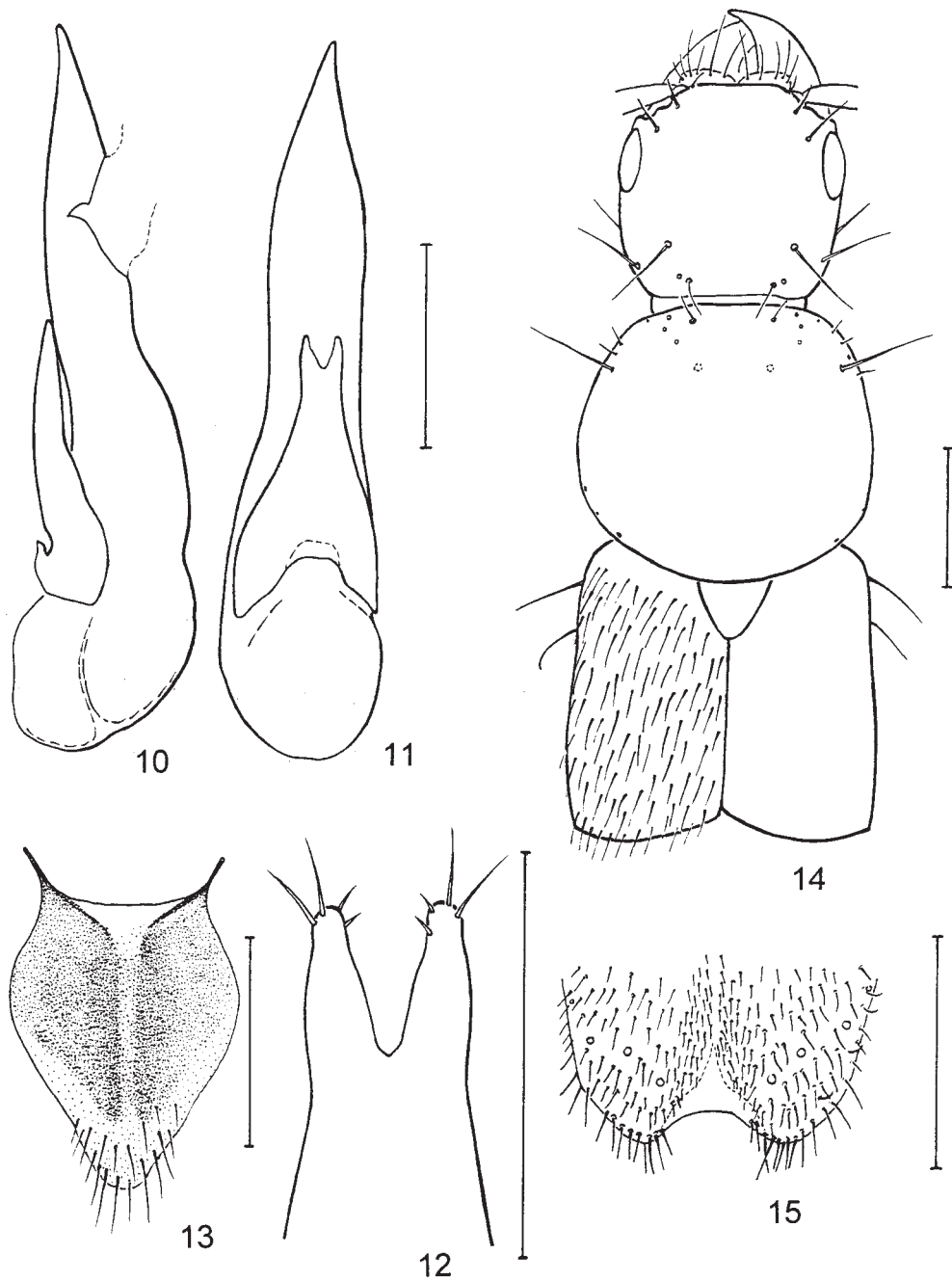
MALE. Protarsi with dilated tarsomeres 1–4; tarsomeres 2 and 3 wider than the apex of protibia. Sternite 8 with wide and shallow medio-apical emargination; sternite 9 (Fig. 8) oblong, with wide basal portion, gradually narrowed to the apex, with long apical setae and shorter general setation; tergite 10 (Fig. 9) cordate with long apical setae and shorter general setation. Aedeagus (Figs 1–6): median lobe elongate, gradually narrowed apically, with pointed apex; its apico-ventral portion with shallow emargination and weak lateral carinae; paramere narrow and elongate, shorter than median lobe, with two pairs of long setae at the very apex and a pair of similar setae on the lateral margins below the apex; underside with numerous sensory peg setae in scattered arrangement as in Fig. 7. As shown in Figs. 1–6, the shape of the aedeagus is a subject to some intraspecific variability.

FEMALE. See below “Females of “*Quedius abdominalis*”: a problem of identity”.

DISTRIBUTION. Based on the material here examined, *Quedius abdominalis* is known from the western and the south of central Caucasus (Map). Coiffait [1978] recorded this species from Dzhava [south of Central Caucasus near Tskhinvali]. The type locality (“Caucasus”) is not known exactly, since it was not possible to locate the area of Haberhauer's (collector of the holotype, as follows from the original description) trip in the Caucasus.

Based on the assumption that *Q. abdominalis* is a specialized inhabitant of the burrows of *Prometheomys schaposchnikovi*, it is very likely that its distribution depends on the distribution of the host. According to Lyayster [1979] the range of *P. schaposchnikovi* consists of a few disjunct areas, four situated in the Caucasus Major (Abkhazo-Krasnodarian; Svanetian; Mingrelian; Centralcaucasian), and three — in the Caucasus Minor (Adzharian; Shavshet-Erushetian; Pontian) (see also Map).

BIONOMICS. Most of the available specimens of *Quedius abdominalis* were collected in the burrows of *Prometheomys schaposchnikovi*. According to Lyayster [1967] “*Quedius abdominalis*” [mixture of *Q. abdominalis* and *Q. mirus*] is one of the most abundant staphylinids in the burrows of this rodent. It occurs in all compartments of the burrow. Specimens of “*Quedius abdominalis*” were taken directly during excavations of the burrows, and by means of special pitfall



Figs. 10–15: *Quedius mirus* sp.n.: 10 — aedeagus in lateral view; 11 — same in ventral view; 12 — apical portion of the paramere; 13 — male tergite 10; 14 — forebody; 15 — male sternite 8. Scales: 1 mm (10–11, 13–15), 0.5 mm (12).

Рис. 10–15: *Quedius mirus* sp.n.: 10 — эдеагус сбоку; 11 — тоже вентрально; 12 — верхинная часть параметеры; 13 — 10-й тергит самца; 14 — передняя часть тела; 15 — 8-й стернит самца. Масштаб: 1 мм (1–11, 13–15), 0,5 мм (12).

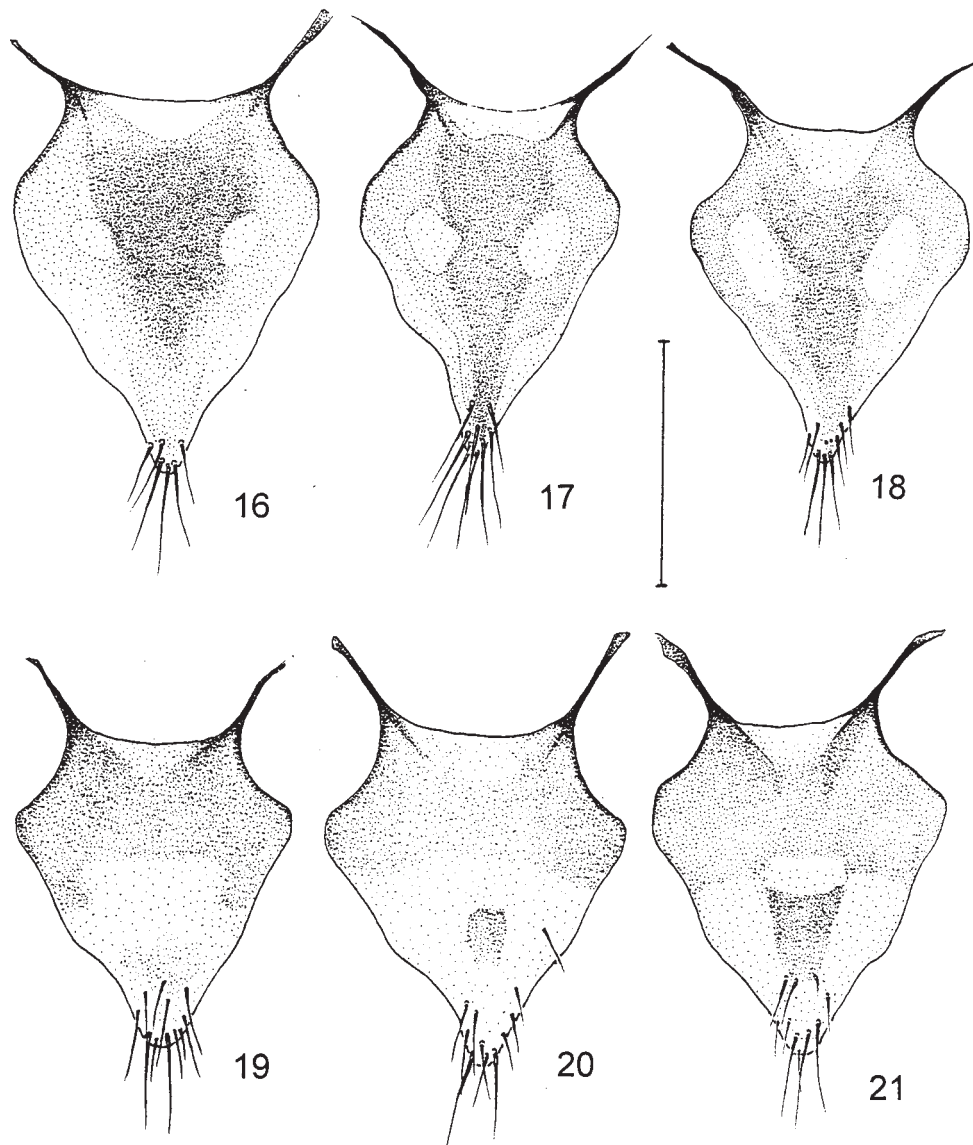
traps installed in the burrows. Numbers of "*Quedius abdominalis*" were significantly higher in those traps which contained dead rodents. One specimen was taken from a carcass of *P. schaposchnikovi* left on the soil surface.

Two single specimens from the localities in the Western Caucasus (Mt. Bambak, and Aibga range) were collected on the soil surface at an altitude 1900 m (timber line — subalpine zone). The material mentioned in Coiffait [1978] was found at an elevation of 2400 m. The abundance of *Q. abdominalis*

in the burrows of *P. schaposchnikovi*, the lack of records from the burrows of the other mammals, and its rarity in exposed (non-subterranean) habitats suggest a very specific habitat association with its host.

COMPARISON. *Quedius abdominalis* can be easily distinguished from other Palearctic *Microsaurus* by the structure of the aedeagus.

Gridelli [1924] treated *Q. abdominalis* as closely related with *Q. fasciculatus* Eppelsheim, 1886. Coiffait [1978] placed



Figs. 16–21: Female tergite 10: 16–18 — *Quedius* sp. 1; 19–21 — *Quedius* sp. 2. Scales: 1 mm.  
Рис. 16–21: 10-й тергит самки: 16–18 — *Quedius* sp. 1; 19–21 — *Quedius* sp. 2. Масштаб: 1 мм.

*Q. abdominalis* (together with *Q. ochripennis* (Ménétries, 1832), *Q. nouristanicus* Coiffait, 1978, *Q. berytensis* Coiffait, 1954 and *Q. fasciculatus*) in the *Q. ochripennis* species group. Based on a preliminary assessment of the external and genitalic characters of *Q. abdominalis* and the listed species, the phylogenetic affiliations suggested by previous authors seem to be only weakly supported. At the moment, before the main lineages of the Palearctic *Quedius* (of the subgenus *Microsaurus*) are defined, the sister species relationships of *Q. abdominalis* remain unresolved.

*Quedius mirus* sp.n.

Figs. 10–15.

MATERIAL EXAMINED (all males)

**Holotype:** Georgia, Krestovy Pass, Voенно-Gruzinskaya Road, 23.V.1969 [in the tunnels of the burrow of *Prometheomys*

*schaposchnikovi* Sat.], leg. Yu. Lyayster (ZIN); **paratypes:** 1 ex., Abkhazia, Avadkhara, 15.VIII.1960 [in the tunnels of the burrow of *Prometheomys schaposchnikovi* Sat.], leg. Yu. Lyayster (IRSNB); 1 ex., same data, but 16.VIII.1960 (ZIN); 1 ex., same data, but 21.VIII.1960 (IRSNB); 3 ex., same data, but 27.VIII.1960 (MNHG, NHMW, ZIN); 1 ex., same data, but 29.VIII.1960; 3 ex., same data, but 3.IX.1960; 1 ex., same data, but 6.IX.1960 (FMNH); 14 ex., Krestovy Pass, Voенно-Gruzinskaya Road, 23.V.1969 [in the tunnels of the burrow of *Prometheomys schaposchnikovi* Sat.], leg. Yu. Lyayster (11 paratypes are kept in ZIN, 3 — in FMNH, MNHG and NHMW). In addition to the original patria and bionomic labels printed in Russian, their English translations and the respective “Holotype” and “Paratype” designation labels are attached to all specimens.

Externally (including complete overlap in measurements and striking similarity in secondary sexual characters) *Quedius mirus* (forebody — Fig. 14) is identical with *Q. abdominalis*. It can be separated from the latter only by its remarkable structure of the aedeagus.

MALE. Aedeagus (Figs. 10–12): apical portion of the median lobe sharp and somewhat asymmetrical; paramere short, deeply bilobed at the apex, with four apical setae on each of the apical lobes, without sensory peg setae. Unlike most males of *Q. abdominalis* with evenly sclerotized middle area of abdominal tergite 10 (Fig. 9), most males of *Q. mirus* have a weakly sclerotized oblong stripe in the middle (Fig. 13). However, in a few males of *Q. mirus* this stripe is weakly developed, whereas in some males of *Q. abdominalis* it is indicated. This structure alone cannot serve as a good distinguishing character for these two species.

DISTRIBUTION. Currently known from two localities only: Avadkhara (Western Caucasus), and Krestovy Pass (Central Caucasus). As is the case with *Q. abdominalis*, the distribution of *Q. mirus* is expected to be dependent on the distribution of its host *Prometheomys schaposchnikovi* (Map).

BIONOMICS. According to the label data, all available specimens of *Q. mirus* were collected in the burrows of *Prometheomys schaposchnikovi*. Apparently, the bionomics of *Q. mirus* is similar with that of *Q. abdominalis*.

COMPARISON. The aedeagus of *Q. mirus* is rather unusual for *Quedius* and not similar to that of any known species of this genus. A possible explanation for a phenomenon such as external identity of *Q. mirus* and *Q. abdominalis* despite great differences between them in aedeagal morphology is discussed below.

ETYMOLOGY. The name of the new species, “*mirus*” (Lat. — remarkable), refers to the unusual structure of its aedeagus.

### Females of “*Quedius abdominalis*”: a problem of identity

In two sites (samples collected by Yu. Lyayster: one from Avadkhara, the other from Krestovy Pass) both species were collected together in one and the same habitat (in the same burrow). Therefore, identification of the females of “*Q. abdominalis*” (presumably mixture of *Q. abdominalis* and *Q. mirus*) is problematic. Males of both species are well represented in both localities. It can be assumed, therefore, that females of both species are present. No external characters separating the females of the two taxa were found. However, a slight but consistent difference in the pattern of sclerotization of the abdominal tergite 10 divides all females into two groups. In one group (here called *Q. sp. 1*; for data about material see below) abdominal tergite 10 has a more or less oblong sclerotized area in the middle, and laterally two spots of weak sclerotization appearing as two “holes” of irregular shape (Figs. 16–18). In the second group (*Q. sp. 2*), tergite 10 is strongly sclerotized in its basal half; its medio-apical portion is weakly sclerotized to having an isolated oblong central spot which is more or less distinctly sclerotized (Figs. 19–21). Tergite 10 of *Q. sp. 2* never has weakly sclerotized spots laterally. Although within both groups the pattern of sclerotization of tergite 10 is variable, a distinct hiatus between them exists. It seems highly likely that *Q. sp. 1* and *Q. sp. 2* are different species, one of which is presumably *Q. abdominalis*, and the other *Q. mirus*.

However, if *Q. sp. 1* and *Q. sp. 2* represent the same two species recognized from males, it is currently impossible to attribute them to the respective males. Exter-

nally both “female morphospecies” are identical with both of the “male species”. The nature of the difference in the structure of tergite 10 between the females of *Q. sp. 1* and *Q. sp. 2* does not provide evidence of their association with either of the “male species”. An attempt was made to use the population levels and hypothesized sex ratios to see whether there was enough information in the samples to infer an association between the identified males and the females that represent two species. But, since the result of this was inconclusive, the pattern of collections did not allow to infer an association of the sexes on grounds of abundance.

MATERIAL of “*Quedius abdominalis*” EXAMINED (all females)

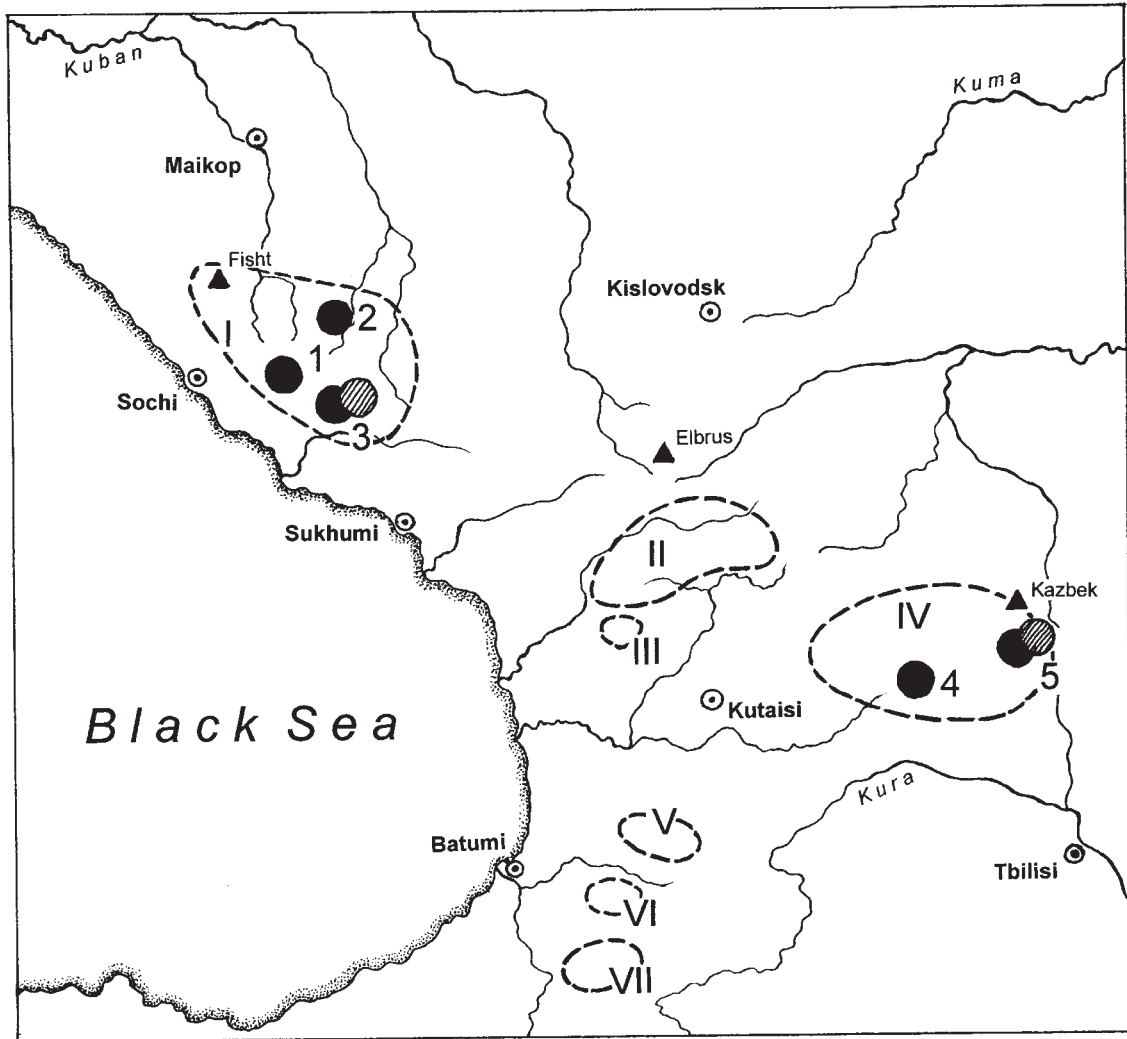
*Quedius sp. 1*: 4 ex., Abkhazia, Avadkhara, 16.VIII.1960, [in the tunnels of the burrow of *Prometheomys schaposchnikovi* Sat.], leg. Yu. Lyayster; 3 ex., same data, but 18.VIII.1960; 3 ex., same data, but 21.VIII.1960; 2 ex., same data, but 22.VIII.1960; 1 ex., same data, but 27.VIII.1960; 3 ex., same data, but 3.IX.1960; 1 ex., same data, but 6.IX.1960; 7 ex., Krestovy Pass, Voenno-Gruzinskaya doroga [road], 23.VI.1969 [in the tunnels of the burrow of *Prometheomys schaposchnikovi* Sat.], leg. Yu. Lyayster; 1 ex., same data, but 28.V–2.VI.1969 (all specimens are kept in ZIN).

*Quedius sp. 2*: 1 ex., Abkhazia, Avadkhara, 15.VIII.1960, [in the tunnels of the burrow of *Prometheomys schaposchnikovi* Sat.], leg. Yu. Lyayster; 1 ex., same data, but 16.VIII.1960; 1 ex., same data, but 21.VIII.1960; 1 ex., same data, but 22.VIII.1960; 2 ex., same data, but 27.VIII.1960; 8 ex., same data, but 3.IX.1960; 3 ex., same data, but 6.IX.1960; 3 ex., Krestovy Pass, Voenno-Gruzinskaya doroga [road], 21–22.V.1969 [in the tunnels of the burrow of *Prometheomys schaposchnikovi* Sat.], leg. Yu. Lyayster; 3 ex., same data, but 23.V.1969; 2 ex., same data, but 28.V–2.VI.1969 (all specimens are kept in ZIN).

### Discussion

*Quedius abdominalis* and *Q. mirus* are a noteworthy pair of species for the following reasons. First, they coexist in a very specific subterranean habitat — burrows of a peculiar endemic montane rodent with a local and patchy distribution. Second, despite being impressively similar in external morphology (including the secondary sexual characters), they have strikingly different aedeagi. Based on external characters, they seem to be very closely related sibling species. Based on the aedeagi alone, they would appear as representatives of different genera. Although the aedeagus of *Q. abdominalis* is rather peculiar, it fits the known range of diversity within the genus *Quedius*, whereas the shape of the aedeagus in *Q. mirus* is very remarkable. Its deeply bilobed paramere without sensory peg setae represents a very rare character state in *Quedius* compared to an entire paramere with sensory peg setae in the vast majority of *Quedius*.

The aedeagus of *Q. mirus* resembles the cases of reversions (recapitulations) discussed for these structures in Staphylinidae by Tikhomirova [1991]. Such reversions occur abruptly and sometimes may lead to speciation [Tikhomirova, 1991]. Therefore, it would be relevant to consider the structure of the aedeagus of *Q. mirus* (namely the shape of its paramere) under phylogenetic aspects. Although it is well known that the paired structure of the parameres (compared to the fused paramere), is a plesiomorphic character state in Sta-



0 40 140 km

● - *Quedius abdominalis* EPP.  
 ◐ - *Quedius mirus* sp.n.

Localities:  
 1 — Mt. Aibga;  
 2 — Mt. Bambak;  
 3 — Avadkhara;  
 4 — Dzhava;  
 5 — Krestovy Pass.

Areas of distribution of *Prometheomys schaposchnikovi* SAT. after Lyayster (1979):  
 I — Abkhazo-Krasnodarian;  
 II — Svanetian;  
 III — Mingrelian;  
 IV — Cenral Caucasian  
 V — Adzharian;  
 VI — Shavshet-Erusheian  
 VII — Pontian.

Map. Distribution of *Quedius abdominalis* Epp., *Q. mirus* sp.n., and their host *Prometheomys schaposchnikovi* Sat.

Карта. Распространение *Quedius abdominalis* Epp., *Q. mirus* sp.n. и прометеевой полевки *Prometheomys schaposchnikovi* Sat.

phylinidae [Tikhomirova, 1973, 1991], there is no justification that the bifurcate apex of the paramere in *Q. mirus* is homologous to the ancestrally separate parameres. One should not exclude the possibility that such shape of the paramere could evolve from a “nor-

mal” single paramere through a change in shape (a slightly bilobed paramere is characteristic of a few other species of *Quedius* of the subgenus *Microsaurus*: *Q. fasciculatus*, *Q. mutilatus* Eppelsheim, 1888, *Q. brevicornis* Thomson, 1860, and others).

The polarity of the presence / absence of the sensory peg setae on the paramere has never been discussed in details. Within Staphylinidae in general, sensory peg setae occur on the aedeagus only in the tribe Staphylinini [A.F. Newton, personal communication] within the derived Staphylinine group (sensu Lawrence et al. [1982]), although they occur on the other parts of the male body in several other subfamilies [Hammond, 1972]. Within *Quedius* and allied genera, there are taxa from the south temperate areas (generally considered by biogeographers as refuges for old relics) which mostly have the paramere without sensory peg setae [Newton, 1985], whereas a great majority of *Quedius* in the north temperate areas (generally considered as having more derived faunas) possess parameres with sensory peg setae [Coiffait, 1978; Smetana, 1971, 1988; and others]. Based on these observations, one could regard the absence of sensory peg setae on the paramere as the plesiomorphic condition, whereas the shape of the paramere of *Q. mirus* as atavistic. Without sound phylogenetic framework developed for *Quedius* and allied taxa on a world wide basis, this conclusion remains purely speculative, allowing opposite suggestions. For example, in the preliminary phylogenetic analysis of Taiwan Quediini [Smetana, 1995] the absence of the sensory peg setae on the paramere (compared to the paramere with sensory peg setae) is regarded as derived character state. Along with the desirable phylogenetic analysis for *Quedius* and Quediina in general, a detailed examination of the morphology, distribution, bionomics, genetics and other biological aspects of this co-existent species could also shed some light on the evolutionary mechanisms that led to such a remarkable pair of species.

For the moment it can be only assumed that the peculiar, somewhat teratology-like shape of the aedeagus of *Q. mirus*, in combination with the external identity of this species with *Q. abdominalis* which has a "normal" aedeagus as well as the available biological data on both species, indicate their close sister relationships. Second, one should not exclude the possibility of the saltational origin of *Q. mirus*, as a result of a strong shift affecting the structure of the aedeagus in the ancestral taxon.

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