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**A NATURAL HYBRID BETWEEN *CARABUS*  
(*CRATOCARABUS*) *JAKOBSONI* SEMENOV, 1908 AND *CARABUS*  
(*CRATOCECHENUS*) *ELISABETHAE* SEMENOV, 1908  
(COLEOPTERA: CARABIDAE)**

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**Abstract** – A natural hybrid between *Carabus* (*Cratocarabus*) *jakobsoni* Semenov, 1908 and *Carabus* (*Cratocechenus*) *elisabethae* Semenov, 1908 from Kazakhstan is described. It is the first described hybrid between the species of the subgenera *Cratocarabus* and *Cratocechenus*.

**KEY WORDS:** Coleoptera, Carabidae, *Carabus*, natural hybrid, Kazakhstan.

**Izvleček** – NARAVNI KRIŽANEC MED VRSTAMA *CARABUS* (*CRATOCARABUS*) *JAKOBSONI* SEMENOV, 1908, IN *CARABUS* (*CRATOCECHENUS*) *ELISABETHAE* SEMENOV, 1908 (COLEOPTERA: CARABIDAE)

Opisan je naravni križanec med vrstama *Carabus* (*Cratocarabus*) *jakobsoni* Semenov, 1908, in *Carabus* (*Cratocechenus*) *elisabethae* Semenov, 1908, iz Kazahstana. Je prvi znani primer križanja vrst iz podrodov *Cratocarabus* in *Cratocechenus*.

**KLJUČNE BESEDE:** Coleoptera, Carabidae, *Carabus*, naravni križanec, Kazahstan.

### **Introduction**

Many natural hybrids of different species of the genus *Carabus* have been described from Middle Asia. Usually natural hybrids are easily distinguished

because these specimens are individuals among rich populations of the initial species and the morphology and coloration of hybrids are exactly intermediate between the parents. The majority of natural hybrids have been originally described as species, for example: *C. karkarensis* Kabak et Ovchinnikov, 1994 (?hyb. *C. (Eotribax) valikhanovi* X *C. (Alipaster) pupulus*); *C. dissimulatus* Deuve, 1991 (hyb. *C. (Eotribax) valikhanovi* X *C. (Alipaster) pupulus*); *C. manap* Březina et Kabak, 1993 (hyb. *C. (Eotribax) eous* X *C. (Alipaster) pupulus*); *C. siniaevi* Deuve, 1993 (hyb. *C. (Eotribax) eous* X *C. (Alipaster) pupulus*); *C. wrzecionkoi* Deuve, 1991 (hyb. *C. (Eotribax) valikhanovi* X *C. (Cratocechenus) akinini puellus*); *C. niedli* Gottwald, 1987 (hyb. *C. (Cratocechenus) akinini loudai* X *C. (Cratocephalus) corrugis*); *C. kleinfeldorum* Kabak et Putschkov, 1995 (?hyb. *C. (Pantophyrtus) turcomanorum* X *C. (Cratocephalus) corrugis*); *C. evstigneevi* Obydov, 1997 (?hyb. *C. (Pantophyrtus) brachypedilus* X *C. (Cratocephalus) corrugis*). A natural interspecific hybrid of *C. (Pantophyrtus) turcomanorum orbitosus* and *C. (Cratocephalus) corrugis* has also been described from Kirghiz Mt. Ridge, Kara-Balta (Obydov, 1998). One specimen of *Carabus* (male) with the label "Kirghizia, Borkoldoi Mts., Kara-Chonkur River valley", kept in the collection of the Biological Museum (Moscow) displays a series of intermediate characters between *C. (Eotribax) eous* and *C. (Alipaster) pupulus* and probably it is a natural interspecific hybrid between these two species.

Kryzhanovskij (1953) considered the subgenera mentioned above as sections of the subgenus *Cratocephalus* s. lat. These subgenera are morphologically closely related, the majority of species are sympatric and natural hybrids are not a rarity among the Middle Asian *Carabus*. For example, *C. niedli* (hyb. *C. (Cratocechenus) akinini loudai* X *C. (Cratocephalus) corrugis*), is found relatively frequently in the eastern part of the Kirghiz Mt. Ridge, among dense populations of *C. akinini loudai* and *C. corrugis*.

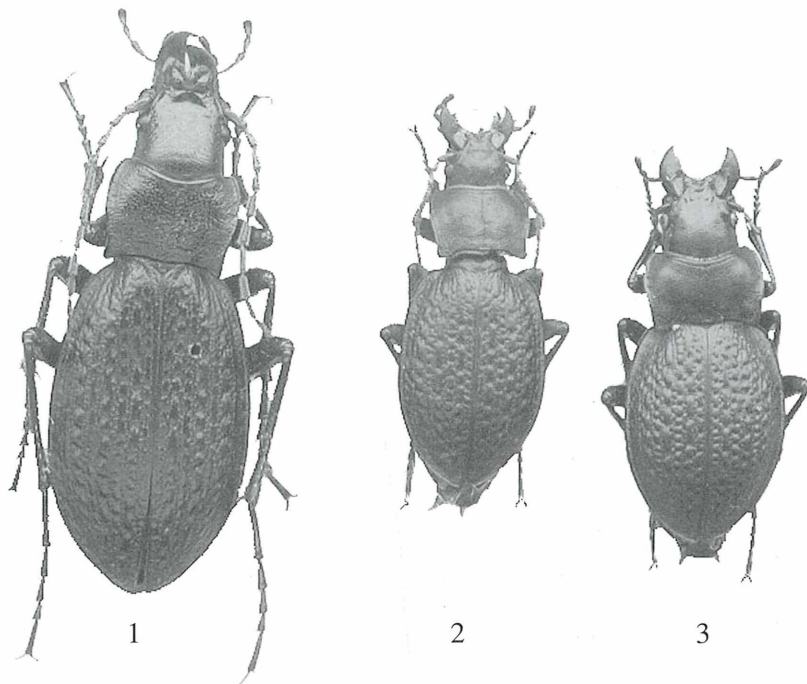
Many nonexistent species actually are natural interspecific hybrids (see above). *Carabus alajensis* Semenov, 1896 has not been recollected since its description and probably is a natural hybrid between *C. (Pantophyrtus) turcomanorum* and *C. (Deroplectes) staudingeri*.

Natural hybrids between species of the subgenera *Cratocarabus* and *Cratocechenus* were not known till now. The description of a natural hybrid between *Carabus (Cratocarabus) jakobsoni* Semenov, 1908 and *Carabus (Cratocechenus) elisabethae* Semenov, 1908 is given below.

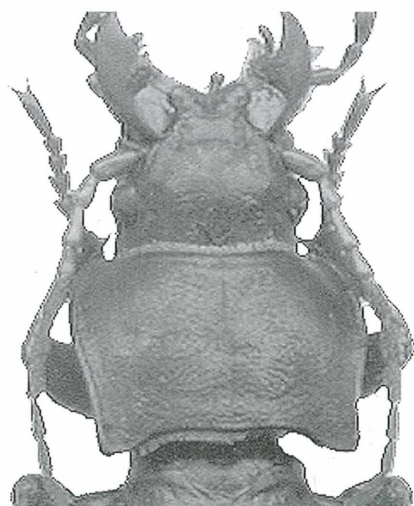
### ***Carabus (Cratocarabus) jakobsoni* Semenov, 1908 X *Carabus (Cratocechenus) elisabethae* Semenov, 1908**

**Material:** female, Kazakhstan, southern slopes of Zailiysky Mt. Ridge, B. Almaatin Lake env., 1. 6. 1998, leg. A. Klimenko (State Museum of Biology, Moscow).

**Description:** Body length 15.4 mm (including mandibles), body width 6.0 mm. Body more stout and convex than in *C. elisabethae* but less than in *C. jakobsoni*.



**Figs 1-3:** *Carabus* (general view): 1. *C. (Cratocechenus) elisabethae*; 2. *C. (Cratocarabus) jakobsoni* X *C. (Cratocechenus) elisabethae* interspecific hybrid; 3. *C. (Cratocarabus) jakobsoni*. All specimens from southern slopes of Zailiysky Mt. Ridge, B. Almaatin Lake environs.



**Fig. 4:** Head and pronotum of *C. (Cratocarabus) jakobsoni* X *C. (Cratocechenus) elisabethae* interspecific hybrid.

Head, pronotum and elytrae black without lustre as in *C. jakobsoni*; legs and four basal antennae joints reddish brown as in *C. elisabethae* and some specimens of *C. jakobsoni*; mandibles and palpi brownish black as in *C. jakobsoni*; antennae and ventral body surface brown.

Head thickened, but less than in *C. jakobsoni*; ratio width of pronotum/width of head 1.70; eyes moderately prominent. Mandibles shorter and broader than in *C. elisabethae* but longer and narrower than in *C. jakobsoni*, evenly curved; surface of mandibles smooth as in *C. jakobsoni* (in *C. elisabethae* surface of mandibles with sparse fine punctures). Frontal furrows relatively deep, inside smooth, not conjugated as in *C. jakobsoni*; frons, vertex and neck nearly smooth; laterally vertex and neck with few fine punctures. Labrum slightly wider than clypeus, moderately notched as in *C. jakobsoni*, with two lateral setae. Antennae protruding beyond the base of pronotum by three apical joints; palpi shorter than in *C. elisabethae*, but slightly longer than in *C. jakobsoni*, moderately dilated; penultimate joint of the maxillary palpi nearly equal to the last joint; penultimate joint of the labial palpi with two setae. Mentum tooth narrow and long as in *C. elisabethae*, much narrower and longer than in *C. jakobsoni*, longer than lateral lobes; submentum with two setiferous pores.

Prothorax nearly cordiform as in *C. elisabethae*, but without marginal incisures; ratio width/length 1.63. Pronotum flattened, with dense fine punctuation and shallow wrinkles; median longitudinal line distinct; basal foveae shallow, inside with dense fine punctuation. Pronotal sculpture less rough than in *C. jakobsoni* and *C. elisabethae*. Lobes of hind angles triangularly protruding, slightly bent upward. Sides of pronotum narrowly margined and slightly bent upward posteriorly, lateral margin with two setae, one setae before middle and one setae near hind angle.

Elytrae oval, moderately convex, but less convex than in *C. jakobsoni*; widest at about middle; shoulders slightly prominent, but not as rounded as in *C. elisabethae*; sides of elytrae broadly margined. Ratio length/width 1.40; ratio width of elytra/width of pronotum 1.47. Elytral sculpture exactly intermediate between elytral sculpture of *C. jakobsoni* and *C. elisabethae*.

Abdominal sternites smooth, metepisternum with sparse fine punctures, not longer than its width; sternal sulci absent.

Legs of normal length, not as long as in *C. elisabethae*.

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