https://doi.org/10.59893/bjc.24(2).004
Baltic J. Coleopterol. 24(2) 2024
ISSN 1407 – 8619

Notes on the subgenus *Brachinoaptinus* Lutshnik, 1926 of Central Asia (Coleoptera Carabidae, Brachinus)

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Anichtchenko A. 2024. Notes on the subgenus *Brachinoaptinus* Lutshnik, 1926 of Central Asia
(Coleoptera Carabidae, Brachinus). *Baltic J. Coleopterol., 24(2): 155-160.*

The species status of *Brachinus (Brachinoaptinus) tashkenticus* Kirschenhofer, 1986 is restored . A differential diagnosis with related species is proposed. The taxonomic status and the type locality of *B*. (*Brachinoaptinus*) *aktashiensis* Kirschenhofer, 1986 are discussed. Photographs of habitus are given for all the three taxa of this group and the endophallus structure is studied and illustrated for the first time for two of them.

Key words: New status, taxonomy, Carabidae.

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INTRODUCTION

Currently, 20 species of the subgenus *Brachinoaptinus* Lutshnik, 1926 are known (Anichtchenko, 2024), with a distribution range divided into two parts. Most of the species live in the Iberian Peninsula and North Africa and only few taxa are known from the Tien Shan Mountains. The degree of relationship of these groups needs to be clarified, but it is interesting to note that the same range gap exists in the ground-beetles of the genus *Eocarterus* Stichel, 1925. Four species of *Brachinoaptinus* from the mountains of Central Asia have been described up to now (Michailov, 1976; Kirschenhofer, 1986; Belousov & Kabak, 1992), two of which were later considered as simple subspecies (Belousov & Kabak, 1992).

The purpose of this work is to draw attention to this group of species, and to encourage further research, preferably using genetic analysis.

MATERIAL AND METHODS

The material from the following institutional and private collections has been examined:
AAc – Alexandr Anichtchenko Collection, Daugavpils, Latvia;
RSc – Riccardo Sciaky Collection, Milan, Italy;
DUBC – Daugavpils University Beetles collection, Daugavpils (Ilgas), Latvia;
NMPC – Natural History Museum of Prague, Czech.

All measurements were made using a Nikon SMZ 745T stereomicroscope. Measurements of the total body length (TL) were made from the front of the clypeus to apex of elytra.

The illustrations were made using a Canon EOS 6D digital camera with a Canon MP-E 65 mm macro lens, using StackShot macro rail system and Helicon Focus software, and subsequently edited in Photoshop. High-resolution habitus images, including type specimens and additional material, are available at Carabidae of the World web-project http://carabidae.org

RESULTS

A review of the Central Asian species of subgenus *Brachinoaptinus* with a key to species was proposed by Belousov & Kabak, (1992). In their paper, the two species *B. tashkenticus* Kirschenhofer, 1986 and *B. aktashiensis* Kirschenhofer, 1986, were downgraded as subspecies of *B. tianshanicus* Michailov, 1976. A study of the material of *B. tashkenticus* Kirschenhofer, 1986 collected by the author in the type locality and its comparison with *B. tianshanicus* Michailov, 1976 showed that these two taxa undoubtedly belong to different species. The status of species is restored in this paper.

***Brachinus* (*Brachinoaptinus*) *tashkenticus* Kirschenhofer, 1986 status rest.**
(loc. Typ.: Cimgan, 2400m [Chimgan Mt.])

Material: 6m, 5f: Uzbekistan, Chatkal Mt. Rng., Aksay riv., snow spot, 41°30’46.0N 70°02’32.9E, 2200m, 9-10.8.2021, Anichtchenko A. Leg. (cAA, DUBC); 1 ex: Uzbekistan, Chimgan, Tien-Shan Occid., 10.V.1992, Karasjov (RSc); 2 ex: Uzbekistan, Tashkent env., E slope of B. Tshimgan Mt., 13-16.V. 1993, Kabak & Molchanov (RSc); 2 ex: W. Tien Shan, 2200m, NW part of Chatkal ridge, Tashkent env., Chimgan, J. Kalab leg. 25-27.7.1990 (RSc)

Differential diagnosis. This species can be easily distinguished from all known central asian species of the subgenus by the combinaton of the following features: very small body size 4.6-5.4 mm, dark brown elytra (sometimes with very weak bluish reflexion), slender legs, very long antennae and elongate, very sparsely punctate pronotum (Figs. 1, 4). The only other known unicolored species *B.* (*Brachinoaptinus*) *kryzhanovskii* Belousov & Kabak, 1992 (Valley of the Karakuldzha) shows upperside entirely dark blackish and it has a larger body size 7.1-8.5 mm. The two other known taxa *B.* (*Brachinoaptinus*) *tianshanicus* Michailov, 1976 s.str. and *B.* (*Brachinoaptinus*) *tianshanicus aktashiensis* Kirschenhofer, 1986 are bicolored, with the head and pronotum reddish and elytra bright blue or green.

Male genitalia. (Fig. 7) Median lobe of aedeagus with rounded protuberance ventrally on right side (Fig. 7b). The tube is bent before the middle at an obtuse angle. The everted endophallus is almost parallel to the axis of the aedeagus (Figs 7c-e).

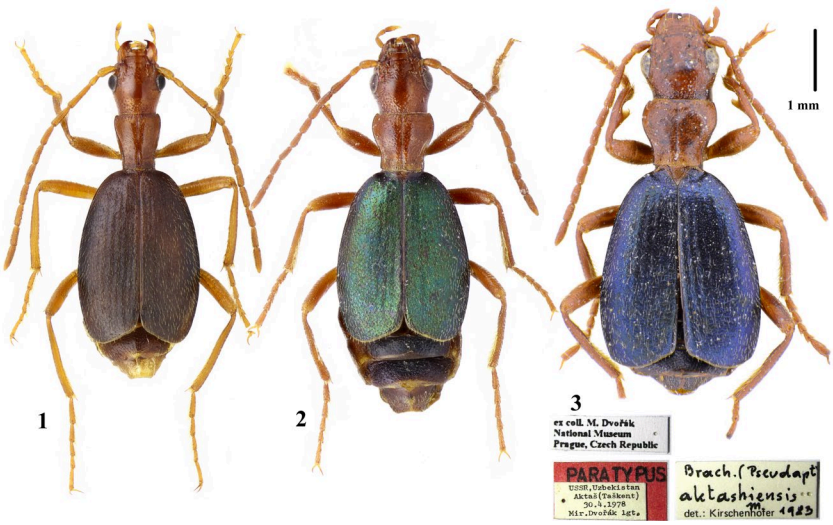
Distribution. Chimgan mountain (Chatkal Mountain range).

***Brachinus* (*Brachinoaptinus*) *tianshanicus tianshanicus* Michailov, 1976**

Material: 1m: Tashkent reg., 15km E Gazalkent, Karakiyasai riv., 7.04.2002 [Karzhantau Range](cAA); 5m, 4f: Uzbekistan, W Tian Shan, 15km E Gazalkent, Karankulsai riv., 1200m, 7.iv.2002, O. Legezin leg. (cAA); 3 ex: Uzbekistan, SW Ughamsky Mt. R. Nauvalysai Riv., NE Sidzhak vill., 1800-2200, 10.05.94, I. Kabak (RSc).

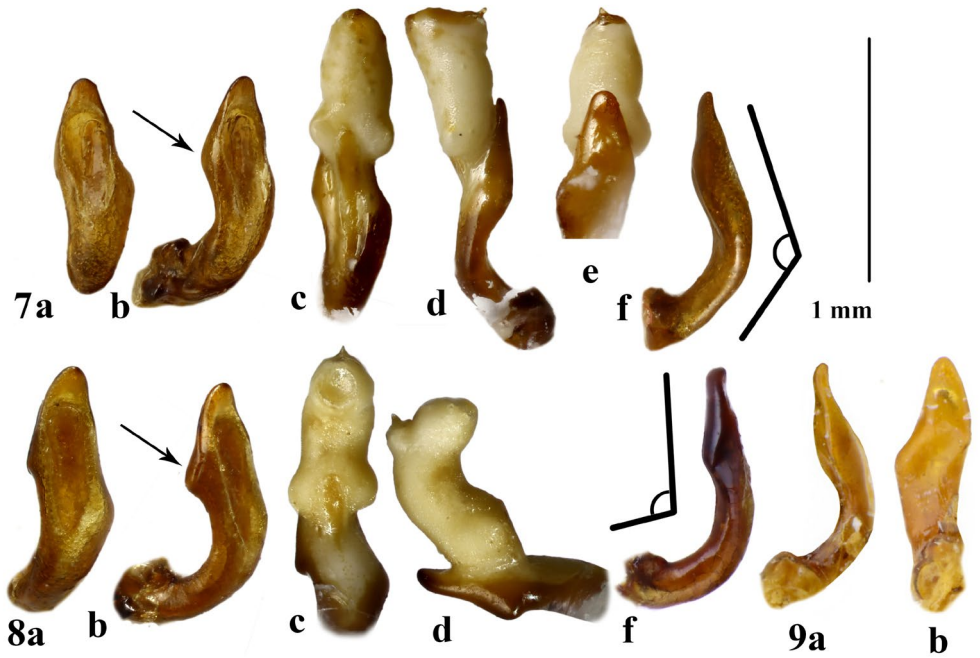
Differential diagnosis. This species (Fig. 2) can be easily distinguished from all known central-asian species with metallic elytra by its strongly reduced humera. The pronotum is slightly wider than long (Fig. 5). The differences in its shape of

pronotum, mentioned in the article between the nominative subspecies and *aktashiensis* are not noted (Figs. 5-6).



Figs 1-3. Habitus of *Brachinoaptinus*, males. 1 – *B.* (*B.*) *tashkenticus* Kirschenhofer, 1986; 2 – *B.* (*B.*) *tianshanicus* s.str. Michailov, 1976; 3 – *B.* (*B.*) *tianshanicus aktashiensis* Kirschenhofer, 1986 (Paratype).

Figs 4-6. Pronotum, males. 4 – *B.* (*B.*) *tashkenticus* Kirschenhofer, 1986; 5 – *B.* (*B.*) *tianshanicus* s,str. Michailov, 1976; 6 – *B.* (*B.*) *tianshanicus aktashiensis* Kirschenhofer, 1986 (loc. Typ.).



Figs. 7-9. Aedeagus, a – dorsal view, b – right dorso-lateral view, c-e – everted endophallus, f – lateral view. 7 – *B.* (*B.*) *tashkenticus* Kirschenhofer, 1986; 8 – *B.* (*B.*) *tianshanicus* s.str. Michailov, 1976; 9 – *B.* (*B.*) *tianshanicus aktashiensis* Kirschenhofer, 1986 (loc. Type, a – lateral view, b – ventral view).

Male genitalia (Fig. 8). Median lobe of aedeagus with strong, almost rectangular protuberance ventro-laterally on right side (Fig. 8b). The tube is bent before the middle almost at a right angle. The everted endophallus is oriented perpendicular to the axis of the aedeagus (Figs 8c-d).

Comments. The holotype of *B. tianshanicus* Michailov, 1976 and few paratypes have the label "Ugam Range, 20 km N Khumsan". On some labels cited in paper of Belousov & Kabak (1992: 341), this place is indicated as "Karzhantau Range, 20 km N Khumsan". The village of Khumsan is located on the Ugam River, which is a watershed between the ridges Karzhantau and Ugam. Judging by the studied material, it is indeed found on both ridges. However, the locality "Nanai, or 20 km N Nanai, Pskem Mountain range" does not belong to the Pskem Range but also to Ugam Range. Thus, in paper of Belousov & Kabak (1992: 340) the species was incorrectly cited for Pskem Range. Specimen from "Qurama Range, Kamchik pass" included in type serie of *B. tianshanicus* Michailov, 1976, probably belong to another taxon. Considering that the adults of these species are wingless and live in the alpine zone of different mountain ranges, most likely some populations are isolated, and may belong to undescribed species or subspecies.

Distribution. Ugam and Karzhantau Mountain ranges.

***B.* (*Brachinoaptinus*) *tianshanicus aktashiensis* Kirschenhofer, 1986**

Material: 1 m: "Paratypus [red label]", "USSR, Uzbekistan / Aktaš (Taškent) / 30.4.1978 / Mir. Dvořák lgt.", "Brach. (Pseudapt.) / aktashensis / m / det.: Kirschenhofer 1983", "ex coll M. Dvořák / National Museum / Prague, Czech Republic" (NMPC); 1 m: "USSR, Uzbekistan / Aktaš (Taškent) / 28.4.1988 / Mir. Dvořák lgt.", "ex coll M. Dvořák / National Museum / Prague, Czech Republic" (NMPC); 1 f: "USSR, Uzbekistan / Aktaš (Taškent) / 24.4.1980 / Mir. Dvořák lgt.", "ex coll M. Dvořák / National Museum / Prague, Czech Republic" (NMPC); 1 ex: Uzbekistan, Karzhantau Mt. R., Aktash 29.IV – 18.V.1993, I. Kabak & A. Molchanov leg. (RSc).

Differential diagnosis. This taxon is certainly close to *B. tianshanicus* Michailov, 1976 in the external structure of the aedeagus (Fig. 9), in the shape of pronotum (Fig. 6) and the metallic coloration of the elytra (Fig. 3). However, it differs from the nominative form in its more massive head and wider elytra, which are usually blue, while in the former they are usually green. For now I am leaving it as a subspecies, but it may turn out to be either a synonym or an independent species. Additional material, genetic analysis and endophallus structure needs to be studied to clarify the status of the taxon.

Comments. The type locality of *B.* (*Brachinoaptinus*) *aktashiensis* Kirschenhofer, 1986 remained unclear due to ambiguous label data of type material (Uzbekistan, Tashkent-Aktash, 1500m), since there are several toponyms with this name in Uzbekistan. Most likely, judging by the accessibility and the indicated height, specimens were collected near Mount Aktash (2400 m, 41.248382, 69.866052), situated 40 km east of Tashkent, not the well known Mount Aktash (3462 m, 41.722222, 70.475556).

The material attributed to this taxon in the paper by Belousov & Kabak (1992) should be re-checked, as the sites are widely separated on different mountain ranges, and no one is from the type locality.

Distribution. Western part of the Chatkal Mountain range.

ACKNOWLEGEMENTS

I would like to express my deepest gratitude to my colleagues and friends Vojta Rýznar (Czech) for the photographs of type material of *B.* (*Brachinoaptinus*) *aktashiensis* Kirschenhofer, 1986 in Natural History Museum of Prague, and Riccardo Sciaky (Italy) for the material and critical review of the draft manuscript

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