Genus	Vol. 20(1): 71-76	Wrocław, 30 III 2009

A new species of *Kytorhinus* Fisch.-Wald. from Western Pamir (Coleoptera: Bruchinae)

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Abstract. A new species of Kytorhinini, *Kytorhinus kergoati*, is described from the Gorno-Badakhshan autonomous province of Tajikistan, at an altitude of 3200 m in the Rushan Mountain. Host plants and female of the new species are unknown.

Key words: entomology, taxonomy, Coleoptera, *Kytorhinus*, taxonomy, new species, arctic-alpine mountain, Tajikistan.

INTRODUCTION

The tribe Kytorhinini (formely subfamily Kytorhininae) consists of a single genus, *Kytorhinus*, with about 15 species. The principal features of the genus are as follows (modified after Borowiec 1987): antennae pectinate or strongly serrate in male, serrate in female; legs slender, hind femur without preapical spine, hind tibia without distinct mucro, with at most a ventral carina, last abdominal tergites sclerotized, usually not covered by elytra, male genitalia of a typical bruchine type (median lobe elongate, ventral valve triangular), but internal sac with strong hooked sclerites and parameres almost completely fused, as in Pachymerini. While Yablokov-Khnzorian & Karapetian (1973) considered the genus merely as a member of Bruchini (formerly Bruchinae), Borowiec (1987), followed by Johnson & Romero (2004) considered Kytorhinini to be among the most specialized bruchid tribes, together with Amblycerini and Bruchini; Borowiec, however, considering the mixture of apomorphies and plesiomorphies found in Kytorhinini, stressed the need for additional morphology (especially larval) studies. To date, the phylogenetic position of *Kytorhinus* remains hypothetical, but

current investigations using modern techniques are likely to shed a new light on the question (KERGOAT, pers. comm.).

The tribe is almost exclusively restricted to Asian cold steppes and mountains. All species seem particularly well adapted to extreme climatic conditions: *Kytorhinus tibetanus* DECELLE is found in the Himalayan range upto 3600 m above sea level (DECELLE 1971). The distribution of the Eastern Palaearctic species *Kytorhinus senilis* (SOLSKY) (= *sharpianus* BRIDWELL) extends to Japan (BOROWIEC 1983, EGOROV & TER-MINASSIAN 1983), whereas another species, *Kytorhinus prolixus* (Fall) lives in Alaska and Canada (MCNAMARA 2007). *Kytorhinus pectinicornis* MELICHAR is the only European species; it is recorded in the Austrian Alps (BRANDL 1981; ANTON 1994).

This particular type of distribution may be defined as arctic-alpine (SCHMITT 2007), and is somewhat similar to that of the well-known papilionid genus *Parnassius*, the larvae of which feed mostly on stonecrop species (*Sedum*, Crassulaceae) in open meadows in the taiga or in alpine habitats (OMOTO *et al*. 2004). Plant and animal species able to survive in these environments have to be adapted not only to cold, but also to extremely dry steppe and windy conditions. The geographical distribution of *Kytorhinus* species is directly related to that of their host plants. Larval food-plants of the genus belong to Papilionoideae (or Fabaceae); several Asian species develop in *Caragana* seeds: *K. immixtus* MOTSCH. is a well-known pest of *Caragana arborescens* in Russian Far East (EGOROV & TER-MINASSIAN 1983) and *Caragana korshinskii* and *C. microphylla* in Northern China and Mongolia (LUO *et al.*, 2006), *K. caraganae* (TER-MINASSIAN) feeds on *Caragana ussuriensis* (EGOROV & TER-MINASSIAN 1983), *K. kaszabi* HOFFMANN on *Caragana pygmaea* (TER-MINASSIAN 1973), and *K. karasini* (FISCHER DE WALDHEIM) also develops in *Caragana* seeds (HOFFMANN 1968). *K. senilis* develops in seeds of *Sophora flavescens* (EGOROV & TER-MINASSIAN 1983) and *K. sericeus* DECELLE also was bred from seeds of *Sophora* (DECELLE 1971, SHIMADA 1990), *K. piptanthi* DECELLE from *Piptanthus nepalensis* seeds (DECELLE 1971), *K. thermopsis* MOTSCHULSKY from *Thermopsis lanceolata* (TER-MINASSIAN 1973, EGOROV & TER-MINASSIAN 1983), *K. pectinicornis* from *Hedysarum hedysaroides* (ANTON 1994). The larval food spectrum of the tribe thus consists of Papilionoideae belonging to tribes Galegeae, Thermopsidae, Sophorae and Hedysareae.

DESCRIPTION OF THE NEW SPECIES

Kytorhinus kergoati n. sp.

TYPE MATERIAL

Holotype: Male, Tajikistan, W. Pamir, Mts Rushan, 20.08.2002, alt. 3200 m (Guzko), dissected (genitalia: lame Delobel 12807) [MNHN].

DESCRIPTION

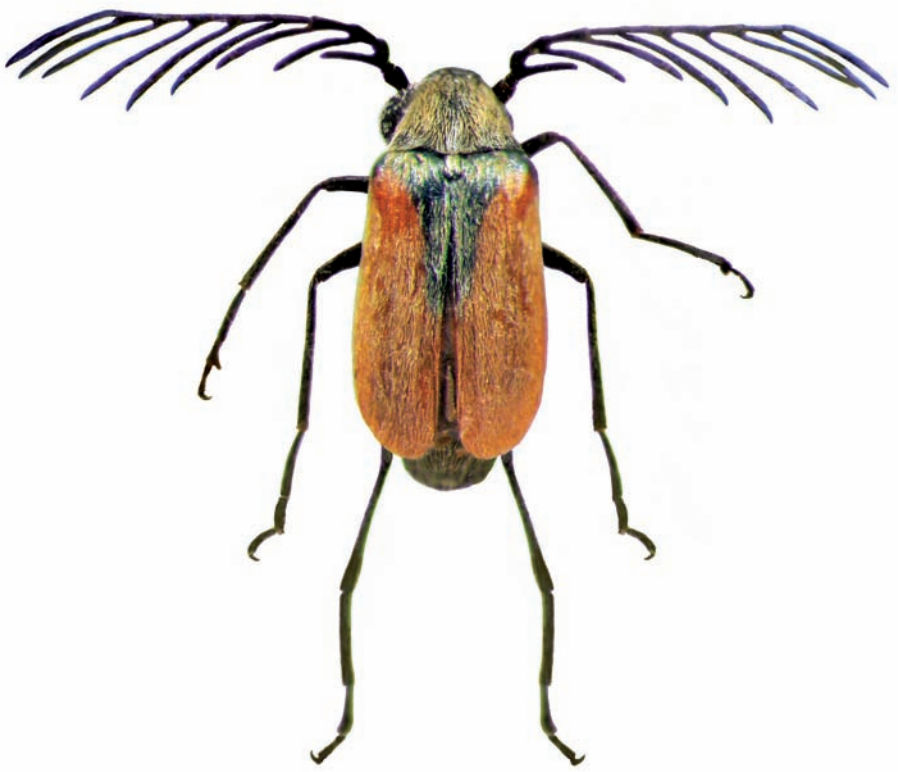
Length (pronotum-pygidium): 3.0 mm; width: 1.3 mm.

Body (Fig. 1) slender, legs and antennae long and slender, pygidium slanted frontward about 20° from vertical.

Integument black, except most of elytra (basal fringe and elongated triangular area along basal half of suture). Vestiture made of thin, long, silky pale yellowish setae, dense and well covering integument on dorsal side, especially on pronotum scutellum and elytral base; vestiture less dense on ventral side.

Head small, round, eyes strongly protruding, maximum head width 1.7 times width behind eyes; eyes separated by 0.2 times head width including eyes; face very narrow, distance between posterior rim of eyes and apex of clypeus / distance between eyes = 0.28; eye very wide and bulging behind antennal insertion; postocular lobes obsolete; carina on frons strong and shining, widened posteriorly; face outlined by a strong carina from base of antennal insertion, along eye margin to clypeus side; clypeus surface concave, its apex curved, labrum semi-circular, as long as clypeus. Antenna about as long as body; first antennal segment long, second small and subcircular, segments 3-11 elongate; lateral expansion of segments 3-10 two to three times longer than segment itself; length of antennomeres: 4.6; 1; 3.4; 2.9; 3.3 ; 3.5; 2.9; 2.9; 3.1; 3.2; 7.5; last antennomere 10.2 times longer than wide.

Pronotum subtrapezoidal, not campaniform, with greatest width at base (W/L = 1.38), its sides almost straight, only slightly rounded in the middle, without oblique



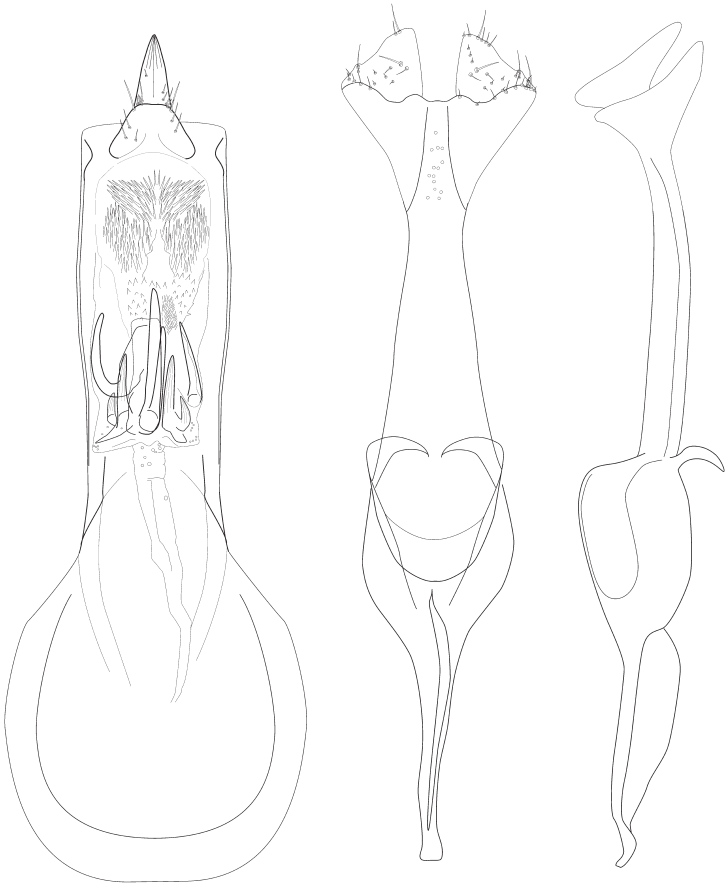
1. Habitus of male *Kytorhinus kergoati*

impression on sides of basal lobes; basal lobes small. Sculpture of pronotum made of very thin, shallow and dense punctures. Elytra long, about 1.7 times longer than combined width, their sides subparallel, maximum width well behind middle; its disc convex; at base of striae 2 to 5, a rather strong and acute carina. Striae on disc thin and shallow; interstriae wide, shining, with micropunctation, without large punctures.

Legs very slender, with elongated tibiae and tarsi; hind tarsi longer than tibiae; hind femora 4.4 times longer than wide; mesoventral margin indistinct, without preapical denticle; hind tibiae apically hardly widened, with ventral carina complete; apex of tibia with a small blunt tooth; first tarsomere of hind leg ventrally without denticle.

Abdominal ventrites 2-5 strongly emarginate, extremely shortened medially; ventrite 1 without any sign of particular setation. Only part of penultimate abdominal tergite visible from top; last abdominal tergite (pygidium) subtriangular, about as long as wide, regularly convex but not turned under apically.

Genitalia: Median lobe (Fig. 2) of moderate length, stout (maximum width excluding basal hood / total length = 0.18), not widened apically; basal hood subcircular,



2-4. *Kytorhinus kergoati*: 2 – median lobe, 3 – tegmen, ventral view, 4 – tegmen, side view

not emarginate, well sclerotized medially; ventral valve acutely triangular, moderately sclerotized, bearing two lateral groups of 8-9 setae; no hinge sclerites; internal sac basally with a dense bundle of weakly sclerotized spicules; saccus with six large broad-based, hooked teeth, and two smaller ones, followed by an almost glabrous tube, bearing basally a number of large circular sensilla; gonopore without sclerotized frame; tegminal strut strongly sclerotized, with strong keel; lateral lobes almost entirely fused; apex of parameres widened (Fig. 3-4), with numerous small short setae.

Female unknown.

Affinities

K. kergoati belongs to the same group of species as *K. kasasini*. To this group also belong *K. quadriplagiatus* Motschulsky, 1839, *K. immixtus* Motschulsky, 1873, *K. kaszabi* Hoffman, 1965, and *K. mongolicus* Ter-Minassian, 1973. These species are very closely related and differ weakly in terms of morphology. The new species is most closely related to *K. kasasini* Fischer de Waldheim, 1809 (=*K. reitteri* Schilsky, 1905; Legalov 1999), but differs in tibiae black, elytra narrower, forehead with carina, pronotum shorter with sides more strongly narrowed to apex, shorter ventral valve of aedeagus and the form of sclerites in the endophallus. The group is distributed from the Austrian Alps in the West to Siberia and Central Asia in the North and the East. Considering the large -and possibly larger than presently known- level of differentiation observed in this group of species, it may be assumed that the tribe has been subject to disjunct distribution patterns during glacial and possibly interglacial phases. Habitat disjunction (isolated mountain systems and valleys) following climatic modifications may have favored the isolation of populations that subsequently evolved separately, leading to emergence of the closely related and morphologically similar species presently observed.

Etymology

This species is dedicated to Gaël Kergoat (CBGP, Montpellier), who very kindly entrusted us with the study of this highly interesting specimen.

Biology

Host plant unknown.

Distribution

The single available specimen was collected in the Gorno-Badakhshan autonomous province of Tajikistan, at an altitude of 3200 m in the Rushan Mountain, not far from the city of Rushan (37°9442N, 71°5575E).

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