

New species of the genus *Rhizophagus* from Middle Asia (Coleoptera, Rhizophagidae)

JOSEF JELÍNEK

Department of Entomology, National Museum (Nat. Hist.), Praha

The genus *Rhizophagus* Herbst contains now 39 species from the Holarctic region including Himalaya and China. The last review of the genus was published by Méquignon (1914) and since that time only a few small contributions to the taxonomy of the genus including some new descriptions have been published by Méquignon (1925), Jelínek (1965), Tozer (1968, 1973) and Sen Gupta & Biswas (1977). In the present paper is described the highly specialized species *R. microps* sp. n. from Soviet Middle Asia.

It is my pleasant duty to express my thanks to my friend Aldo Olexa (Praha), who enabled me to study this new species, collected by himself during his tourist trip to USSR in 1980.

***Rhizophagus microps* sp. n.**

Head distinctly narrower than pronotum, without distinct transverse occipital impression. Front with two large but extremely shallow tentorial impressions. Eyes rudimentary, reduced to a few facets situated ventrolaterally at the midlength of the outer margins of antennal furrows, not visible from above (Figs. 1, 2). Temples rather long, parallel. Antennal furrows converging posteriorly. Dorsal surface of the head sparsely punctate, punctures separated by more than one diameter, becoming much larger and closer (but not confluent) on temples and collum. Postmentum shallowly transversely impressed, very coarsely densely punctate.

Antennae 11-segmented with 2-segmented club, slightly longer than the width of the head capsule. Segment I nearly oval, by half longer than wide, distinctly wider than II. Segment II almost twice as long as wide, slightly wider than the following one. Segment III as long as two following ones together, nearly 1.4 times as long as II; IV and V each as long as wide, VI—IX moderately transverse, becoming gradually somewhat wider distad. Segment X large, twice as wide as IX, as long as wide, widest at the truncate distal end. Segment XI small, conical at the apex.

Pronotum widest at its anterior fifth, in males 1.09—1.11, in females 1.05—1.10 times longer than wide, narrowed posteriorly, on the disc almost flat, at sides moderately transversely vaulted. Both anterior and posterior margins truncate, posterior one narrowly bordered. Anterior angles obtuse, not prominent, posterior ones broadly rounded. Sides narrowly bordered, not explanate, very flatly arcuate, almost straight, moderately converging posteriorly, only in the anterior fifth more strongly curved towards the anterior angles. Punctures of the disc almost equal in size to those of collum, somewhat oblong, separated in longitudinal direction by their length or less, in transverse direction by more than their width, becoming markedly finer and sparser laterally. Spaces between them glabrous, very obsoletely microscopically isodiametrically reticulate (distinct by magnification over 50X), moderately shining.

Prosternum transversely convex, rather coarsely punctate. Punctures in the middle slightly smaller than those of postmentum, separated by more than one diameter, becoming larger and closer laterally. Spaces between them smooth and shining. Hypomera mostly smooth and shining, puncturation concentrated mostly along sternopleural sutures.

Scutellum small, rounded, smooth. Elytra widest closely before their mid-length, striate-punctate, in both sexes 1.85—1.95 times longer than their combined width, moderately narrowed anteriorly and rather strongly so posteriorly (Fig. 1), firmly connate along suture. Lateral margins visible simultaneously from above only at the obtuse humeral angles and in the apical portion. Punctures of each stria separated by one diameter or less, becoming finer and sparser posteriorly, punctures of lateral striae gradually markedly finer than those of 3 to 4 inner striae. Sutural stria finely incised in the apical portion. Sutural interstriae with series of very fine and sparse punctures, otherwise smooth. Remaining interstices with very obsolete traces of microscopic reticulation, moderately shining. Wings completely absent.

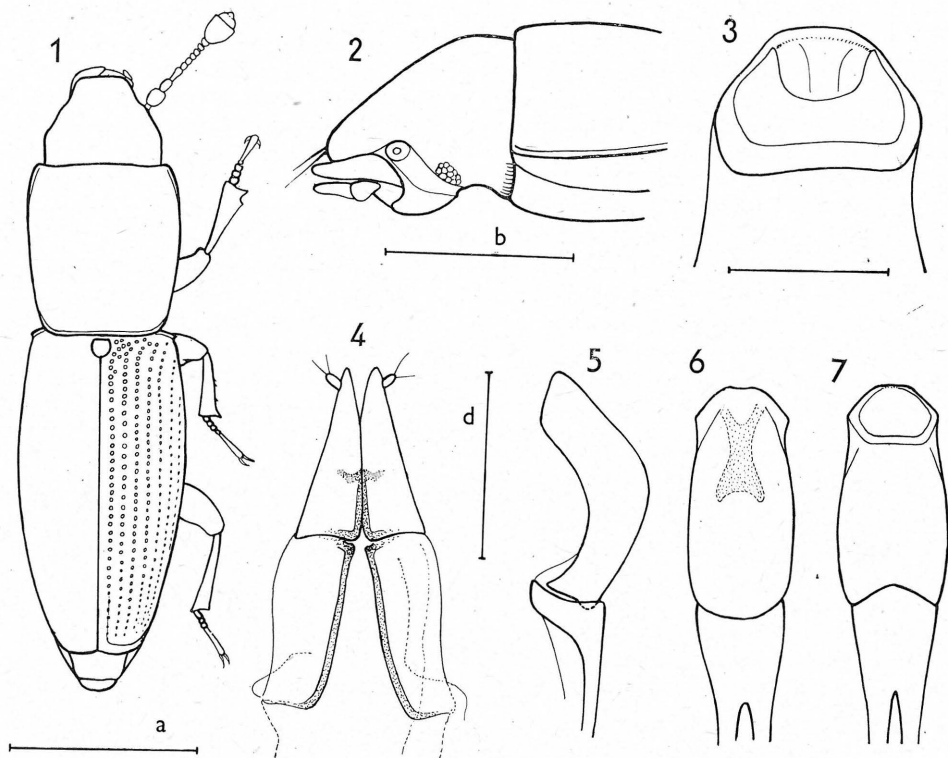
Mesosternum transversely convex, punctate. Metasternum flatly convex, without distinct median longitudinal furrow, in the middle almost impunctate, with only few very fine and obsolete, widely dispersed punctures, becoming considerably larger and closer laterally. Punctures in anterior corners equal both in size and density to those of postmentum. Metepisterna narrower than epipleura, coarsely punctate. Caudal marginal lines follow closely posterior margins of mesocoxal cavities, connected in the middle. The first visible sternite longer than three following ones together, lightly depressed in the middle. Its puncturation is analogous to that of metasternum. Caudal marginal lines closely following posterior margins of metacoxal cavities. Visible sternites 2—4 nearly equal in length, hypopygidium somewhat longer than sternites 3—4 together. Puncturation of sternites essentially analogous to that of the first sternite, but punctures are well developed also in the middle.

Outer apical angle of anterior tibia acute, ventrolateral margin of tibia behind it shallowly emarginate, with one small thorn. Outer margins of intermediate tibiae with 1—2 fine thorns. Posterior tibia with smooth outer margin. Tarsi 5-segmented, posterior ones in males 4-segmented. Tarsal claws simple.

Aedeogagus as figured (Figs. 3—6). Ovipositor triangular, pointed, with small styli (Fig. 7).

Reddish brown, glabrous.

Length 2.8—3.5 mm., width 0.8—0.9 mm.



Figs. 1—7: *Rhizophagus microps* sp. n., form of body [1], lateral view of the head [2], ventral view of the apex of aedeagus [3], ovipositor [4], lateral [5], dorsal [6] and ventral [7] view of aedeagus. Scale a = 1 mm [Fig. 1], b = 0.5 mm [Fig. 2], c = 0.1 mm [Fig. 3], d = 0.3 mm [Figs 4—7].

Type material. Holotype (♂): USSR, Uzbek SSR, Chimgan pr. Tashkent, 23. 4. 1980, Olexa lgt. Deposited in the National Museum, Praha. Paratypes: 6 ♂♂, 7 ♀♀, the same data, deposited in collection A. Olexa (Praha), National Museum, Praha and Zoological Institute, Academy of Sciences of USSR, Leningrad.

Diagnosis: *Rhizophagus microps* sp. n. differs from all hitherto known species of the genus by its aptery, strongly reduced eyes and connate elytra. Apart from those apparently adaptive features it corresponds with species of the subgenus *Rhizophagus* s. str. By its colour, size, rather fine puncturation of pronotum, shining surface and parallel temples it may resemble especially the west-mediterranean species *R. doderoi* Méquignon and *R. philippi* Méquignon, which remain unfortunately unknown to me. It differs from them by having the third antennal segment not longer than two following ones. From another externally similar species, *R. perforatus* Er. it differs moreover by having parallel temples and anterior angles of pronotum not projecting an-

teriorly. Among species with shorter third antennal segment it is especially similar to *R. protensus* Reitt. from Caucasus and Iran, from which it differs especially by comparatively longer elytra.

Bionomics: All specimens of *Rhizophagus microps* sp. n. have been collected in the decaying roots of an unidentified plant in the mountain steppe of the westernmost Tian-shan Mts. Some species of *Rhizophagus* are known to occur occasionally on decaying vegetal substrates and *R. parallellocollis* Gyll. is known to occur occasionally underground, occurring on buried bodies in graves (e. g. Kraatz, 1888 and Bailey, 1907). These are, however, but cases of facultative occurrence of a species without special adaptations to the subterranean way of life. *Rhizophagus microps* sp. n., on the contrary, seems to be already highly adapted to the special ecological niche, as is suggested by its striking apomorphies such as aptery, reduced eyes and connate elytra. Adaptation to life in roots and/or stems of larger plants (e. g. species of the botanical genus *Ferula*) are not unknown among beetles in Middle Asia, allowing survival of the originally arboreal element in the essentially treeless environment.

L i t e r a t u r e

- Bailey, J. H., 1907: The occurrence of *Rhizophagus parallellocollis* Er. in buried corpses. *Ent. mon. Mag.*, 43: 3—4.
- Jelínek, J., 1965: A new species of the genus *Rhizophagus* from China. *Acta ent. Mus. nat. Pragae*, 36: 385—389.
- Kraatz, G., 1888: Ist *Rhizophagus parallellocollis* wirklich ein Leichenfreund? *Deutsche ent. Zeitschr.*, 32: 191—192.
- Méquignon, A., 1914: Révision générale du genre *Rhizophagus* Herbst. *Abeille*, 31: 157—180.
- Méquignon, A., 1925: Description de deux *Rhizophagus* nouveaux de l'Europe méridionale. *Bull. Soc. ent. Fr.*, 1925: 13—15.
- Sen Gupta, T., & Biswas, D. N., 1977: On the genus *Rhizophagus* Herbst (Coleoptera: Rhizophagidae) and description of a new species from India. *Rec. zool. Surv. India*, 2: 419—423.
- Tozer, E. R., 1968: A new species of *Rhizophagus* Herbst (Col. Rhizophagidae) from Greece. *Proc. R. ent. Soc. Lond.*, 37 (B): 57—61.
- Tozer, E. R., 1973: On *Rhizophagus simplex* Reitter and *R. oblongicollis* Blatch & Hower sp. rev. (Col. Rhizophagidae). *Ent. mon. Mag.*, 108: 219—221.

Author's address: Dr. J. Jelínek, Department of Entomology of the National Museum (Nat. Hist.), 148 00 Praha 4 - Kunratice 1, Czechoslovakia.