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An enigmatic new genus and species of Anthophagini from Georgia (Coleoptera: Staphylinidae: Omaliinae)

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A b s t r a c t : *Caucanthobium* nov.gen. *mirandum* nov.sp., an enigmatic new genus and species from Southwest Georgia, is described, illustrated, and distinguished from *Anthobium* LEACH, 1819 and *Deinopteroloma* JANSSON, 1947. Its currently known distribution is mapped.

K e y w o r d s : Coleoptera, Staphylinidae, Omaliinae, Anthophagini, *Caucanthobium*, *Anthobium*, *Deinopteroloma*, Caucasus region, Georgia, West Palaearctic region, taxonomy, new genus, new species, distribution map.

Introduction

According to SCHÜLKE & SMETANA (2015), the tribe Anthophagini is represented in the Palaearctic region by 33 genera, 19 of which have been recorded from West Palaearctic region exclusive of Middle Asia. The Holarctic genus *Anthobium* LEACH, 1819 was represented in the Palaearctic region by 29 species, 25 in the nominal subgenus and four in *Prionothorax* LUZE, 1905. Three additional names are listed as nomina dubia, all of them described from Central Europe (Germany, Austria); based on the details indicated in their respective original descriptions, at least two of them do not belong to *Anthobium*, but to *Eusphalerum* KRAATZ, 1857. Very recently, nine species of *Anthobium* sensu strictu were added by SHAVRIN & SMETANA (2017), eight of them from China and one from the Himalaya. Numerous further species remain to be described from the East Palaearctic region, mainly from China and the Himalaya (SHAHRIN & SMETANA 2017). According to Shavrin (pers. comm), who is currently revising the genus, *Prionothorax* is of doubtful status. Similarly, several West Palaearctic names require revision (e.g., *A. abantense* (FAGEL, 1968), *A. collar* (COIFFAIT, 1978)).

The genus *Deinopteroloma* JANSSON, 1847 previously included 26 species distributed in Southeast Asia (24 species) and western North America (two species). *Deinopteroloma* is closely allied to *Anthobium*, but differs by a larger and more convex body, significantly elongated elytra, and by the structure of the female genital segment (SHAHRIN & SMETANA 2016).

Material of Staphylinidae collected by Volker Brachat (Geretsried) and Heinrich Meybohm (Großhansdorf) during a recent field trip to Georgia included a male of a highly distinctive species from the Adjara region, Southwest Georgia. Additional females from the adjacent Guria region, also collected in 2018, were made available by Alexey Solodovnikov (Copenhagen). Based on external resemblance, this species was first attributed to *Anthobium*, until a more thorough study revealed remarkable differences suggesting that it most likely represents a distinct genus.

Material and methods

The material treated in this study is deposited in the following collections:

ZMUC..... Zoological Museum, University of Copenhagen (A. Solodovnikov)

cAss..... author's private collection

The morphological studies were conducted using a Stemi SV 11 microscope (Zeiss), a Discovery V12 microscope (Zeiss), and a Jenalab compound microscope (Carl Zeiss Jena). The images were created using a digital camera (Nikon Coolpix 995), Axiocam ERc 5s, and Picolay software. The map was created using MapCreator 2.0 (primap) software.

Body length was measured from the mandibles to the abdominal apex, the length of the forebody from the mandibles to the posterior margin of the elytra, head length along the middle from the anterior margin of the clypeus to the posterior constriction of the head, head width across (and including) the eyes, elytral length at the suture from the apex of the scutellum to the posterior margin of the elytra, and the length of the median lobe of the aedeagus from the apex of the longer paramere to the base of the capsule. The "parameral" side (i.e., the side where the sperm duct enters) is referred to as the ventral, the opposite side as the dorsal aspect.

Description

Caucanthobium nov.gen. (Figs 1-11)

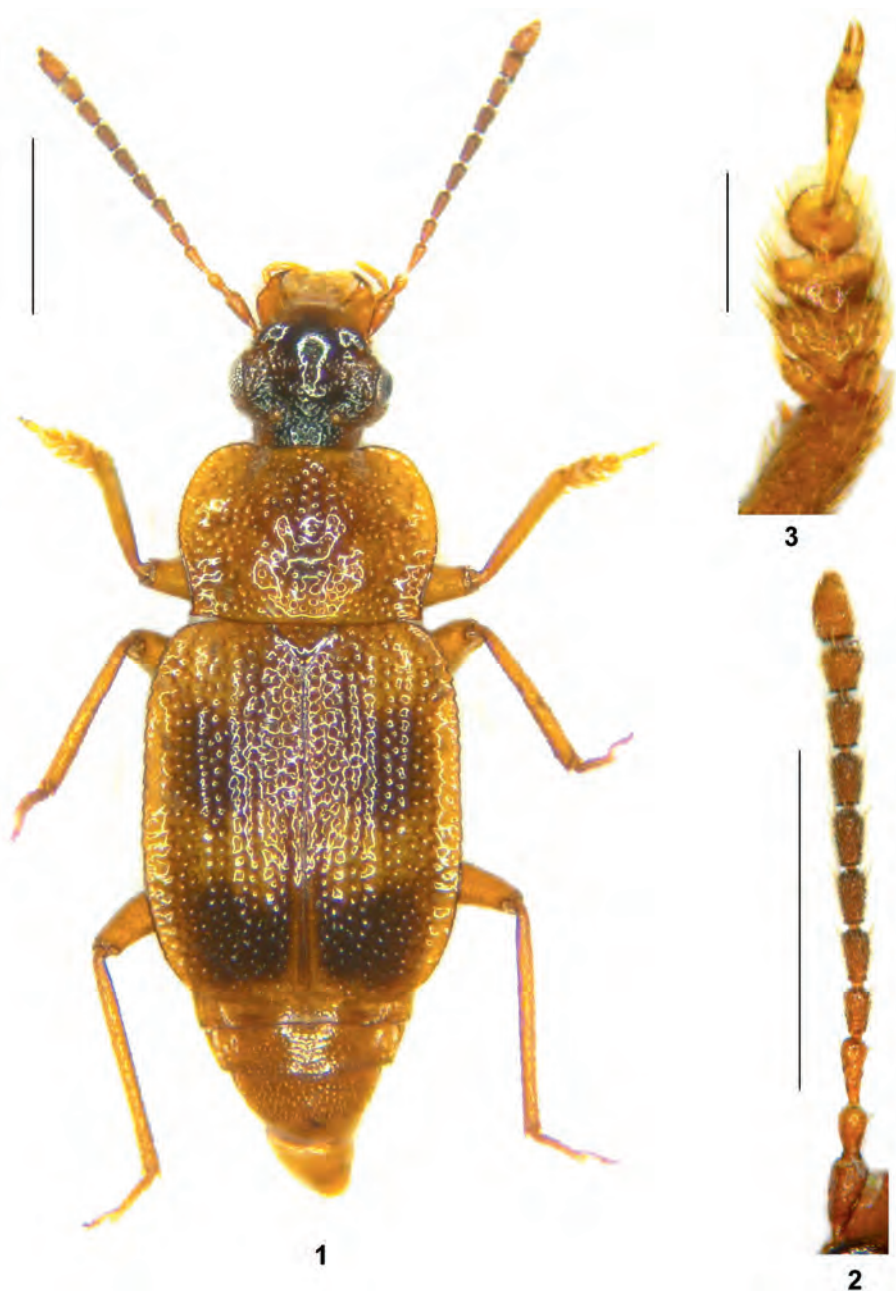
Type species: *Caucanthobium mirandum* nov.sp.; present designation.

Etyymology: The name (gender: neuter) is composed of Cauc (from Caucasus) and the generic name *Anthobium*. It alludes to the external resemblance to *Anthobium* and the distribution, which is currently confined to the southwestern Caucasus region.

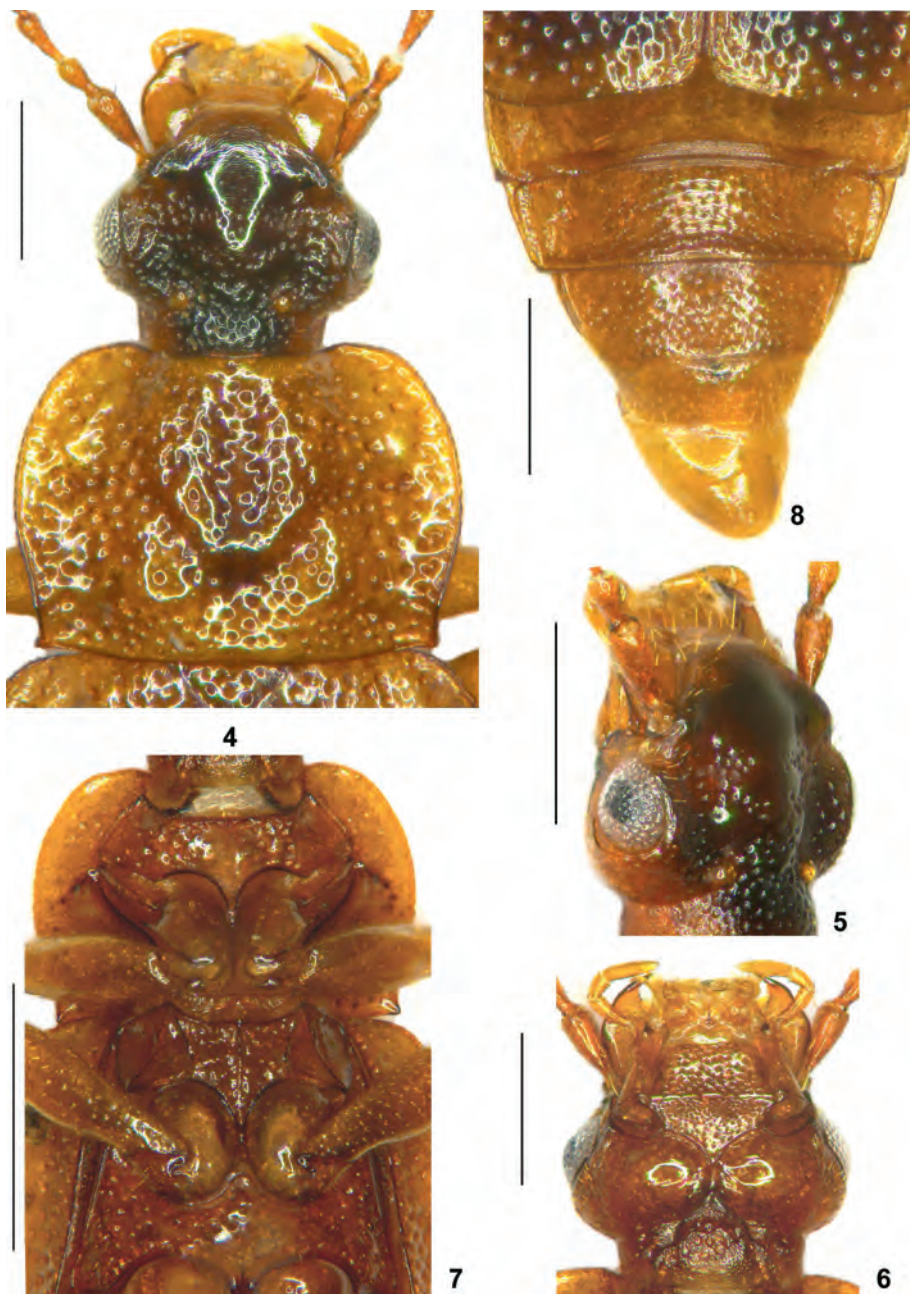
Description: Body depressed (Fig. 1). Head (Figs 4-6) distinctly transverse, broadest across eyes; dorsally with a pronounced impression near dorsal margin of eye on either side; median dorsal portion distinctly elevated; antocular indentation indistinct; postocular ridge reduced, not visible from above; ocelli pronounced, situated at posterior constriction, separated from each other by a distance slightly greater than the distance between ocellus and posterior margin of eye. Mentum and praementum densely punctate; gular sutures contiguous posteriorly; posterior constriction ventrally with distinct microsculpture and with some coarse granules in the middle. Eyes of moderate size and distinctly convex. Antenna (Fig. 2) elongate and slender; antennomeres IV-IX distinctly oblong, X weakly oblong. Maxillary palpus (Fig. 6) slender; maxillary palpomere IV approximately five times as long as broad and slightly more than twice as long as maxillary palpomere III.

Pronotum (Fig. 4) weakly convex in cross-section, moderately transverse (approximately 1.4 times as broad as long), broadest in anterior half; posterior angles marked; lateral margins broadly explanate, weakly (but distinctly) serrulate, weakly sinuate in posterior half in dorsal view; surface of disc uneven, with pronounced impressions and elevations.

Posterior process of prosternum very long and acute (Fig. 7).



Figs 1-3: *Caucanthobium mirandum* nov.sp.: (1) habitus; (2) antenna; (3) male protarsus. Scale bars: 1-2: 1.0 mm; 3: 0.2 mm.



Figs 4-8: *Caucanthobium mirandum* nov.sp.: (4) head and pronotum; (5) head in dorso-lateral view; (6) head in ventral view; (7) thorax in ventral view; (8) apical portion of abdomen. Scale bars: 7: 1.0 mm; 4-6, 8: 0.5 mm.



Figs 9-11: *Caucanthobium mirandum* nov.sp.: (9-10) aedeagus in lateral and in ventral view; (11) female genital segment. Scale bars: 0.2 mm.

Elytra (Fig. 1) weakly convex in cross-section; lateral margins broadly explanate and finely serrulate; punctation seriate laterally and posteriorly. Mesoventrite (Fig. 7) with sharp median carina; posterior process very long and acute, reaching half-way between mesocoxae. Legs long; all tibiae thin and straight, without evident modifications. Protarsus with pronounced sexual dimorphism.

Abdomen (Fig. 8) with rather dense and distinct punctation.

♂: protarsomeres I-IV (Fig. 3) strongly dilated; aedeagus (Figs 9-10) highly derived, small in relation to body size, weakly sclerotized, with laterally (not dorso-ventrally) compressed median lobe, with conspicuous long sclerotized internal structure, and with strongly asymmetric parameres of derived shapes.

♀: gonocoxites short and very broad, basally not completely fused (Fig. 11); styli short and with very long terminal seta.

Comparative notes: Based on the presence of at least a rudimentary post-ocular ridge, the structure of the mouthparts, and the shapes and punctation of the pronotum and elytra, *Caucanthobium* is placed in the *Anthobium* group of genera within the Anthophagini (see SHAVRIN & SMETANA 2016, 2017). In external characters, the genus most resembles *Anthobium*, to some extent also *Deinopteroloma*. It is distinguished from both genera by a highly derived morphology of the aedeagus (weakly sclerotized, strongly asymmetric, median lobe laterally compressed; internal sac with sclerotized internal structure), a strongly reduced postocular ridge, and strongly dilated male protarsi. In addition, it is separated from them as follows:

from *Anthobium* by the presence of pronounced impressions and elevations on the pronotal disc, a mesoventrite with a pronounced median carina, and by the structure of the female genital segment with short and very broad gonocoxites and short styli;

from *Deinopteroloma* by much flatter elytra, the absence of a distinct antocular indentation (see SMETANA 1985: figure 47), the shape of the pronotum (*Deinopteroloma*: pronotum broadest approximately in the middle, lateral margins regularly convex, not sinuate, and usually strongly serrulate), thin and straight tibiae (stout and usually more or less distinctly sinuate in *Deinopteroloma*), the shape of the head (*Deinopteroloma*: head usually with a more or less pronounced transverse sulcus anterior to ocelli), and a female genital segment with basally not fully fused gonocoxites.

Distribution: The monotypical genus is currently known only from Southwest Georgia, Lesser Caucasus.

***Caucanthobium mirandum* nov.sp. (Figs 1-11, Map 1)**

Type material: Holotype ♂: "N41°40'16 E42°02'37, Georgien Adjara (62), Gobroneti 1280 m, 24.5.2018, Brachat & Meybohm / Holotypus ♂ *Caucanthobium mirandum* sp. n. det. V. Assing 2018" (cAss). Paratypes: 1 ♀ [in ethanol]: "AKH-GE18-2f, Georgia Guria, Chokhatauri, W of Bakhmaro, 41°50'50.0"N, 42°17'10.2"E, 5.VI.2018, h1950m, sifting alder litter, grazed fields, rhododendron, scrubs, and forest patches, leg. A.K. Hansen NHMD" (ZMUC); 2 ♀♀ [one in ethanol]: "AKH-GE18-5b, Georgia Guria, Chokhatauri, N of Bakhmaro, 41°53'19.4"N, 42°21'40.2"E, 8.VI.2018, h1640m, sifting oak litter and mouse nest in hollow tree, Pontic oak forest, leg. A.K. Hansen NHMD" (ZMUC, cAss).

Etymology: The specific epithet (Latin, gerundivum of the verb *mirare*: to be admired) alludes to the conspicuous appearance (size and coloration) of this species.

Comment: The two paratypes preserved in concentrated ethanol were not used for the measurements in the description.

Description: Body length 4.7-5.0 mm; length of forebody 4.1 mm. Habitus as in Fig. 1. Coloration: head blackish-brown with all, or the anterior portion of, the frons and the lateral portions of the posterior constriction reddish-yellow to red; pronotum uniformly dark-yellowish or dark-yellowish with the median portion slightly darker; elytra dark-yellowish, each with two large infusate spots, one slightly anterior to middle and one in posterior portion; abdomen reddish-yellow; legs yellow; antennae reddish with antennomeres V-IX slightly to distinctly darker.

Head (Figs 4-6) transverse, median portion somewhat elevated and with irregularly distributed punctation, between this elevation and dorsal margins of eyes with a deep and densely punctate impression on either side; frons with transverse microsculpture and with very fine and rather sparse punctation. Antenna (Fig. 2) 1.9-2.0 mm long; antennomeres IV-X oblong.

Pronotum (Fig. 4) approximately 1.4 times as broad as long and 1.55 times as broad as head; lateral margins broadly explanate and weakly serrulate, sinuate near the sharply marked posterior angles; antero-lateral angles rather weakly projecting anteriorly; median portion in anterior three-fifths with an oblong median impression and an oblong elevation on either side of this impression, in posterior portion with a median impression and with an elevation on either side of this impression; punctation very coarse and rather dense, somewhat irregularly distributed in median portion; interstices with micropunctation, otherwise without microsculpture.

Elytra (Fig. 1) approximately 1.05 times as long as combined width, about 1.2 times as

broad and 1.8 times as long as pronotum; lateral margins broadly explanate and serrulate; punctation coarse and dense, laterally and posteriorly seriate. Hind wings completely reduced. Legs long; metatibia 1.25-1.30 mm long. Abdomen (Fig. 8) with dense and distinct punctation; posterior margin of tergite VII without palisade fringe.

♂: protarsomeres I-IV (Fig. 3) distinctly dilated; posterior margin of tergite VIII broadly concave; aedeagus (Figs 9-10) of highly derived morphology, small in relation to body size, 0.67 mm long (including parameres), weakly sclerotized, strongly asymmetric with the right paramere much longer and larger than the left paramere (ventral view), and with a conspicuous dark internal structure apically extending beyond apex of ventral process.

♀: protarsomeres I-IV weakly dilated, much less so than in male; posterior margin of tergite VIII truncate; posterior margin of sternite VIII broadly convex, in the middle weakly concave; gonocoxites (Fig. 11) short and broad, with short styli and very long terminal seta.

Comparative notes: *Caucanthobium mirandum* is readily distinguished from other Anthophagini distributed in the Caucasus region by the generic characters, as well as by its coloration and the unique morphology of the aedeagus.



Map 1: Distribution of *Caucanthobium mirandum*.

Distribution and natural history: This species is currently known from three localities in Adjara and Guria regions, Southwest Georgia. It seems remarkable that a conspicuous species like *C. mirandum* should have remained undiscovered up until today. Possible explanations could be a very restricted distribution and/or a special habitat. The holotype was sifted from leaf litter in a mixed deciduous forest with beech, chestnut, hornbeam, alder, hazelnut, laurel, and rhododendron undergrowth (MEYBOHM pers. comm.). Two of the paratypes were sifted from litter and a mouse nest in a hollow tree. The altitudes range from 1280 to 1950 m.

Acknowledgements

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Zusammenfassung

Caucanthobium nov.gen. *mirandum* nov.sp. aus Südwest-Georgien, eine in vieler Hinsicht bemerkenswerte Art, wird beschrieben, abgebildet, und von den Gattungen *Anthobium* LEACH, 1819 und *Deinopteroloma* JANSSON, 1947 unterschieden. Die derzeit bekannte Verbreitung wird anhand einer Karte illustriert.

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