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## A new *Meganophthalmus* species (Coleoptera, Carabidae, Trechini) from the West Caucasus

by Igor A. Belousov and Alexandr S. Zamotajlov

**Abstract.** A new species of the genus *Meganophthalmus* Kurnakov, *M. irinae* sp. n., from the West Caucasus is described. The new species is easily recognizable by peculiar shape of pronotum with completely lacking marginal border. In some respects it is more similar to *M. kravetzi* Komarov from the Central Caucasus (Kabardino-Balkaria), in other to *M. mirabilis* Kurnakov from Abkhazia.

**Key words.** Coleoptera - Carabidae - Trechini - *Meganophthalmus* - systematics - new species - Caucasus.

### Introduction

In 1997 one of the authors (A.Z.) have collected a new remarkable species of the genus *Meganophthalmus*. The representatives of this genus remain the rarest among the Caucasian taxa of blind Trechini, although the first species of the genus was described yet in 1959.

The morphometric characters are used as follows in the present note. Length of body is measured from the anterior margin of labrum to the elytral apex; pronotal base - at the narrowest part before hind angles; length of elytra - from scutellar seta to elytral apex, their width - at their broadest part, length of antennomeres - from the distal constriction of articulation to their apex. Apart from the "discal formula" (PAWLOWSKI, 1979) with some modifications, the "formula of umbilicate series" is employed in the same way. In both these formula, numbers mean the distance from the pore to the elytral base (latter is assumed to be placed at the level of scutellar striola for the currently described species) expressed in percent of the elytra length.

The holotype of the new species is deposited at the Zoological Institute of the Academy of Sciences of Russia, in St.-Petersburg.

### *Meganophthalmus irinae* sp.n.

Figs 1-7

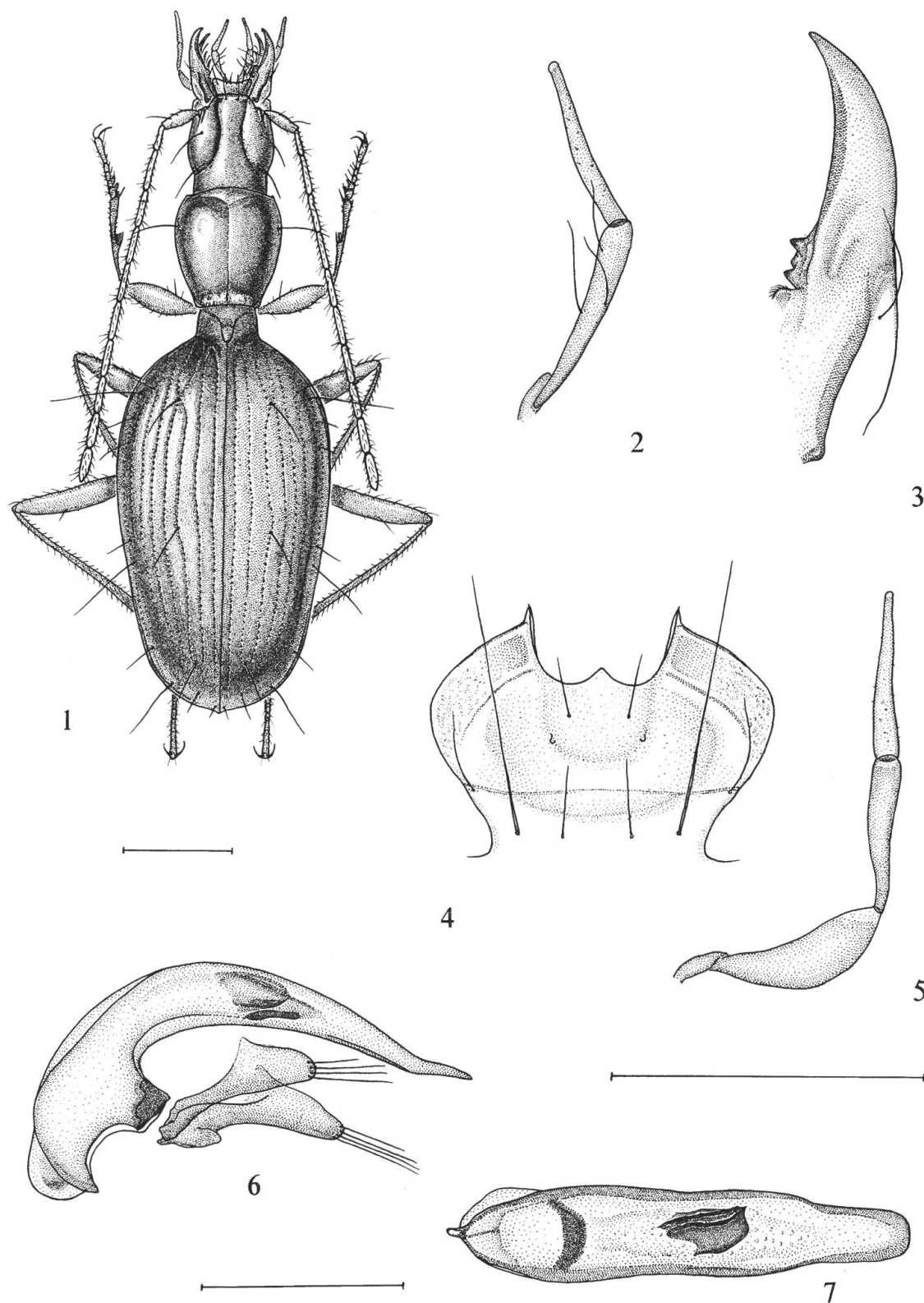
**Holotype**, ♂: NW Caucasus, near Chernigovskaya, mountain massif Chernogorie, Zheloba, 1300 m, 12.vi.1997 (Zamotajlov & Shchurov leg.).

**Derivatio nominis.** We are pleased to dedicate this remarkable species to Irina Zamotajlova for her enormous patience displaying in respect to her husband's entomological activities.

**Diagnosis.** The new species is easily distinguishable from both other known representatives of the genus by completely lacking marginal border of pronotum and rounded hind angles of the latter without distinct sinuosity before them.

**Description.** Large-sized species (Fig. 1), body length 5.70 mm. Apterous. Appearance ovate and strongly convex with extraordinarily swollen anterior portion of elytra. Depigmented, pale testaceous. Surface of body throughout shiny, completely glabrous, without any trace of pubescence, even on temples and lower side of body. Eyes entirely reduced, represented by small depigmented spot without any trace of facets. Appendages long and slender.

Head small, narrow and somewhat parallel-sided, 1.20× narrower than pronotum. Frontal furrows deep and sharp, regularly arched, more superficial in posterior part. Temples faintly tumid, widely rounded. Two supraorbital setae and two clypeal setae on each side of head. Labrum strongly transverse, its anterior margin hardly concave, bearing 6 setae, extreme ones longest. Mandibles (Fig. 3) elongate, weakly curved



Figs 1-7: *Megaphthalmus irinae* sp. n. 1, general appearance; 2, labial palpus; 3, right mandible; 4, labium; 5, maxillary palpus; 6, aedeagus, lateral view; 7, same, dorsal view. Scales: fig. 1 = 1 mm, figs 2-5 = 0.5 mm, figs 6-7 = 0.5 mm

apically, retinacle of right mandible tridentate, median denticle less strongly prominent. Labium (Fig. 4) free, i.e. mentum separated from submentum by distinct labial suture. Mentum tooth short and simple, faintly protruding, a little curved upward apically. Sensorial labial organ well-developed, situated in middle between labial suture and anterior margin of labial emargination. Mentum with two usual small setae, submentum with 6 setae, the sublateral ones longest. Maxillary (Fig. 5) and labial (Fig. 2) palpi slender, their ultimate segments subcylindrical and nearly as long and as wide at base as the penultimate ones, hardly narrowed towards apex. Penultimate segment of labial palpi with 3 setae (apical seta lacking), all other segments of palpi glabrous (Figs 2, 5). Antennae long, but not reaching mid-length of elytra,  $1.10\times$  as long as latter. Their antennomere 3 ca.  $4.1\times$  as long as wide and  $2.5\times$  as long as antennomere 2.

Pronotum narrow and elongate, subcylindrical, strongly narrowed toward base,  $1.03\times$  as long as wide. Its lateral borders widely rounded in anterior portion and almost straight and rectilinear in posterior one, without distinct sinuosity before hind angles. Latter small and obtuse, rounded apically. Base hardly concave,  $1.70\times$  as narrow as pronotum maximum width and  $1.09\times$  as wide as anterior margin, latter convex. Anterior angles hardly marked. Transverse basal impression very superficial. Basal foveae hardly marked. Basal surface smooth, only with a few hardly perceptible wrinkles. Median line distinct throughout, becoming deeper near base. Apical transverse impression relatively well-engraved. Superficial discal impression perceptible in anterior third of pronotum. Anterior pronotal seta somewhat behind the anterior quarter of pronotum length, posterior one missing. Lateral borders glabrous, not ciliate.

Elytra ovate and extraordinarily convex, especially in anterior third, broadest at level of posterior setae of humeral group of umbilicate series,  $1.71\times$  as long as wide combined,  $3.18\times$  as long as pronotum, and  $2.29\times$  as wide as head. Shoulders widely rounded but strongly protruding. Marginal gutter throughout narrow, more distinct in apical and basal third of elytra. Humeral borders glabrous and smooth, not serrated. Prehumeral border not reaching scutellum, being interrupted inward. All discal striae deep and strongly punctured, interspaces convex. Apical striola hardly visible, very superficial and vaguely delimited, without distinct connection with any of dorsal striae. Scutellar pore well-developed. Scutellar striola extraordinarily short. Three very long discal setae inserted in stria 3 (subapical one in apical anastomosis of striae 2 and 3). Anterior discal pore of elytra slightly behind level of pore 2 of umbilicate series, the second discal pore behind mid-length of elytra, just before level of median group of umbilicate series. 4 humeral pores of umbilicate series not aggregated, first pore situated inward of pore 2 and lying in anastomosis of striae 7 and 6. Median group well aggregated and strongly separated from both humeral and apical groups. Apical triangle (three setae situated inward apical striola, including subapical one) elongate, the apical seta very small and inserted just in suture angle of elytral apex (Fig. 1). Discal formula 13/49/84, formula of umbilicate series 12/13/19/26/52/59/81/90. Microsculpture obliterated, perceptible only on elytra, composed there of very fine and serrate transverse lines.

Legs long and slender. Fore tibiae faintly grooved on exterior surface and weakly pubescent. Segment 4 of fore and middle tarsi with processus and hyaline appendages beneath.

Each abdominal sternite with row of 4-5 median setae along its posterior margin. Anal sternite of male with two pairs of setae.

Two proximal segments of male protarsi strongly dilated and dentate inwards, provided with adhesive appendages beneath.

Aedeagus (Figs 6-7) large, slightly arched, a little depressed dorsally, with peculiarly shaped apical portion and enormous preputial field almost reaching the basal orifice, latter deeply incised. Sagittal aileron small but distinct. Parameres short, with widely rounded apex, each bearing 4 apical setae. Left paramere somewhat longer, with narrower apex and with distinct appendage beneath. Copulatory piece spatulate and asymmetric, composed of two membranous parts: one in sagittal plan and other in horizontal plan. The first of them appears to be redoubled in dorsal view.

**Ecology.** The only specimen known was found in button of calcareous crater.

**Distribution.** Known only from type locality, mountain massif Chernogorie which is situated NW of Mt. Fisht.

### Discussion

*Meganophthalmus irinae* sp.n. seems to be strongly isolated within genus. The very characteristic shape of pronotum differs readily it from two other members of the genus (see diagnosis). Nevertheless, it belongs doubtless to the genus *Meganophthalmus* (KURNAKOV, 1959; JEANNEL, 1960; KOMAROV, 1993). The reduction of the marginal border is a characteristic evolutionary trend in many genera of blind Trechini, for example, in some *Aphaenops* or *Anophthalmus* (JEANNEL, 1928, p. 16) and surely is not sufficient for separating the species into genus of its own. Other particularity of the regarded character deserves attention. Usually the reduction of the marginal border precedes that of the posterior pronotal seta. Within the genus *Meganophthalmus*, on the contrary, the posterior pronotal seta is absent in *M. kravetzi* Komarov although this species has a well-developed marginal border of pronotum. In some characters, the new species seems to be more similar to *M. kravetzi* (in large aedeagus with well-developed sagittal lobe, in reduced posterior pronotal seta, in subequal length of two ultimate segments of maxillary palpi), in others to *M. mirabilis* (more strongly developed elytral striae, very extended distal orifice of aedeagus, almost reaching its basal portion). Nevertheless all three known members of the genus are homogenous in all essential characters, such as completely glabrous body, including smooth humeral borders of elytra, complete frontal furrows, slender and glabrous maxillary palpi, small and trilobed retinacle of right mandible, not-aggregated condition of the humeral group of umbilicate series, first pore being distinctly shifted inwards, similarly shaped aedeagus with endophallus armature seems to be composed of two pieces in lateral view. In this respect it should be noted that the new species is characterized by more usual conformation of endophallus armature and allows to bridge the gap between the most part of blind Trechini with spatulate anisotopous copulatory pieces and two other members of the genus under consideration.

Only three setae on penultimate segment of labial palpi seems to represent an unique character within genus, being also very rare among other Trechini. Bearing in mind that only one specimen is known, we are not able now to evaluate its true significance.

All hitherto known species of the genus *Meganophthalmus* Kurnakov can be determined as follows:

- 1 Hind angles of pronotum completely rounded, lateral sides of pronotum without sinuosity before hind angles with reduced marginal border. Posterior pronotal seta absent. Elytra extraordinarily strongly dilated and swollen in anterior third. W Caucasus: Chernogorie Mts ..... *irinae* sp. n.
- Hind angles of pronotum large and pointed at apex, lateral sides deeply sinuate before hind angles, marginal border well-developed. Elytra less strongly dilated in anterior third ..... 2
- 2 Posterior pronotal seta present. Ultimate segment of maxillary palpi considerably shorter than penultimate one. Aedeagus smaller, with long distal orifice almost reaching its basal portion. W Caucasus: Abkhazia, Tsebelda ..... *mirabilis* Kurnakov, 1959
- Posterior pronotal seta present. Two ultimate segments of maxillary palpi subequal in size. Aedeagus larger, with short distal orifice. C Caucasus: Kabardino-Balkaria, N of Naltshik, upper reaches of Belaya Retschka ..... *kravetzi* Komarov, 1993

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