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***Margaiostus sundukovi* sp. nov., the first record of the genus in the Palaearctic region (Coleoptera: Elateridae)**

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Abstract

The genus *Margaiostus* Stibick, 1978, previously known from North and South America, is recorded for the first time in the fauna of the Palaearctic region. *M. sundukovi* sp. nov. is described from the Far East of Russia. The position of this species within the genus and the distribution of *Margaiostus* are discussed.

Key words: Coleoptera, Elateridae, Hypnoidini, new species, new records, Palaearctic region, Russia, Far East, click beetles

Introduction

Hypnoidini is a comparatively small and rather well delimited tribe of the elaterid subfamily Denticollinae (Costa *et al.* 2010; Bouchard *et al.* 2011). The fauna of the Palaearctic region numbers six genera and about 80 species of this group (Platia & Gudenzi 2005; Cate *et al.* 2007; Platia 2011). However, the Hypnoidini fauna of many regions of the East Palaearctic is still poorly known. More than 25 new species have been described from this territory over the last two decades (Dolin 1998, 1999; Dolin & Cate 1998, 2001, 2002, 2003; Mertlik 2001; Platia & Gudenzi 2005), and it is highly probable that many more species will be discovered there in the future.

Some years ago, in the course of studying the elaterid fauna of the Lazovsky State Nature Reserve (Southern Primorye, Russia), I received several specimens of a strange Hypnoidini click-beetle, which I identified as *Homotechnes* sp. (Prosvirov 2009, 2014). However, after detailed examination of the genitalia of both sexes it became evident that this species is not related to the *Homotechnes* or to any other Palaearctic genus of Hypnoidini. It was found that the peculiar structure of the aedeagus and the sclerites of the bursa copulatrix of this species are similar to those of *Margaiostus* Stibick, 1978, a genus with five species, previously known only from North and South America (Stibick 1978). In other respects this species is also like a species of *Margaiostus*, but clearly differs from all known species of the genus, so I describe it below as a new species.

Material and methods

Most specimens were obtained from my colleagues and at present are kept in my personal collection (Moscow State University, Moscow, Russia; hereinafter CPM), with the exception of one specimen from the collection of the Zoological Museum of Moscow State University (Moscow, Russia; hereinafter ZMMU). Most of the type material will be stored in the Zoological Institute of the Russian Academy of Sciences (St. Petersburg, Russia; hereinafter ZISP) and ZMMU (see indications in the list of material). The rest will be stored in CPM.

The examined specimens were mounted on transparent plastic plates or white glue boards. The genitalia were removed, cleaned and fixed beside the body of the specimen in glycerine mounts. The procedure of making mounts was described by Prosvirov & Savitsky (2011).

The material was studied under MBS-1 stereomicroscope and a Micromed 3 trinocular microscope.

Photographs of click-beetles were taken with a Canon EOS-40D camera with a Canon MP-E 65 mm lens. Extended focus technology was used. Genitalia were drawn from glycerine mounts.

Body length of the specimens was measured from the apical margin of frons to the apices of elytra. Body width was measured at the widest point of body (near the middle of the elytra) using the measuring eyepiece of the stereomicroscope.

Types of the new species were marked with red labels indicating the type status (holotype or paratype), the name of the species and the author. Labels of the specimens are quoted verbatim.

Taxonomy

Margaiostus sundukovi sp. nov.

(Figs. 1, 2, 4–6)

Type locality. Russia: Primorsky Province, Lazovsky district, Lazovsky State Nature Reserve.

Type material. Holotype, male, **Russia**: “Приморский край, Лазовский заповедник, кордон Корпадъ, 43°15'17" N, 134°07'59" E, 19–20.V.2007, С. Холин leg.” [Primorsky Province, Lazovsky State Nature Reserve, Korpad’ guarding point, 43°15'17" N, 134°07'59" E, 19–20 May 2007, S.K. Kholin leg.] (ZISP). **Paratypes**, 2 males, 8 females, **Russia**: 1 male, same data as holotype, “С. Холин leg.” [S.K. Kholin leg.] (CPM); 1 female, “Приморский край, Лазовский заповедник, кордон Америка, 43°16'16" N, 134°03'01" E, 24.VI.2005, Ю. Сундуков, В. Шохрин leg. [Primorsky Province, Lazovsky State Nature Reserve, Amerika guarding point, 43°16'16" N, 134°03'01" E, 24 June 2005, Yu.N. Sundukov, V.P. Shokhrin leg.] (ZISP); 1 female, same data, but 18–19 July 2006, “С. Холин leg.” [S.K. Kholin leg.] (CPM); 1 female, same data, but 19–20 July 2006, “Ю.Н. Сундуков leg.” [Yu.N. Sundukov leg.] (CPM); 1 female, same data, but 25–28 August 2006 “Ю.Н. Сундуков leg.” [Yu.N. Sundukov leg.] (ZISP); 1 female, “Приморский край, Лазовский заповедник, ур. Америка, 18–19.VI.2005, С. Холин leg.” [Primorsky Province, Lazovsky State Nature Reserve, Amerika landscape unit, 18–19 June 2005, S.K. Kholin leg.], (ZMMU); 1 female, “Приморский край, Лазовский заповедник, б. Проселочная, 4–9.VI.2005, Ю. Сундуков, Л. Сундукова leg.” [Primorsky Province, Lazovsky State Nature Reserve, Proselochnaya Bay, 4–9 June 2005, Yu.N. Sundukov, L.A. Sundukova leg.] (ZMMU); 1 female, “Приморский край, Лазовский зап-к, Сухой Ключ, дубрава на склоне, 25.VI.1981, Т.И. Олигер leg.” [Primorsky Province, Lazovsky State Nature Reserve, Sukhoi Klyuch spring, oak forest on slope, 25 June 1981, T.I. Oliger leg.] (ZISP); 1 female, “Приморский край, Лазовский район, около 18 км СВ пос. Лазо, верховья р. Пасечная, правый берег ручья Лукьянов Лог, на злаке, h~600–800 м, N 43°29'40", E 134°04'15", 7.VIII.2011, А.С. Просви́ров leg.” [Primorsky Province, Lazovsky District, ca. 18 km NE Lazo village, upper reaches of Pasechnaya river, right bank of Lukyanov Log stream, on a grass, h~600–800 m, N 43°29'40", E 134°04'15", 7 August 2011, A.S. Prosvirov leg.] (CPM); 1 male, “Южн. Приморье, Каменушка, бл. Уссурийска, 13–15.VI.1979, Михеев, Никитский leg.” [Primorsky Province, Kamenushka village, near Ussuriysk city, 13–15 June 1979, A.V. Mikheetshev, N.B. Nikitsky leg.] (ZMMU).

Diagnosis. *M. sundukovi* sp. nov. is closely related to *M. grandicollis* (LeConte, 1863), the type species of the genus, but can easily be distinguished by the flatter and more densely pubescent body, by the presence of the distinct smooth line in the middle of the pronotum, by the more densely punctuate dorsum, by the dull or only slightly shining intervals on the hypomera and by the smaller and sparser punctures on the underside.

Description. Male: Length: 7.0–7.9 mm (holotype 7.8 mm); width: 2.4–2.7 mm (holotype 2.7 mm). Body flattened, oblong. Dorsum chestnut brown, shining; anterior part of head, base and hind angles of pronotum, anterior slope of elytra and scutellum usually slightly lighter (anterior edge of scutellum darker than rest of scutellum); covered with bronze, moderately dense, long, recumbent setae. Underside varies from chestnut brown to reddish-brown, beaded part of prosternal lobe usually darker; covered with yellowish-grey, dense, long, recumbent setae; pubescence along median part of prosternum less dense than on other part of body. Antennae, legs and mouthparts (except chestnut brown apices of mandibles) reddish-brown.

Head. Depressed, distinctly transverse (ratio length/width varies from 0.65 to 0.72), anterior margin of frons strongly depressed medially, so thus clypeal area sharply narrowed in center. Punctures coarse and slightly larger than on pronotum, umbilicate, intervals between punctures subequal to diameter of puncture or slightly smaller. Antennae almost reaching bases of hind angles of pronotum (not reaching apices of hind angles by approximately

2–2.5 length of last few antennomeres), slightly serrate beginning with antennomere 4. Antennomere 1 broadened, clearly flattened; 2nd and 3rd antennomeres elongate, about two times as long as wide, slightly expanded to apex, 3rd slightly longer than 2nd; 4th about as long as 3rd, more clearly expanded to apex; subsequent antennomeres about as long as 4th, a little more expanded to apex; last antennomere ovate oblong. Apical segment of maxillary palpus expanded at base forming right-angled triangle.



FIGURES 1–3. Habitus of *Margaiostus* species, dorsal view. **1.** *M. sundukovi* sp. nov., male, holotype (7.8 mm). **2.** *M. sundukovi* sp. nov., female paratype (9.8 mm). **3.** *M. grandicollis*, female (8.7 mm). Not to scale.

Thorax. Pronotum more than twice as wide as head, slightly wider than long (length: 2.1–2.3 mm; width: 2.2–2.6 mm), widest near middle, narrowed toward anterior angles more sharply than toward hind angles, slightly sinuate in front of hind angles. Hind angles of pronotum rather thin and long, clearly divergent; carina distinct, short and not reaching posterior third of pronotum. Disc of pronotum slightly convex, at posterior third with clearly visible middle impression, along midline with distinct smooth line. Punctures rather dense and gently elongate laterally; intervals between punctures equal to diameter of puncture or slightly smaller; on disc punctures sparser, circular, intervals between punctures usually noticeably larger than diameter of puncture, smaller along the anterior margin. Pubescence of pronotum directed caudad at lateral sides and medio-caudad on disc. Punctures of hypomera very dense, circular, consisting of mixed, shallow small ones and considerably larger, deep ones; intervals between punctures dull or slightly shiny. Prosternum as well as hypomera punctate, but punctures less dense, intervals between punctures shining. Prosternal lobe arcuate in front, separated from rest of prosternum by obsolete transverse impression and coarsely punctured by homogeneous large punctures. Prosternal process flat, widely bordered at sides; carina clearly surpassing beyond other surface. Mesosternum and metasternum as well as prosternum punctate. Hind coxal plates widened inwards. Scutellum flat, oblong oval, longer than wide, truncated at anterior margin. Elytra ellipsoidal, slightly wider than pronotum, widest near middle, about twice as long as pronotum (length: 4.2–4.7 mm; width: 2.4–2.7 mm); tapering more strongly to apex than to base; shoulders obtusely rounded. Disc of elytra slightly convex, elytral striae with fine circular punctures; intervals flat, with fine, sparse punctures. Wings normally developed.

Abdomen. Abdomen as well as metasternum punctate. Ratio of length of abdominal sternite 2 and length of metasternum 0.4.

Aedeagus. (Fig. 4). Typical, trilobate. Parameres about as long as penis, almost straight, specifically expanded in anterior quarter. Penis slender, narrow, its apophyses very short, about 0.25 times as long as penis.

Female. Usually slightly darker than male. Notably larger than male (length: 9.3–10.3 mm; width: 3.1–3.6 mm); body more convex. Pronotum slightly wider than long (length: 2.7–2.9 mm; width: 2.9–3.1 mm); widest near

middle or behind it. Antennae shorter than in males, reaching short of hind angles of pronotum by as much as length of last 3–3.5 antennomeres. Elytra longer and wider than in males (length: 5.6–6.4 mm; width: 3.1–3.6 mm). In all other respects, females similar to males.

Female genital tract. (Figs. 5, 6). Typical sclerotised cordiform plate, consisting of conjoined spines, situated at bursa copulatrix.

Larva. Unknown.

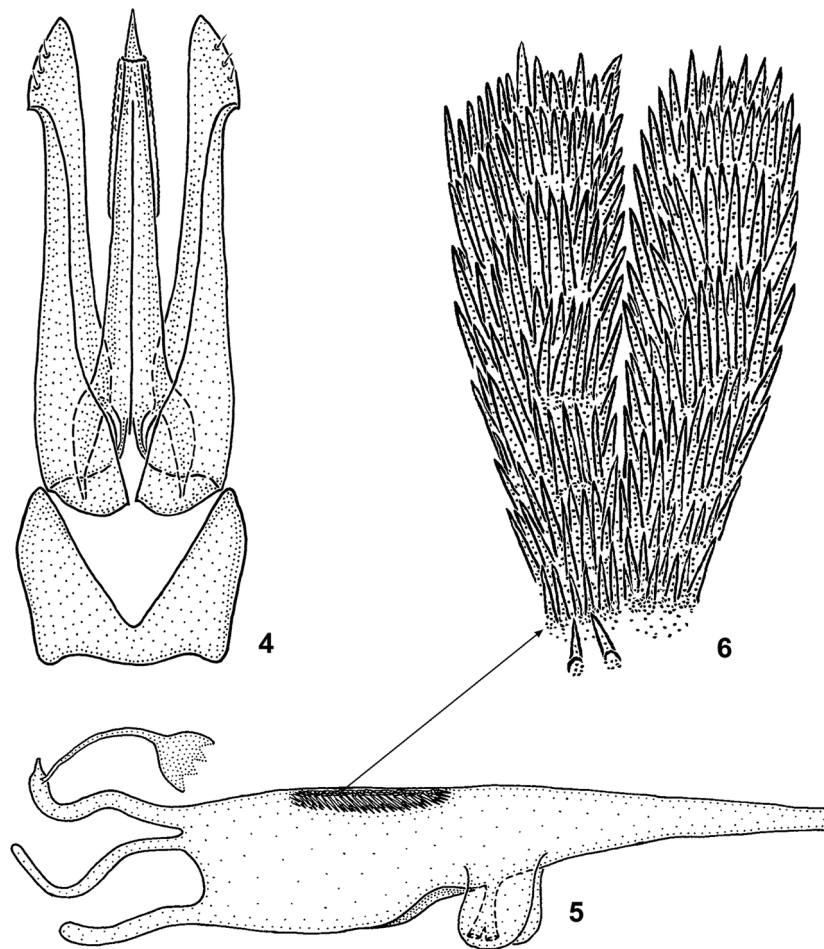
Variability. Size, body proportions and coloration somewhat variable.

Etymology. Named in honour of the collector of the type series and my friend, the distinguished Russian entomologist Dr. Yuriy N. Sundukov.

Distribution. Russia: Primorsky Province.

Remarks. The biology of this species remains unknown, but one female was collected on a grass near a forest stream. It is possible that *M. sundukovi* sp. nov., as well as the other species of the genus, inhabits forest biotopes.

Additional material. (Fig. 3). *Margaiostus grandicollis* (LeConte, 1863), 1 ♀, **Canada:** “P.–Au-Saumon (Char. E), Que., 5.VI.1995, Y. Bousquet leg.”



FIGURES 4–6. Genitalia of *Margaiostus sundukovi* sp. nov. **4.** Aedeagus, ventral view. **5.** Female genital tract, general view. **6.** Cordiform plate in bursa copulatrix. Not to scale.

Discussion

M. sundukovi sp. nov. shares all typical features of the genus: basally expanded maxillary palpi and the distinctive male and female genitalia. It belongs to the subgenus *Margaiostus* s. str. because of the shape and the pubescence of the scutellum, the absence of a secondary pile on the abdomen and the structure of male and female genitalia are typical of this group. *M. sundukovi* sp. nov. is the fourth known species of this subgenus.

Stibick (1976) believed that the ancestor of *Margaiostus* arose in Asia and later its members migrated to North

America, so the discovery of *M. sundukovi* sp. nov. confirms this hypothesis. That author also supposed that *Margaiostus* belongs to the highly specialized and primitive genera of Hypnoidini (such as *Ligmargus*, *Berninelsonius* and some others) and North American species of the genus may be facing extinction, because they are very rare in collections. According this view, *M. sundukovi* sp. nov. may be a relict species and probably should be protected.

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