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***Bembidion (Ocydromus) primorjense* n. sp. from Far Eastern Russia**

(Insecta: Coleoptera: Carabidae: Bembidiini)

Abstract

Bembidion (Ocydromus) primorjense n. sp. from Far Eastern Russia (Primorje) is described and compared with species of subgenus *Ocydromus* showing similar characters.

Key words: *Bembidion*, *Ocydromus*, *grapii* group, Russia, new species, taxonomy.

Riassunto

[*Bembidion (Ocydromus) primorjense* n. sp. dall'Estremo Oriente russo (Insecta: Coleoptera: Carabidae: Bembidiina)].

Viene descritto *Bembidion (Ocydromus) primorjense* n. sp. dell'Estremo Oriente russo (Primorje); la specie è comparata con le altre del sottogenere che presentano caratteri simili.

Introduction

We found in our material some specimens from Primorsky Kray (Russian Far East) identified as *Bembidion grapii* Gyllenhal, 1827, that at a first glance didn't match specimens of *B. grapii* from the type area of Scandinavia. An in-depth study of these specimens from the Russian Far East led to the discovery of a new species, showing a peculiar spermatheca (figs 2, 3), that is described in this paper.

Material and methods

The systematic treatment follows MARGGI *et al.* (2017). The total body length was measured from apex of labrum to the apex of the elytra. The genitalia of the holotype and paratypes are mounted on the same pin as the specimen.

The photo of the habitus, made by LT, is a composite image with progressive focusing obtained with a Nikon DSFi1 digital camera controlled by Nikon DS-L2 stand alone remote controller mounted on a Leica Z6 microscope equipped with a 1.0x Leica lens and a customized motorized stand made by LT, then processed with Helicon Focus® 6.4.3 and optimized with Photoshop® Elements 14. The photo of the genitalia are made with the same setup and processing method

described above, although using a 5x Infinity Corrected Nikon Fluor lens on the Z6 microscope. The photo of the spermatheca of *B. platynoides* Hayward, 1897 was made by David Maddison (OSAC) with a Leica DM5500B compound microscope and DMC425C camera, with the Leica Application Suite v4.9 software capturing multiple TIFF images at different focal planes; these images were then combined using the PMax procedure in Zerene Systems's Zerene Stacker. The drawings of the spermathecae were made by Ivo Gudenzi.

The examined material is preserved in the following collections:

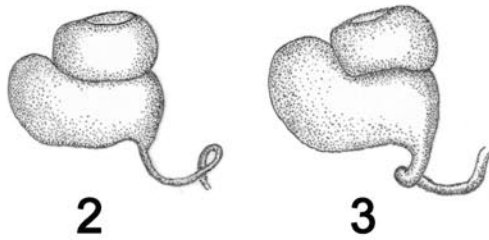
CTVR	coll. Luca Toledano, Verona, Italy
DW	coll. David W. Wrase, Gusow-Platkow, Germany (part of Zoologische Staatssammlung München, Germany)
PN	coll. Paolo Neri, Forlì, Italy
OSAC	Oregon State Arthropod Collection, Oregon State University, Corvallis, USA
SMNS	Staatliches Museum für Naturkunde, Stuttgart, Germany
ZIN	Zoological Institute, Russian Academy of Sciences, St Petersburg, Russia

Systematic notes

The comparison with all the known species of the *grapii* group revealed that the examined taxon belongs to the *grapii* group, but is new to science. This group currently includes *B. grapii* (figs 8, 11), *B. yukonum* Fall, 1926 (figs 9, 13) and *B. platynoides* Hayward, 1897 (figs 10, 12); formerly these species were variously assigned to the subgenera *Peryphus* Dejean, 1821, *Peryphanes* Jeannel, 1941 or to the species of *incertae sedis* (LINDROTH, 1963; KRYZHANOVSKIJ *et al.*, 1995; LORENZ, 1998, 2005; MARGGI *et al.*, 2003). MADDISON'S (2012) phylogenetic tree of *Bembidiina* showed that these three species belonged together, and were placed within the *Ocydromus* Clairville, 1806 complex. This result led TOLEDANO & MARGGI (2017) to formally assign *B. grapii* and *B. yukonum* to *Ocydromus*.

Figs 1- 6: *Bembidion (Ocydromus) primorjense* n. sp..

1. – habitus, Holotype (CTVR), 5.06 mm; 2. – spermatheca, topotypical paratype (PN); 3. – spermatheca, paratype from Russia, Primorye, Sikhote-Alinsky Res., kordon Kabany (PN); 4. – head, Holotype (CTVR); 5. – median lobe of aedeagus, Holotype (CTVR); 6. – median lobe of aedeagus of topotypical paratype (PN).



0,1 mm



***Bembidion (Ocydromus) primorjense* n. sp.** (figs 1, 2, 3, 4, 5, 6, 7)

Diagnosis. A brown, Eastern Palearctic *Bembidion* species, belonging to subgenus *Ocydromus* *grapii* species group, characterized by pronotum lacking microsculpture, elytra unicolorous and peculiar spermatheca (figs 2,3).

Type Locality. Russia, N Primorsky reg., 70 km NW Plastun, Podnebesnyi pass, 600-800 m.

Type series. Holotype, ♂, “Russia N Primorskyi reg. / 70 km NW Plastun 18-26 VII / Podnebesnyi pass 600-800 m / A. Plutenko leg. 1996” [printed] (CTVR). We added to the specimen the following label [red, printed]: *Bembidion (Ocydromus) primorjense* Neri & Toledano, 2023 – HOLOTYPE.

Paratypes. 3 ♂♂, 2 ♀♀, “Russia N Primorskyi reg. / 70 km NW Plastun 18-26 VII / Podnebesnyi pass 600-800 m / A. Plutenko leg. 1996” (CTVR, PN); 1 ♀, “Russia or. / Primorskyi reg. / Artyom env. 10.VII.96 / A. Plutenko leg.” (PN); 2 ♂♂, 1 ♀, “USSR or., Primorje reg. / Jasnoje env., 500-1000m / 15.-22.07.1991 / Jan Farkač leg.” (CTVR); 1 ♂, “Russia or. 19-21.8. / Primorskij Kraj / Partizanszk / Tirrovoj 1992 / Lgt. Snižek” (CTVR); 2 ♂♂, 1 ♀, “Russia Prim. /Partizansk distr. / Alexeyevsky Khreb. / 20 km E Sergejevka // banks of Andreyevka / river and tributaries / 400-500m 26-29.VII.1993 / Pütz & Wrase” (DW, CTVR); 1 ♂, “Russia or. 26-31.7 / Primorskij Kraj / Novočugujevka / Lgt. Snižek 1992” (CTVR); 1 ♂, “Russia, Primorye, Lazovsky distr. / source Pasechnaja river, 700-1000 m / 134°02’31”E 43°27’48”N / 9.08.1996, Ju. Sundukov leg.” (CTVR); 2 ♀♀, “Russia, Primorye, Sikhole-Alinsky / Reserve, kordon Jasnaja (Majsa) / 136°30’22” – 45°14’03”, 26.06 / 5.07.1998, Ju. Sundukov leg.” (CTVR); 1 ♂, “Russia, Primorye, Lazovsky distr. / Vesely river, 133°58’29”E / 43°26’43”N, 1-3.06.1995, / Ju. Sundukov leg.” (CTVR); 2 ♂, “Russia, Primorye, Lazovsky / Reserve, Egerevka river / (Benevka) 133°52’27”E / 43°12’16”N, 20-22.09.2000 / Ju. Sundukov leg.” (CTVR); 3 ♂♂, 1 ♀, “Russia, Primorye, Sikhote-Alinsky / Reserve, kordon Kabany, 650-900m / 135°52’40” – 45°08’16” / 1-4.07.1999, Ju. Sundukov leg.” (CTVR, PN); 1 ♂, “Ussuri, Maritime Terr. / 30km E Ussurijsk pr. / Kamenushka 10-11, / VI.1990, s: Kasantsev” (CTVR); 1 ♀, “Russia, Primorye, Sikhole-Alinsky / Reserve, kordon Ust’-Serebrjany, / 136°22’44” – 45°08’10” / 15-22.07.1998, Ju. Sundukov leg.” (ZIN); 1 ♂, “Russland, Ussuri-Gebiet / Rajon Lazo, 22.VI. / 1992, leg. Sundukov // Oberlauf fl. Zelika / (r. Zufluss d. fl. / Kijewka) / ca. 20km WNW Lazo” (CTVR); 1 ♂, “USSR, Primorskij kr. / Arsenev env. / 27.V. – 5.VII.1991 / O. Sausa leg.” (CTVR); 1 ♂, 1 ♀, “Russia, Primorye, Lazovsky distr. / Malaja Lazovka river, 800-900m / taiga, 133°35’24”E – 43°26’50”N / 31.05.2000, Ju. Sundukov leg.” (PN); 1 ♂, “Russia or. / Primorskii krai / Tigrovyi / 19-21.8.1992 / lgt. Boukal” (CTVR); 1 ♀, "RUSSIA Far East / Primorie / Tigrovyi / 25.VII.1990 Ing. Kantner" (DW); 1 ♀, "USSR: Khabarovsk

Province / Bolshe-Khekhtsyrsky Reser-ve, 6-10.VI.1990, 400-450m / leg. W. Schawaller" (SMNS); 1 ♂, "USSR: Khabarovsk Province / SE Boitsovo, 12km NE Bikin / 26.V.- 4.VI.1990, 250-350m / leg. W. Schawaller" (CTVR); 1 ♀, "RUSSIA Sakhalin / Aniva distr. / 5-9 km E Novo-Alexandrovsk / 22.VI.1992 A. Basarukin" (DW).

All labels, unless otherwise indicated, are printed. We added to all paratypes the following label [red, printed]: *Bembidion (Ocydromus) primorjense* Neri & Toledano, 2023 – PARATYPUS.

Description of the Holotype (figs 1, 2, 4, 5). Length 5.06 mm.

Colouration: head and pronotum blackish; elytra dark brown with reddish reflections; antennomeres 1, 2 and basal half of 3 orange, remaining antennomeres darkened, palpi orange with penultimate palpomere in part darkened, legs orange with femora partially darkened.

Head (fig. 4): maximum width, including eyes, 1.06 mm; interocular distance 0.62 mm; frontal furrows more or less parallel, frons and furrows with both coarse and sharp punctures between eyes. Eyes protruding, temples short and oblique towards neck.

Antennae 2.71 mm in length.

Pronotum: length along mid line 1.00 mm; width of anterior margin 0.94 mm, maximum width 1.37 mm, width of basal margin 1.04 mm; transverse, pronotal width / pronotal length ratio = 1.37; glossy, without microsculpture; basal margin slightly convex in its central portion, rectilinear towards sides; anterior margin slightly concave with rounded front angles; sides rounded, entirely rebordered, narrowing with evident sinuation towards the base, with which they form a large, slightly acute angle; lateral gutter evident, slightly wider in the hind half; hind narrowed portion, near hind angles, as long as 1/6 of the pronotal length; subquadrate laterobasal foveae with a few punctures and laterobasal carina long and evident; median line and transverse anterior furrow evident and with a few punctures; basal transverse impression, between laterobasal foveae with evident, coarse punctures.

Elytra: length 3.15 mm, maximum overall width, slightly behind middle, 2.14 mm; rounded sides and shoulders; intervals slightly convex; all striae with evident puncturation, visible also at apex. Elytral microsculpture completely shagreen. Macropterous species.

Aedeagus (fig. 5) mid-sized (1.20 mm), with ventral margin slightly concave; central brush protruding from basal opening; internal sclerites similar to those of *grapii* species group (LINDROTH, 1940; NERI & VIGNA TAGLIANTI, 2010). Parameres with four apical setae each.

Paratypes and intraspecific variability. The paratypes match the holotype in morphology; length of ♂♂ from 4.50 to 5.20 mm, of ♀♀ from 4.70 to 5.30 mm and

of the aedeagus from 1.13 to 1.20 mm; the elytral colouration in some specimens is brown; antennae in some are darkened from fourth antennomere; the pronotal width / pronotal length ratio varies between 1.32 and 1.39, hind angles in some are right angles and in a few paratypes the head shows only sharp punctures.

Spermatheca with peculiar shape: distal cavity rounded and slightly compressed, as long as more or less half of the proximal one; this last shows apical end rounded and bent distally (figs 2, 3), character confirmed by the dissection of 4 specimens.

Derivatio nominis. The name derives from Primorje, a maritime region of eastern Russia.

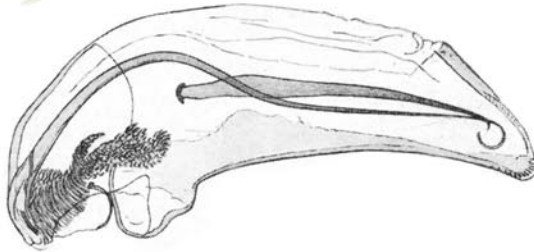
Distribution. Currently known from Primorje and Khabarovsk Provinces, in the extreme East of Russia, and Aniva Oblast, Sakhalin.

Comparative notes. *B. primorjense* can be distinguished from the other species of *grapii* group by the elytral colouration dark brown or brown, by the punctured head and the peculiar shape of the spermatheca (figs 2, 3); from all remaining *Ocydromus* species (except the species of the *modestum* Fabricius, 1801 group) by the pronotum lacking microsculpture; by the species of *Ocydromus modestum* species group by the unicolorous, brown or dark brown elytra; from all *Ocydromus* (except the species of the *grapii* group) by the sclerites of the endophallus; from all *Ocydromus* species by the peculiar shape of the spermatheca.

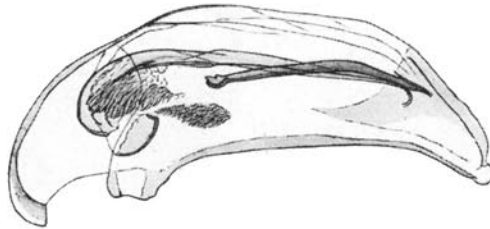
Figs 7-13: 7. – median lobe of aedeagus of *Bembidion (Ocydromus) primorjense* n. sp., paratype from Russia, Primorye, Sichote-Alinsky Reserve, Kordon Kabany, 1.15 mm (NP); 8. – median lobe of aedeagus of *B. (O.) grapii*, from Sweden, Lappland, Abisko (Lindroth, 1940) 1.13 mm; 9. – median lobe of aedeagus of *B. (O.) yukonum* from Sweden, Lappland, Abisko (Lindroth, 1940) 0.97 mm; 10. – median lobe of aedeagus of *B. (O.) platynooides* from Rossland Trail, Canada, Britannic Columbia (Lindroth, 1963) 1.30 mm; 11. –, spermatheca. of *B. (O.) grapii*, Sweden, Lu. lpm. Palkem, S. Lundberg, (PN); 12. – spermatheca of *B. (O.) platynooides* from USA, Oregon, Moolack Beach (OSAC); 13. – spermatheca of *B. (O.) yukonum* from Russia, East Siberia, E-Sajan Mts., Black Irkut, Susar Mouth, 1900 m (PN).



7



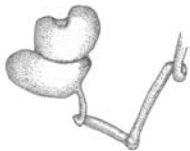
8



9



10



11

0,1 mm



12



13

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