Entomologische Blätter und Coleoptera

Ent. Bl. Col. (2018) 114: 309 - 312 ISSN 0013-8835

Bembidion (*Peryphus*) *tricuspis* n. sp. from Iran (Coleoptera, Carabidae, Bembidiini)

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Abstract
Bembidion (*Peryphus*) *tricuspis* n. sp. from Iran is here described and compared with the other species of the subgenus *Peryphus* Dejean, 1821, pars "unicolor" (elytra dark brown, blackish or black species), occurring in Iran and neighbouring nations (Georgia, Armenia, Azerbaijan, Turkey, Iraq, Iran, Southern Pakistan, Afghanistan, Turkmenistan). An overlooked record of *B*. (*P*.) *cordicolle* Jacquelin duVal, 1852 for Bulgaria is reported.

Key words: Bembidiina, Bulgaria, distribution, new species, taxonomy

Introduction

Among specimens of *Bembidion* Latreille, 1802 from Iran provided for study by Jan Muilwijk (Bilthoven, Holland) we found 18 specimens belonging to an unknown species of the subgenus *Peryphus* Dejean, 1821. During their examination, we discovered that the new species shows a peculiar tricuspid sclerite in the endophallus which seems a unique character state within the subgenus, and led us to describe the new species presented in this paper.

The present study is dedicated to Dr Ivan Löbl, universally known entomologist, specialist in Staphylinidae: Scaphidiinae and Pselaphinae, for his 80th birthday.

Materials and Methods

The systematic treatment follows Marggi et al. (2017).

The body length was measured from the front margin of the clypeus to the apex of the elytra. Dissections were made using standard techniques. Genitalia and small parts were preserved in Euparal on acetate mounts or on glass slides fixed to card mounts pinned underneath the specimens. The photographs are composite images with progressive focusing obtained using 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 on a Macintosh Mac Book Pro quad-core computer with Helicon Focus® 6.7.1 program, and then optimized with Photoshop® Elements 14 and Nikon View X2® on the same computer. Aedeagus and spermatheca photographs were made with the same setup and processing method described above, while using a 5x Infinity Corrected Nikon Fluor lens on the Z6 microscope.

The specimens mentioned in this paper are preserved in the collections of the following institutions and individuals:

CTVR = coll. Luca Toledano, Verona, Italy.
JM = coll. Jan Muilwijk, Bilthoven, Holland.
NMPC = National Museum (Natural History), Prague, Czech Republic.
PN = coll. Paolo Neri, Forlì, Italy.

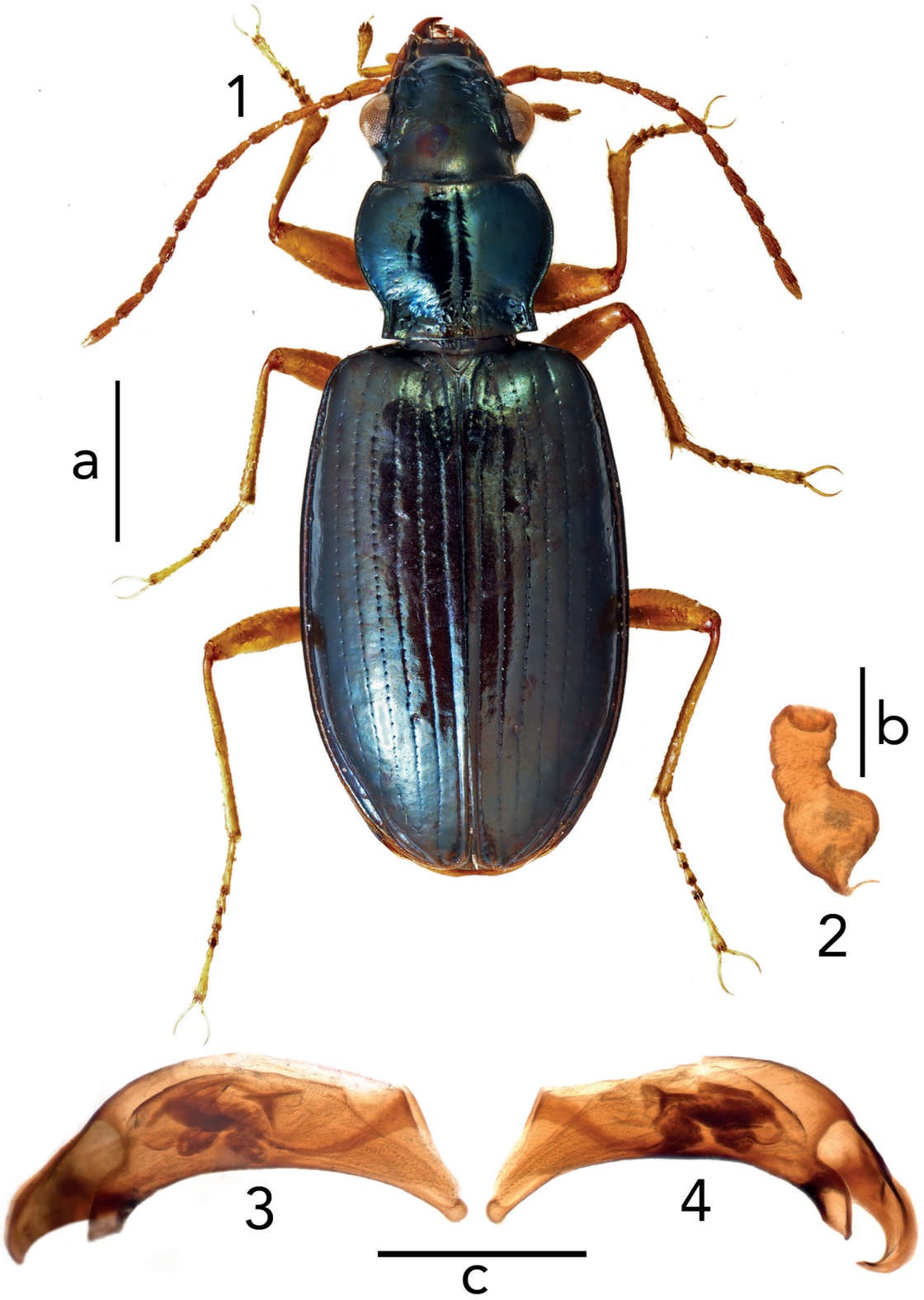
Bembidion (Peryphus) tricuspis n. sp.

Figs 1-4

Diagnosis. A *Bembidion* species of the subgenus *Peryphus* of dark brown or blackish colour. Aedeagus with endophallus completely included in the median lobe, showing a peculiar, tricuspid sclerite almost at the middle of the median lobe; parameres with four apical setae.

Type locality. Western central Iran, Hoseiniyeh 28 km NNW Andimeshk, 360 m.

Type material. Holotype, male, with the following printed labels: "SW Iran, Hoseiniyeh / 28 km NNW



Figs 1-4. *Bembidion* (*Peryphus*) *tricuspis* n. sp. **1** – habitus of paratype (CTVR), scale a: 1mm. **2** – spermatheca of paratype (PN), scale b: 0.1 mm. **3** – median lobe of the aedeagus in left lateral view (NMPC). **4** – median lobe in right lateral view (CTVR); scale c: 0.5 mm.

Andimeshk / 12-13. 4. 1977, 360 m // Loc. no. 286 / Exped Nat Mus / Praha" (NMPC). We added to the specimen the following printed red label: "*Bembidion* (*Peryphus*) *tricuspis* Neri & Toledano, 2018 – HOLOTYPUS".

Paratypes: 8 males 9 females, (NMPC, CTVR, PN, JM). We added to each specimen the following printed red label: "*Bembidion* (*Peryphus*) *tricuspis* Neri & Toledano, 2018 – PARATYPUS".

Description. Total length of males 4.70-5.30 mm, and of females 4.80-5.60 mm.

Colour: Head and pronotum black, elytra dark brown or black brownish with greenish or reddish reflections, sutural interval blackish. Antennae yellow-testaceous, slightly darkened from the apex of 4th antennomere. Maxillary palps yellow-testaceous with 2nd palpomere slightly darkened at apex, last palpomere yellow, sometimes palps completely yellow-testaceous. Legs completely testaceous-yellow.

Head: Maximum width, including eyes, 1.13 mm; interocular distance 0.70 mm; microsculptured with irregular sculpticells, sometimes completely, sometimes only at sides. Eyes protruding, temples very short. Frontal furrows wide, with some transverse rugosity. Antennae long 2.71 mm.

Pronotum: Length on the middle 1.04 mm; width at anterior margin 0.95 mm, maximum width 1.29 mm, width of base 0.97 mm; pronotal width / pronotal length ratio 1.24; slightly transverse, posterior margin slightly convex at middle, rectilinear towards hind angles; anterior margin slightly concave with anterior angles evident and rounded; sides narrowing with evident sinuation towards base, with which they form a large right angle; lateral gutter narrow, of homogeneous width; subquadrate laterobasal foveae, with a few punctures and long posterolateral carinae; median and anterior transverse impression sharp; basal depression, between laterobasal foveae, punctate-rugose. Microsculpture with irregular sculpticells, visible at sides but barely visible in the remaining part, disc glossy.

Elytra: Length 3.26 mm, maximum width, about at middle, 2.06 mm; flat on the disc, sides gently rounded with evident shoulders; completely microsculptured, with sharp polygonal, transverse sculpticells; intervals flat; striae evidently punctate on disc, more superficial, although visible, towards apex and at sides. Hind wings fully developed.

Aedeagus (Fig. 3): Size medium-small (0.98-1.07 mm), with ventral margin concave and apical fourth slightly bent ventrally; endophallus completely included in the median lobe; a peculiar tricuspid sclerite is visible almost at the middle, sometimes visible only on the right side. Each paramere with four apical setae.

Spermatheca see Fig. 2.

Derivatio nominis. The name is derived from the tricuspid sclerite in the middle of the endophallus.

Distribution. The new species is known only from the type locality, Hoseiniyeh 28 km NNW Andimeshk in western central Iran, at an altitude of 360 m.

Comparative notes. The new species is one of the species of the subgenus *Peryphus* characterized by dark-brown, brown-blackish or black elytra, and which are distributed in Iran and adjacent countries: *Bembidion* (*P.*) *cordicolle* Jacquelin du Val, 1852 (Bulgaria, Greece: Crete and Islands of the Aegean, Turkey), *B.* (*P.*) *nemrutdagi* Toledano & Rebl, 2006 (Turkey), *B.* (*P.*) *asiaeminoris asiaeminoris* Netolitzky, 1935 (Azerbaijan, Armenia, Southern European Territories of Russia, Turkey, Iran), *B.* (*P.*) *asiaeminoris asiorum* Müller-Motzfeld, 1990 (Azerbaijan), *B.* (*P.*) *franzi* Fassati, 1957 (Afghanistan, Pakistan).

B. tricuspis n. sp. differs from *B. franzi* by the elytra at sides only slightly rounded, evident shoulders, striae normally punctured and flat intervals (in *B. franzi* the elytral structure is similar to *B. subcostatum* Motschulsky, 1850); from *B. cordicolle* and *B. nemrutdagi* by the less convex pronotum, with base distinctly wider (more or less as wide as the anterior margin), and by the presence of the elytral apical stria; from *B. asiaeminoris asiaeminoris* and *B. asiaeminoris asiorum*, by the yellow-testaceous antennae only slightly darkened at apex and the legs yellow-testaceous. From all these species *B. tricuspis* n. sp. differs additionally by presence of a peculiar tricuspid sclerite of the endophallus.

The only known endophallic structure that could be suggested as analogous with the peculiar sclerite of *B. tricuspis* is the "tricorned body" (Lindroth, 1963), which is the synapomorphic character of the species of the subgenus *Terminophanes* Müller-Motzfeld, 1998. It has a somewhat trilobate structure and is situated in the apical third of the endophallus. It is, on an average, larger and situated more apicad than the sclerite observed in *B. tricuspis* n. sp. Nevertheless, with respect to an important diagnostic character like the pronotal laterobasal carina present in *B. tricuspis* (absent or rudimentary in *Terminophanes*) and the general shape of the median lobe of the aedeagus, the new species is similar to most species of the subgenus *Peryphus*. Therefore, we provisionally prefer to attribute *B. tricuspis* n. sp. to this subgenus.

Remarks on related species

Bembidion cordicolle was reported from Bulgaria by Hieke & Wrase (1988) but this mention was not reported in Marggi et al. (2017). The species was recently transferred from the subgenus *Ocydromus* Clairville, 1806 to the subgenus *Peryphus* by

TOLEDANO & MARGGI (2017) giving more importance to the aedeagal characters than to some exoskeletal characters, including the lack of the apical stria, which on the other hand would seem to suggest the species as closely related to the subgenera *Nepha* Motschulsky, 1864 or *Omoperyphus* Netolitzky, 1931 (see "systematic notes" in TOLEDANO & RÉBL, 2006).

Bembidion asiaeminoris asiaeminoris is reported by MANDL (1963) from Iran (Kuh-räng, östl. Isfahan, 3 exx.) and therefore also by MARGGI et al. (2017); unfortunately, in spite of our efforts to find the three specimens studied by Mandl or other specimens of *B. asiaeminoris asiaeminoris* from Iran, we were not able to confirm this record.

Acknowledgements

We wish to thank Jan Muilwijk (Bilthoven, Holland) and Jiri Hajek (NMPC) for kindly loaning us the material in their care for study, Fulvio Farneti (Meldola - FC, Italy) for the translations of some papers, Gabriele Fiumi (Forlì, Italy) for the improvement of the images, Paolo Bonavita (Rome, Italy) and Joachim Schmidt (Rostock, Germany) for critical advice, and Maxwell Barclay (Natural History Museum, London) for the linguistic revision of the text.

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