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Dyschiriodes (*Eudyschirius*) *gracilis* (O. Heer, 1837) – new record for the Bulgarian ground beetle fauna (Coleoptera: Carabidae: Scaritinae)

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Abstract. This is the first record of *Dyschiriodes* (*Eudyschirius*) *gracilis gracilis* (O. Heer, 1837) (Coleoptera: Carabidae: Scaritinae) from Bulgaria. It was collected in the Srebarna Reserve in NE Bulgaria via light attraction. Considering its current distributional range, we may suggest that *D. gracilis gracilis* is to be found in Croatia and Romania too.

Key words: Dyschiriini, new record, Srebarna Reserve.

Introduction

Tribe Dyschiriini (Coleoptera: Carabidae: Scaritinae) includes sensitive indicators of the natural river, lake or saltmarsh banks, inhabiting the interstitial space close to the shoreline. All species are hygrophilous and most of them are macropterous (Fedorenko 1993, 1996). They are small digging geobionts (Sharova 1981). In Bulgaria the tribe Dyschiriini is represented by the genera *Dyschirius* Bonelli, 1810 and *Dyschiriodes* Jeannel, 1941. Unlike Balkenohl (2003, 2017), Fedorenko (1996) considers *Dyschiriodes* as an independent genus, not as a subgenus of *Dyschirius*, and we accept his classification.

Wetlands and littoral regions and locations are generally very attractive and common habitats for many ground beetles. According to the literature data, nine species of the tribe Dyschiriini are present in the territory of the Lake Srebarna Nature Reserve (Kodzhabashev & Penev 1998, 2006, Jocque *et al.* 2016).

Dyschiriodes (*Eudyschirius*) *gracilis* (O. Heer, 1837) is a trans-Palaearctic species, widespread from NE Spain to Japan and E China. The subspecies *D. gracilis gracilis* occurs in the entire species range except for its westernmost parts. The other subspecies, *D. gracilis ibericus* Fedorenko, 1996 is present only in NE Spain (Fedorenko 1996, Balkenohl 2017).

Dyschiriodes gracilis is a riparian species, found mainly along rivers in moist loams (Fedorenko 1996). It seems abundant in riparian habitats in NE Italy, where it was captured by light (Allegro & Bulirsch 2012).

The goal of this study is to add a new species to the Carabidae list of Srebarna and to present the first country records of *Dyschiriodes gracilis* in Bulgaria.

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Material and Methods

The specimens were collected in the last week of July 1989 by the second author via light trapping, at the northernmost edge of the village of Srebarna, in the Srebarna wetland Nature Reserve in Northeastern Bulgaria (Figure 1). The shore of the lake is densely vegetated with reed and other hydro- and hygrophytes. A 500W lamp pointing at N/NE direction was mounted on a white wall of a building located on a hill, bordering with the shore of the lake. In the vicinity of the lake there were also many other light sources, which, however, were lying lower, so their light was "blurring". The collection was at waning moon, from dusk to about 12 p. m. Beetles were killed with ethyl acetate and fixed in a mixture of ethanol, ethyl acetate and glycerol (Hood 1953).

Specimens were identified in 1994 by Dr. Dmitri Fedorenko (A. N. Severtsov Institute of Ecology and Evolution, Russian Academy of Sciences, Moscow, Russia) and re-examined and confirmed in 2019 by Assoc. Prof. Dr. Borislav Guéorguiev (National Museum of Natural History, Sofia, Bulgaria) and the senior author. The identified specimens are pinned and deposited in the Institute of Biodiversity and Ecosystem Research (BAS, Sofia).

Results and Discussion

The present study gives information about one new species record for the country. Two specimens (Figure 2) of *Dyschiriodes gracilis* were collected and photographed for the first time in Bulgaria. The species was represented by the subsp. *gracilis*.

Family: Carabidae Latreille, 1802

Subfamily: Scaritinae Bonelli, 1810

Tribe: Dyschiriini W. Kolbe, 1880

Species: *Dyschiriodes* (*Eudyschirius*) *gracilis* (O. Heer, 1837);

Synonyms: *Clivina gracilis* Heer, 1837; *Dyschiriodes ibericus* Fedorenko, 1996; *D. lafertei* (Putzeys, 1846); *Dyschirius ibericus* (Fedorenko, 1996); *D. lafertei* Putzeys, 1846; *D. pekinensis* Kult, 1949; *D. tokyoensis* Nakane, 1953.

New data: NE Bulgaria, Srebarna Reserve, Srebarna vill., 44°06'09.36"N 27°03'43.08"E, 53 m a.s.l., 10.VII.1989, at light, 2 ex., leg. N. Kodzhabashev.

So far 30 species from the tribe Dyschiriini are known from Bulgaria (Teofilova & Guéorguiev, in prep.). Our new finding makes that number 31, with 5 *Dyschirius* and 26 *Dyschiriodes* species. According to the last edition of the Catalogue of the Palaearctic Carabidae (Balkenohl 2017) *Dyschiriodes gracilis gracilis* occurs in Austria, Bosnia Herzegovina, Czech Republic, France, Germany, Italy, Moldova, Montenegro, Poland, Serbia, Slovakia, Slovenia, Spain, South European Russia, Switzerland, Turkmenistan, East Siberia, Far East of Russia, Kazakhstan, Japan and China (Hebei, Jiangsu, Xinjiang). Recently it was also reported from Greece (Arndt et al. 2011), Ukraine (Aleksandrowicz *et al.* 2016) and Albania (Paill et al. 2018). Considering its current distributional range, we may suggest that *D. gracilis gracilis* is to be found in Croatia and Romania too (Fedorenko 1996, Balkenohl 2017).

It seems that *D. gracilis gracilis* inhabits different types of riverine biotopes. In Albania it was found on regularly flooded niveaus (coarse-grained (mostly gravel) and fine-grained (mostly silt) sediment bars with and without vegetation); on elevated niveaus (species-poor grassland; habitat within a degradation stage by regular burning and grazing) and in special habitat within the active floodplain (steep erosive embankment with unvegetated, moist, loamy ground) (Paill et al. 2018). In Central-Eastern Poland it was found at clay-pits, loessic xerothermic slopes and loessic stream banks, with association with the staphylinids *Bledius atricapillus* (Germar, 1825), *B. gallicus* (Gravenhorst, 1806), *B. longulus* Erichson, 1839, *B. nanus* Erichson, 1840, *B. tricornis* (Herbst, 1784), apparently used for food (Sienkiewicz & Staniec 2006). The species was also found in suburban areas in Poland (Czechowski 1981).

Almost all Dyschiriini are actively flying, due to their biotope preferences and, in particular, the short-term existence of the near-water habitats. Changes in the hydrological regime of coastal soils, caused by periodic drying or flooding, cause many species to leave their shelters and migrate in search of suitable new habitats (Fedorenko 1993). This explains their relatively high resettlement abilities.

Most probably our specimens were attracted in the vicinity of the village of Srebarna by the light from the lamp. We suggest they flew from the neighbouring lake shore, were this species usually occurs. Light attraction is a common method in entomologic research, but it is rarely used for ground beetle surveys, though many of these beetles are actively flying at light, and the method was proven to be suitable and valuable for investigations of the carabid diversity, especially that of the small, flying, endogeic and other "trap-shy" species (Jocque *et al.* 2016), such as *Dyschiriodes gracilis*.

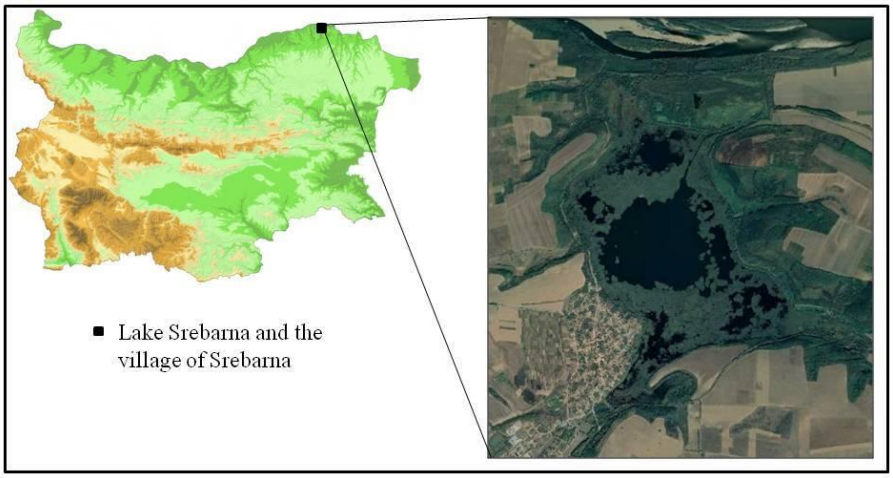

Fig. 1. Locality of the Srebarna wetland Nature Reserve.

Fig. 2. Habitus of the two specimens of *D. gracilis gracilis* from Srebarna. Scale bar 2 mm.

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