

First record of the moustached darter *Sympetrum vulgatum* (Linnaeus, 1758) (Odonata: Libellulidae) for the Bjelovar area, Croatia

Prva najdba navadnega kamenjaka *Sympetrum vulgatum* (Linnaeus, 1758) (Odonata: Libellulidae) na območju Bjelovarja, Hrvatska

Monika VELJKOVIĆ, Gornje Plavnice 56, 43000
Bjelovar, Croatia; E-mail: mv52874@gmail.com

Sympetrum vulgatum is widely distributed from Western Europe through Central and Eastern Europe, eastwards across Russia to Japan (Kalkman et al. 2015, Hinojosa et al. 2017). This Palearctic species is common and widespread in continental western, central and eastern Europe, but is largely absent from the westernmost regions and southern Europe (Kalkman et al. 2015). It is listed as a species of least concern (LC) in the European Red List of Dragonflies (Kalkman et al. 2010).

The species is increasingly rare towards the south of the Balkan Peninsula and considered rare in Serbia (Jović et al. 2009), with only few known records from Bosnia and Herzegovina, Montenegro and Macedonia (Kalkman et al. 2015). In Croatia, the species is more often found in central part of Croatia and Slavonia rather than in the south, where a few records were reported from the region of Lika and from islands of Pag and Krk. In continental part of Croatia, *S. vulgatum* has been recorded in Podravina, Slavonia, Međimurje, Lonjsko polje and the surrounding area of Zagreb and Karlovac (Belančić et al. 2008). In the Red Data Book of Dragonflies of Croatia (Belančić et al. 2008), it is listed as near threatened (NT). Hitherto, there are no literature data on *S. vulgatum* for the surrounding area of Bjelovar and neither for the wider Bjelovar-Bilogora area.

The present note deals with two specimens of Moustached Darter *S. vulgatum*, photographed during field research of butterfly and moth fauna

in Gornje Plavnice during 2017. A juvenile female of *S. vulgatum* was found on 18. 7. 2017 at 11:27 a.m. in a meadow at Gornje Plavnice, Bjelovar (45°56'49.8" N, 16°51'50.0" E, 190 m above sea level), while resting on *Sorghum halepense* (L.) Pers. (Fig. 1). A male specimen was found on 18.9. 2017 at 14:35 p.m., while resting on the ground in a backyard at Gornje Plavnice (45°56'32.3" N, 16°51'24.6" E, 230 m above sea level). Both records concur with the species' flight season which begins in June and ends in October, although most records originate from July (Belančić et al. 2008, Kalkman et al. 2015). *S. vulgatum* was identified on the basis of photographs taken using HUAWEI P9 Lite mobile phone and determined by Dijkstra & Lewington (2006). Both female and male specimen were photographed and identified, but not captured.



Figure 1. A juvenile female of Moustached Darter *Sympetrum vulgatum*, found at Gornje Plavnice, Bjelovar, Croatia (photo: Monika Veljković).

Slika 1. Juvenilna samica navadnega kamenjaka *Sympetrum vulgatum*, najdena v kraju Gornje Plavnice, Bjelovar, Hrvatska (foto: Monika Veljković).

The Bjelovar-Bilogora area is situated in continental and traditionally agricultural part of Croatia covered with fields, meadows and deciduous forests. The habitats in this area include wet and mesophilous meadows, forests, forest edges, glades, agricultural land, fallow land, backyards and gardens. One part of the meadow at Gornje Plavnice near Bjelovar, where *S. vulgatum* was found,

is mowed every year and characterized mostly by the plant association *Arrhenatheretum elatioris* Br. - Bl., but another part has now been overtaken by the invasive species Golden Rod (*Solidago virgaurea* L.).

S. vulgatum larvae develop in different lentic water bodies rich in littoral vegetation like puddles, lakes, marshes and streams with slow-flowing water even at higher altitudes (Belančić et al. 2008). It is possible that the specimens found in a backyard and in a meadow developed in a nearby pond at Gornje Plavnice, which is only 160 meters away from the location where male was found and 740 meters away from the meadow where female was found. According to Belančić et al. (2008), *S. vulgatum* larvae develop along the edges of standing water rich in shore vegetation, so the small stream connected to the pond and the pond at Gornje Plavnice itself, which are both rich in shore vegetation, could be a suitable habitat for the species' development. On the other hand, it is also possible that the presented records are based on observations of vagrant individuals originating from elsewhere in the wider region.

Present records encapsulate the first findings of *S. vulgatum* in the Bjelovar-Bilogora area of continental Croatia. More targeted fieldwork is needed to determine whether *S. vulgatum* has a permanent breeding population at Gornje Plavnice.

References

- Belančić A., Bogdanović T., Franković M., Ljuština M., Mihoković N., Vitas B. (2008): Red data book of dragonflies of Croatia. Ministry of Culture, State Institute for Nature Protection, Republic of Croatia, Zagreb, pp. 93-95.
- Dijkstra K.-D.B., Lewington R. (Eds.) (2006): Field guide to the Dragonflies of Britain and Europe. British Wildlife Publishing, Gillingham, 320 pp.
- Hinojosa J.C., Martín R., Maynou X., Vila R. (2017): Molecular taxonomy of the *Sympetrum vulgatum* (Odonata: Libellulidae) complex in the West Palearctic. Eur. J. Entomol. 114: 373-378.
- Jović M., Andjus Lj., Santovac S. (2009): New data on some rare and poorly known Odonata species in Serbia. Bulletin of the Natural History Museum 2: 95-108.
- Kalkman V.J., Boudot J.-P., Bernard R., Conze K.-J., de Knijf G., Dyatlova E., Ferreira S., Jović M., Ott J., Riservato E., Sahlen G. (2010): European Red List of Dragonflies. Publications Office of the European Union, Luxembourg, 29 pp.
- Kalkman V.J., Šácha D., David S. (2015): *Sympetrum vulgatum* (Linnaeus, 1758). In: Boudot J.-P. & V. J. Kalkman (Eds.), Atlas of the European Dragonflies and Damselflies. KNNV, Utrecht, pp. 311-313.