OVERVIEW ON THE DISTRIBUTION AND COMMUNITIES OF EDRAIANTHUS SERBICUS IN BULGARIA

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Abstract


The study provides new data and an overview on the current knowledge about the distribution of Edraianthus serbicus (A. Kern.) Petrovič. The species is rare and grows in isolated populations exceptionally on calcareous terrains. It takes part in xerophytic herbaceous vegetation of Saturejion montanae. Most of the locations are included in Natura 2000 and IPA networks.

Key words: Balkan endemic, Festuco-Brometea, rare and protected plant species

Introduction

The genus Edrianthus DC. has its distribution center in the Balkans with additional disjunctive locations known from Apennines, Sicily, Southern Carpathians and Caucasus (Kuzmanov, 1976). According to the Flora European (Kuzmanov, 1976) and the Med-Checklist (Greuter et al., 1984) there are 10 or 14 species accepted by most floristic researchers. Lakušić (1974) provided detailed systematic, ecological and phytogeographic investigation of the genus.

Bulgaria is situated on the eastern boundary of the genus distribution area on the Balkans. Two species are known for the country – Edrianthus serbicus and E. graminifolius (Delipavlov and Cheshmedjiev, 2003). E. serbicus is distributed in Bulgaria and Serbia (Kuzmanov, 1976) and forms isolated populations in calcareous mountains in the western part of the country (Apostolova and Ganeva 2000). It is rare endemic species in Bulgaria (Petrova and Vladimirov 2010), evaluated as Endangered (EN) B2ab(ii,v); C2a(i) on the Red list of Bulgarian vascular plants (Petrova and Vladimirov 2009) and currently is under protection by Biological Diversity Act (2007).

During recent field investigations new data about E. serbicus distribution was collected. The aim of this paper is to gather and analyze all available data on the species distribution and its communities in Bulgaria.

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Material and Methods

Herbarium specimens from SOM, SO and SOA were studied. Species nomenclature follows Kozhuharov (1992) and Delipavlov and Cheshmedjiev (2003). The life forms were determined according to data provided by Kozhuharov (1992) as H-hemicriptophyte, G-geophyte, Ch-chamaephyte. The floristic elements follow Assyov and Petrova (2012). Diagnostic species comply with Horvat et al. (1974).

The field data was collected during 2008-2012. GPS data were taken by Garmin eTrex Vista. Relevé sampling followed Braun-Blanquet approach (Braun-Blanquet, 1965). The plots were 16 m², placed in homogenous part of grassland communities including E. serbicus individuals. All analyses were carried out in JUICE 7.0 software (Tichý, 2002), where diagnostic species were calculated by phi-coefficient and comply with Horvat et al. (1974).

Results

All available up to date data on E. serbicus distribution are listed below: Znepole region: Chepun Mt. (SOM 75539, SOA 17938; Georgiev, 1891; Stoyanov and...
between Dragoman town and Golyamo Malovo village (42.94608N, 22.94287E; 42.95684N, 22.99064E; 42.90989N, 22.98989E; Apostolova and Ganeva, 2000; personal data), Petrovski krast peak (SOA 11211, SOM 75539, 162359; personal data); Ezdemirskata Mt. –Ezdimirtsi village (42.81150N, 22.70144; 42.80985N, 22.70059E; Peev and Tzoneva 2012; personal data); Golo Bardo Mt. (SO 73220, SOM 75528, 75530, SOA 12611, 27301, 27300; Stoyanov and Achtaroff, 1936; Stoyanov and Stefanov, 1948; Apostolova and Ganeva, 2000; Apostolova-Stoyanova and Stoyanov, 2009; Peev and Tzoneva, 2012), Kamaka locality (SOM 75540, 75532, 75533), Ostritsa peak (SO 73222, 73223, 73225, 73226, 73227, 7329, 90744, SOM 75528, 75530, 75531, 149678); Konyavska Mt. (SOA 11213, Stoyanov and Achtaroff, 1936; Stoyanov and Stefanov, 1948; Peev and Tzoneva, 2012), along upper course of Bistritsa river (Urumov, 1935), Banderata peak (SO 73228, 73221, 73222), Golyama Fucha village (42.38343N, 22.93899E; 42.38132N, 22.94101E; 42.38046N, 22.9413E; 42.38307N, 22.93892E; personal data), Konyavo village (SO 73224, SOM 19780; Velenovsky, 1891), Viden peak (Apostolova and Ganeva, 2000); Lubasha Mt. (SOA 11212, 16918; Stoyanov and Achtaroff, 1936; Stoyanov and Stefanov, 1948), Lyalintsi village (42.75542N, 22.73332E; personal data); Paramunska Mt. (Straja) (SO 92300, SOM 75735; Stoyanov and Achtaroff, 1936; Stoyanov and Stefanov, 1948; Peev and Tzoneva, 2012), Golemoto usoe locality (SOM 75734; personal data); Zavalska Mt., Vrabcha village (42.87400N, 22.73339E; personal data); Zemenska Mt. (42.4833N, 22.71436E; Personal data), Bandera peak (SO 106178; 42.30330N, 22.42390; personal data); Ruy Mt. (SO 101936; Urumov, 1905); Tri Ushi hill, above Al-

Fig. 1. Map of Edraianthus serbicus localities in Bulgaria
Overview on the Distribution and Communities of Edraianthus serbicus in Bulgaria

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domirovsko plateau (42.90989, 22.99889E; personal data); Vitosha region: Verila Mt., Dolna Dikanya village (42.89458N, 23.07223E; personal data); Vitosha region: Sofia region:

Mala planina Mt., between Bezden and Ponor villages (42.89821N, 23.16252E; personal data), Krapets village, close to Studena dam (SOM 161776); Sofia region:

Kosharite locality (42.89458N, 23.08784E; personal data), Opitsvet village, between Bezden and Ponor villages (42.89821N, 23.07223E; personal data); West Frontier Mts.: Vlahina Mt., above town of Boboshevo, Boboshevski Ruen peak (SOM 165809; 42.15572N, 22.96992E; personal data).

A total of 37 E. serbicus vouchers are deposited in Bulgarian herbaria so far. One of them is from the southern part of Vitosha Mt., near Krapets village, collected in 1969 (SOM 161776). This locality has been destroyed by the construction of Studena dam and consequently the species disappeared. All remaining locations are to be considered actual. A total of 20 E. serbicus localities are established in western Bulgaria, ten are cited in the literature, 16 are from herbarium data and 17 points are proved by our field trips. The species distribution area in the country falls into four neighboring floristic regions close to the Serbian border. Two new localities were established on the northern slopes of Zemenska Mt. and in Verila Mt. On both places, the populations are numerous and include hundreds of individuals.

E. serbicus is closely related to limestone terrains. It takes part as a companion species in xerophytic grasslands communities of Saturejion montanae Horvat et al. 1974 and Festuco-Brometea Br.-Bl. & Tüxen 1943 ex Soó 1947 (Table 1). Due to many rocky outcrops, the vegetation has open horizontal structure. In sample, plots between 16 and 29 plant species were distinguished.

Discussion

The first records of the species were presented in Flora Bulgarica (Velenovsky, 1989). We may assume that E. serbicus communities in Bulgaria have resilience toward recent changes and anthropogenic influence. They are part of vegetation managed traditionally as pastures. Its open structure and low primary production does not provide high intense grazing. Shrub invasion of Prunus spinosa, Crataegus monogyna and Rosa spp. and non-native tree plantations mostly by Pinus nigra are major threats for E. serbicus. Its localities are also threatened by development of limestone quarries.

The vegetation in all E. serbicus localities has pronounced xerophytic character, which is confirmed by the presence of many species of Mediterranean and sub-Mediterranean affinity (see Table 1). It could be defined also as particular Balkan type due to the presence of many Balkan endemics as Astragalus wilmottianus, Achillea clypeolata, A. ageratifolia, Scabiosa trinifolia, Bromus moesiacus, Sesleria latifolia, Asyneuma anthericoides, Hypericum rumeliacum and Dianthus moesiacus. Syntaxonomically E. serbicus is a component of a newly described association (Alyssos minoris – Stipetum eriocaulis ass. nov. prov., KV unpublished data).

We recognized E. serbicus communities as a part of habitat 62A0 Eastern sub-mediterranean dry grasslands (Scorzoneratalia villosae) (Directive 92/43/EC). Nearly all species localities are included in Natura 2000 sites and in the Important Plant Areas (IPA) network (Peev and Tzöneva, 2012).

Conclusion

The syntaxonomy of the communities of E. serbicus in Bulgaria is not studied in detail. By our opinion, the national border does not separate communities in Serbia and Bulgaria. In eastern Serbia Milosavljevic et al. (2008) have studied the respective vegetation and determined Edraiantho serbici – Anthylletum aureae (Randelovic and Milosavljevic, 2004). The association was included into Edriantho graminifolii – Erysimion commatae and Asplenietae trichomanis. Large dataset analysis from both sides of the border is required to determine the various plant communities in which E. serbicus participate.

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References


