

Short communication

Sternbergia colchiciflora Waldst. et Kit. (Amaryllidaceae), a new genus and species in the flora of Kosovo

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Abstract – This paper reports *Sternbergia colchiciflora* Waldst. et Kit. as a new genus and species for the flora of Kosovo. Almost 30 adult individuals of this species were recorded for the first time in southwestern Kosovo during 2015, within the Canyon of the White Drin at Fshajt Bridge. Considering the low number of individuals and very limited distribution, this species should be treated as a critically endangered taxon in Kosovo.

Keywords: biodiversity, conservation, endangered species, flora, new genus record

Introduction

The flora of the Republic of Kosovo is among the richest floras not only in the Balkan Peninsula, but also in the context of the whole European continent. In spite of the relatively small area of Kosovo (10.908 km²), the floristic diversity of the country represents about 25% of the total species richness on the Balkans. About 2000 vascular plant species have been registered, including relict and endemic species. This floristic richness and diversity can be explained by the geographical position and extraordinary geomorphological, pedological and climatological diversity. Although there have been studies on vascular flora by many authors, a complete inventory has not yet been developed; and from time to time new species are found that have not been previously recorded in the country (Maxhuni et al. 2014).

Sternbergia colchiciflora Waldst. et Kit. occurs over a very wide area of southern Europe and western Asia from south Spain eastwards through Sicily, the Balkans and Turkey where it is very common, southwards to Israel and northwards to the Crimea and Caucasus; in the east it reaches as far as Iran (Mathew 1983). This species also occurs in the majority of Balkan countries such as Albania, North Macedonia, Serbia, Croatia, Bosnia and Herzegovina, Serbia (Šilić 1967, Micevski 1970, Stevanović et al. 1991, Vangjeli et al. 2000, Vuković et al. 2017, Nikolić 2020).

The species has not been recorded earlier in Kosovo, probably due to the very short flowering period and the difficult terrain where this species is mainly encountered.

Its autumnal flowering is dependent on late summer rainfall, which is usually sporadic (Lorda and Gurbindo 2010).

In this paper, we present the first record of *S. colchiciflora* in Kosovo. However, in order to extend our knowledge of its distribution in other part of the country, further investigation is needed.

Material and methods

The study was based on fieldwork by direct observation carried out annually between 2015 and 2019, taking place during the flowering period from September to November of each year.

Specimens were collected on 20th September 2015, in the Canyon of the White Drin River next to Fshajt Bridge, in the village of Fshajë, Rahovec Municipality. This site has been visited between September and November each year from 2015 to 2019, in order to confirm the presence of this species.

Geo-coordinates were recorded by Garmin eTrex 30 GPS device in the World Geodetic System 84 format.

Plants were herbarized according to the procedures and deposited in the National Herbarium of Albania, Flora and Fauna Research Center, Faculty of Science, Tirana University, (TIR) with inventory number: 01359.

The nomenclature of taxa follows Euro+Med (2006).

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Results and discussion

In 2015, during our research into the vascular flora of the Canyon of the White Drin, we found for the first time *Sternbergia colchiciflora* in the right bank of the river near the village of Fshajë next to Fshajt Bridge. This species was found at an altitude of 340 m a.s.l. with the coordinates of 42°21'23.3" N 20°32'16.4" E (Fig. 1).

The occurrence of this species is restricted to an area of only 10 × 10 m². During our field survey in the area it was recorded that the population of this species consists of fewer than 30 adult individuals. The bulbs were deeply embedded in 20 to 30 cm of soil. The flowering period of this species has been shifted by approximately 2-4 days each year from 2015 to 2019 and the number of individuals remains almost the same. The phenological diagram is in accordance with Molnár et al. (2018).

The species was found on rocky limestone substrate (red soil type in limestone) within the vegetation of rocky grasslands (Fig. 2). In our study, the following plant taxa were found on the site: *Micromeria albanica*, *Pistacia terebinthus*, *Prunus mahaleb*, *P. spinosa*, *Centaurea solstitialis*, *Salvia aethiopsis*, *Gagea lutea*, *Verbascum blattaria*, *Euphorbia myrsinites*, *Artemisia campestris*, *Asparagus officinalis*, *Lunaria annua*, *Thlaspi perfoliatum*, *Marrubium vulgare*, *M. peregrinum*, *Carduus nutans*, *Erodium cicutarium*, *Sedum dasyphyllum*, *S. acre*, *S. atratum*, *Alyssum sinuatum*, *Arum italicum*,

Nigella damascena, *Colchicum autumnale*, *Verbena officinalis*, *Medicago orbicularis*, *Cyclamen hederifolium*, *Linaria vulgaris*, *Sambucus ebulus*, *Sideritis montana*, *Ajuga reptans*, *Scilla autumnalis*, *Lamium bifidum* ssp. *balcanicum*, *Helleborus multifidus*, etc. In Croatia, this species has been mostly found on dry Mediterranean grasslands (Vuković et al. 2017).

In Kosovo, the place is characterized by a moderate continental climate with elements of the modified Mediterranean climate that penetrates through the Canyon of the White Drin River. The average annual temperature is 11.85 °C and the average annual precipitation is 871.9 mm, measured between 2008 and 2018 (B. Kastrati, unpubl. data).

Using IUCN criteria 3.1. (IUCN, 2012) *S. colchiciflora* is assessed as a threatened taxon, as follows:

- **Category** CR.
- **Assessment criteria** B2 a, b (ii, v).
- **Population** current population trends =? (uncertain or unknown).
- **Habitat and Ecology** 3 Shrubland, 6 Rocky areas, 1 Forest, 4 Grassland.
- **Threats** 6 Human intrusions & disturbance, 8 Invasive and other problematic species, genes & diseases.
- **Research Needed** 1 Research, 3 Monitoring.
- **Estimated Q.** Maxhuni and Xh. Mala.
- **Date of assessment** January 11, 2020.

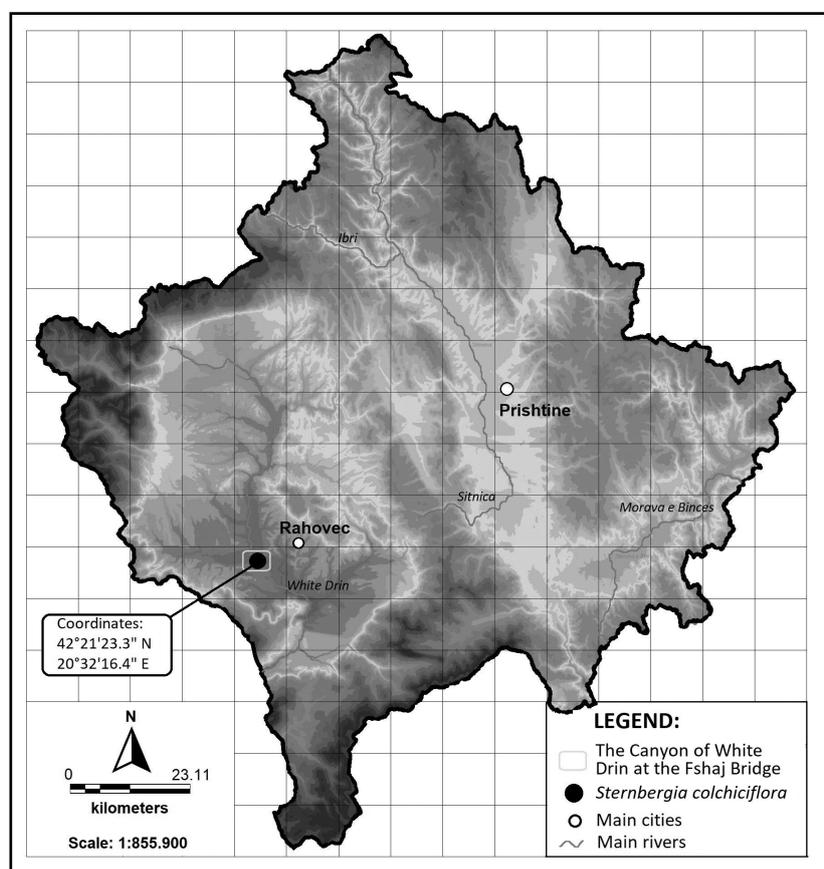


Fig. 1. Geographical position of *Sternbergia colchiciflora* locality in Kosovo.



Fig. 2. Habitat of *Sternbergia colchiciflora* on the left bank of the White Drin River, SW Kosovo (photo: Xh. Mala).

Based on these facts, we recommend the species *S. colchiciflora* for inclusion in the revised country Red Book of Vascular Flora. *Sternbergia colchiciflora* is on Red Lists of endangered, vulnerable and near threatened species in many European countries (Czech Republic, Slovak Republic, Romania, Hungary and so on). In the Caucasus region, it has the status of critically endangered taxon in the Red List of the endemic plants (Gagnidze 2000). This species is also listed under the Appendix II of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

According to the literature and the current floristic database of Kosovo, *S. colchiciflora* can be recognized as a new genus and species recorded for the first time in the country. Considering the low number of individuals, appearing at

only a single location in Kosovo, *S. colchiciflora* should be treated as a Critically Endangered species in Kosovo even though knowledge of occurrences will likely increase with further investigation.

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