

# A contribution to knowledge of the distribution of the species *Seseli tomentosum* Vis. in Bosnia and Herzegovina

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## Abstract

Species *Seseli tomentosum* Vis. is an endemic and endangered species. It is an extremely poorly researched species in Bosnia and Herzegovina. The first recorded information about the appearance of this species in Bosnia and Herzegovina dates from 1967. This paper presents the chronology and spatial distribution of the species *Seseli tomentosum* Vis. in Bosnia and Herzegovina.

Keywords: *Seseli tomentosum* Vis., endemic species, endangered species, Bosnia and Herzegovina, distribution

## 1. Introduction

The taxonomic position of the genus *Seseli* L. has not yet been adequately resolved in relation to other related genera: *Libanotis* Hill, *Eriocyclus* Lind, *Deverra* DC, *Pituras* Vis., and the more widely understood polymorphic genus *Seseli* by most authors also includes the genus *Libanotis* (She et al., 2005). Pimenov and Leonov (1993) point out that the genus *Seseli* L. belongs to the *Apiaceae* family and includes about 135 species distributed in Europe, Asia, Africa, North America and Australia. In Europe, according to Ball (1968), slightly more than 50 species and subspecies have been identified, while according to Hand (2011), over 80 species and subspecies have been identified, where endemic species, with a very narrow range, especially dominate. In Bosnia and Herzegovina, 16 species of the given genus were recorded (Beck-Mannagetta, 1927), however, the given species was not on the list because it was not noted in the given period. The species *Seseli tomentosum* Vis. described in R. Visiana in 1826 based on specimens he collected in the vicinity of Šibenik. It is a perennial with a semi-woody rootstock and the lower part of the stem, 50-100 cm high. One or two upright, thin, round and shallowly striated stems develop from the rootstock, with grayish hairs. The lowest leaves are 3-4 times narrowly pinnately divided, while the higher leaves of the stem are double tripartite with long petioles. The flowers are numerous, relatively small, gathered in hemispherical shields, composed of 4-8 (-10) short, densely hairy branches. The flower stalks are bristly, white hairy. The calyx is reduced to 5 barely visible denticles. The wreath consists of 5 egg-white petals with a reddish edge and a twisted tip. It flowers from August to October. The fruit is a hairy achene, consisting of two hairy carpels (Visiani, 1926; Kovačić et al., 2008; Milović, 2015). The Illyrian Adriatic is an endemic species, distributed on the eastern coast of the Adriatic (Croatia and Bosnia and Herzegovina). It is widely distributed in Croatia (Nikolić, 2022), within the Mediterranean biogeographical region (European Environment Agency, 2002). Walters and Gillet (1998) list it on the IUCN Red List under the category R - rare species. It was not noted on later IUCN lists. In Croatia, it is characterized as NT - an almost endangered species (Nikolić, 2022). In FBiH, it is on the Red List, as a VU - vulnerable species (Đug et al., 2013). The main goal of this work is to contribute to the knowledge of the distribution of this endemic plant species in Bosnia and Herzegovina.

## 2. Material and Methods

Data on the distribution of the species were collected on the basis of available literature sources, herbarium material stored in the Herbarium of the National Museum of Bosnia and Herzegovina (SARA) and own field research. Intensive field research in the territory of Herzegovina was carried out from 2008 to November 2022. The key used for determination was: Visiani (1826) and Ball (1968). The nomenclature is harmonized with the Euro+Med database (2006-2022), an information system for the vascular flora of Europe and the Mediterranean. All collected data were georeferenced using the ArcGIS 10.4 software program. To display the distribution of individual species, as well as display the summary distribution and analysis, used on the UTM grid 10 x 10 km (Lampinen, 2001) with the punctuation method according to Walter and Strak (1970) due to more complete field coverage and ensuring a satisfactory level of research, and at the same time and objectivity in the presentation of the state of distribution.

## 3. Results and discussion

Species *Seseli tomentosum* Vis. in our country, it was noted for the first time in 1967 in the area of Neum and Hrgud near Stolac (Šilić, 1972/1973). Šilić (1972/1973) states that the given specimens were stored in the Herbarium of the National Museum of Bosnia and Herzegovina (SARA), however, we did not find the given specimens, although they were recorded in the hand file. Our own field research in 2012 confirmed the presence of this species in the area of Svitava near Čapljina. On the digital platform Flora Croatica (Nikolić, 2022) S. Maslo also finds the given species in the area of Svitava near Čapljina, and adds a new finding for the area of the Klek peninsula near Neum, for which there is also a herbarium specimen in SARA under serial number No. 52054, collected on November 1, 2018. Through our own field research in 2018, the species was found at several micro-localities in the area of the Klek peninsula, and in 2019, a new locality was also found in the area of Ivanica near Trebinje (Figure 1).

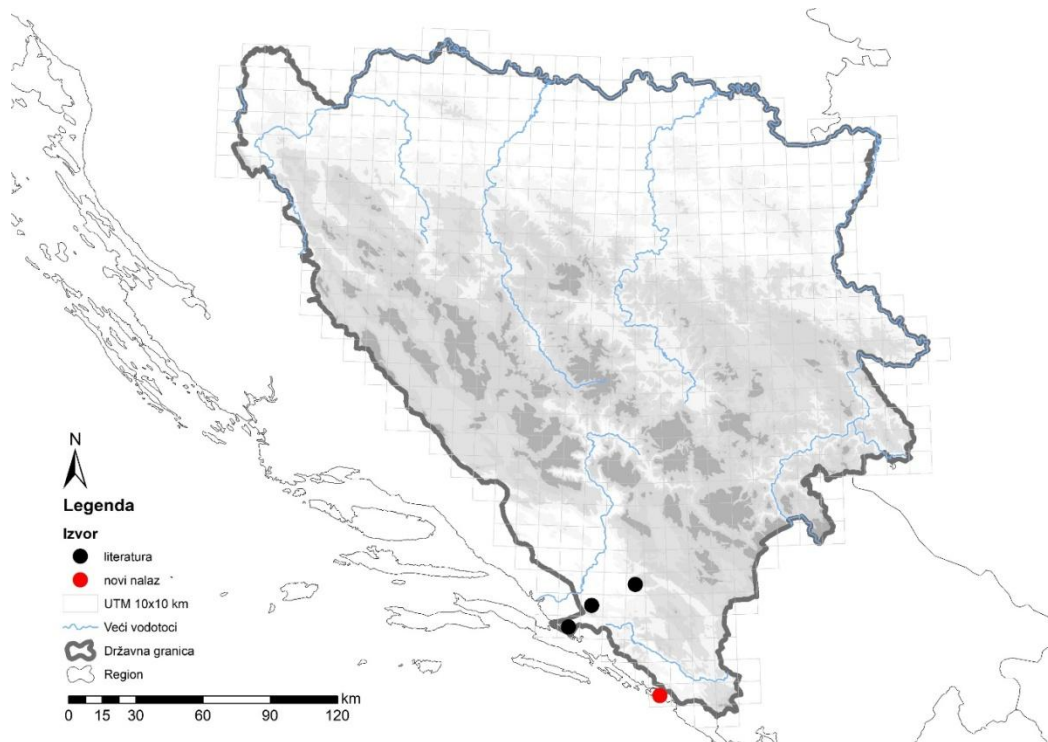


Figure 1. *Seseli tomentosum* Vis.: a) habitat of the species in the area of Ivanica near Trebinje; b) leaf; c) flower (photo: Boškailo, A.)

The current analysis of available literature data and own field research in Bosnia and Herzegovina has recorded 7 finds, 5 localities in 4 UTM squares (Table 1; Map 1.).

Table 1. Findings of the species *Seseli tomentosum* Vis. in Bosnia and Herzegovina

S. No	Wider locality	Narrower locality	Source	Collection date	UTM
1.	Neum	Neum	Šilić, 197271973	14.10.1967	YH15
2.	Stolac	Hrgud	Šilić, 197271973	17.10.1967	YH47
3.	Čapljina	Svitava	Own research / Boškailo, A.	29.09.2011	YH26
4.	Čapljina	Svitava	Maslo in Nikolić, 2022	20.04.2017	YH26
5.	Neum	poluotok Klek	Maslo in Nikolić, 2022	01.11.2017	YH15
6.	Neum	poluotok Klek	Own research / Boškailo, A.	02.10.2018	YH15
7.	Trebinje	Ivanica	Own research / Boškailo, A.	14.10.2019	BN62



Map2. Distribution of the species *Seseli tomentosum* Vis. in Bosnia and Herzegovina

Based on the given map, it can be seen that all the finds are within the Mediterranean biogeographical region (European Environment Agency, 2002). As for the types of habitats, this species inhabits areas of cracks in limestone rocks in BiH.

#### 4. Conclusions

The species *Seseli tomentosum* Vis. is an extremely rare species in Bosnia and Herzegovina, and has so far been recorded in 5 localities in 4 UTM squares. All finds in Bosnia and Herzegovina were found within the Mediterranean biogeographical region, on limestone rocks. In the coming period, it is necessary to establish an adequate database of endangered species, with the aim of unifying data and implementing certain protection and conservation measures.

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