RARE PLANT SPECIES NOT LISTED IN NATURA 2000 SITES FROM OLTENIA REGION (ROMANIA)

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ABSTRACT

The vascular Flora of Oltenia, so varied and diverse, is far from being known. The data rendered in the present study will complete the list of protected rare species from different areas of Oltenia and, at the same time, will bring contributions to the chorology of these rare taxa of our country flora.

There are presented 8 vascular species included in the Red Book of vascular plants of Romania: Acanthus balcanicus Heywood et I. Richardson, Alkannatinctoria (L.) Tausch, Aphanes australis Rydb., AzollafiliculoidesLam., Fimbristylisbisumbellata (Forssk.) Bubani, Limoniumtomentellum (Boiss.)Kuntze, Sileneborysthenica (Gruner) Walters and Veronica catenata Pennell.

INTRODUCTION

The botanical studies that contain data referring to the rare species from this part of Romania are quite numerous (Buia, 1959; Păun, 1966; Cârțu, 1968; Popescu, 1979; Popescu& al., 2003; Costache, 2006; Niculescu, 2006; Dihoru&Rădulțoiu, 2006; Negrean&Ciortan, 2012; Rădulțoiu, 2008, 2014; Rădulțoiu&Costache, 2008, 2009, 2012a, 2012b; Rădulțoiu& al. 2013). Until recently, in the botanical literature, there have been mentioned some national red lists, which included species with different sozological degrees (Dihoru&Dihoru, 1994; Oltean& al., 1994; Boșcaiu& al. 1994). After 2000, there appeared: the Red List of plants of Romania (including the endemic and sub-endemic species) (Negrean, 2001), the Critical list of vascular plants of Romania (Oprea, 2005) and the Red book of vascular plants of Romania (Dihoru&Negrean, 2009). These are most frequently consulted by experts from abroad or from the country. The selection of the species rendered in the present study started from the Red Book of vascular plants of Romania (Dihoru&Negrean, 2009).

MATERIAL AND METHODS

The observations were made in different growing seasons, from April to November. In case of some species, it was collected plant material that was then botanized and included in the Herbarium of the University of Craiova (CRA).

The analysed species are alphabetically rendered in order to facilitate their more rapid finding. The nomenclature is adapted according to Flora Europaea (Tutin& al. 1964-1980) and Ciocârlan (2009).

For each species, there are presented the following aspects: scientific name, botanical family they belong to, sozological characterization, ecology and geoelement, coenology and the protected area where they were identified and the GPS coordinates. For the coordinates, it was used a GPS Garmin *e*trex30 and the coenology was established according to Sanda V. & al. (1983).

In case of chorology, there are taken into account only those areas where these taxa were identified: Oltenia Forest Steppe, the Jiu's Corridor, CiuperceniDesa, the North of Eastern Gorj. There were also consulted the standard data sheets of these areas and it was noticed the absence of the presented plants.

RESULTS AND DISCUSSIONS

According to the research studies performed in 2012-2016, there were identified new sites for the species further presented. Some data are from the perimeter of certain Natura 2000 protected areas.

Acanthus balcanicus Heywood et I. Richardson(Family Acanthaceae)

Sozological characterization: It is an endemic species within the Balkan Peninsula, at national level being a vulnerable taxon (Dihoru & Negrean, 2009). In Oltenia, it was mentioned in few places (Buia, 1959; Costache 2005, Răduțoiu&Costache, 2009; Dihoru&Negrean, 2009).

Ecology and geoelement: It prefers sunny, grassy places, but it was also found in different glades together with other forest species (Fig. 1). Balkan.

Fig. 1. *Acanthus balcanicus*within Plenița Forest (orig.)

Coenology: *Orno-Cotinetalia*.

Locations: Oltenia Forest Steppe: “Peony Glade” from Plenița Forest.

Alkannatinctoria (L.)Tausch (Family Boraginaceae)

Sozological characterization: In Romania, this plant is critically endangered (Dihoru&Negrean, 2009). Its first mention appeared in Professor Al. Buia’s work (1959). Afterwards, it appeared just in a few locations (Dihoru&Negrean, 2009; Popescu, 1991).

Ecology and geoelement: It develops in sandy, sunny places (Fig. 2), characterized by hydric deficit during summer. Mediterranean – Sub-Mediterranean.

Fig. 2.Grassland with a good representation of*Alkannatinctoria* from Ciuperceni-Desa (orig.)

Coenology: *Festucetumvaginatae*.

Locations: Ciuperceni-Desa: Grassland within the Danube Alluvial Plain, N 43º51’960’’, E 22º53’711’’, alt. 41 m.s.m.; N 43º51’997’’, E 22º53’554’’, alt. 39 m.s.m.

AphanesaustralisRydb. (FamilyRosaceae)

Sozological characterization: It is a species critically endangered. Until now, it has been identified in only three counties: Vâlcea, Mehedințiand Arad. Its first mention in Romania Flora was made by Nýaradý A. (1957) as*Aphanesmicrocarpa*Boiss. &Reut.)Rothm. 1937.

Ecology and geoelement:Grassy places, on soils with a reduced content of limestone, texture ± sandy. Central Europe.

Coenology:*Aphanion*.

Location: the North of Eastern Gorj, on the bank of the Ciocăzeaua Mare Stream (Fig. 3): N45º09694, E 23º27953, alt. 527 m.s.m.

Fig. 3.*Aphanesaustralis*in stony places near the Ciocăzeaua Mare Stream (orig.)

AzollafiliculoidesLam.(FamilyAzollaceae)

Sozological characterization: At national level, it is a vulnerable taxon (Dihoru&Negrean, 2009) growing in the south part of the country. Within DoljCounty, it is mentioned by the collective led by Professor Popescu (2001).

Ecology and geoelement: Stagnant water or slowly flowing water. Adventive (North America).

Coenology: *Lemno – Azolletumfiliculoides*Br.-Bl. 1952

Locations: Ciuperceni-Desa: Ciulică's Pool - N43º50'965", E23º00'283", Alt. 34 m.s.m.; along a canal N43º50'746", E23º00'222", alt. 33 m.s.m.;

The Jiu's Corridor: DunăciuiPool from Bistreț settlement: N43º52'434", E23º27'241", alt. 23 m.s.m.; in a lake located at the periphery of Lișteava settlement: N43º50'343", E23º55'472", alt. 29 m.s.m.; on the bank of the Jieț Stream, upstream the bridge crossing the stream, near Ostroveni settlement: N43º49'113", E23º53'351", alt. 34 m.s.m.; in Zăcătoarea (N43º52'131", E23º55'442", alt. 34 m.s.m.) and VieruPools (N43˚52'134" E23˚55'442", alt. 34 m.s.m.) from PiscuSadoveisettlement (Fig. 4);inGrindenisettlement: N. 43º49'140" E 23º53'330", alt. 20 m.s.m.; Diana Pool from Bistrețsettlement, N43º52'351", E23º27'001", alt. 20 m; along a canal located near Sadova Monastery, N43º54'197", E23º55'640", alt. 41 m.s.m.; between SadovaandPiscuSadovei, N43˚54' 448", E23˚55'630", alt. 43 m.s.m.

Fig. 4.Water surface covered by *Azollafiliculoides*atZăcătoareaPool from PiscuSadoveisettlement(orig.)

Fimbristylisbisumbellata(Forssk.)Bubani (FamilyCyperaceae)

Sozological characterization: It is a vulnerable species that is spread in the southern part of Romania. In Oltenia, it is met in almost all the counties (Păun&Popescu, 1985; Șorop& al., 1985; Păun& al., 1989, Ciocârlan, 2009), except for Mehedinți County.

Ecology and geoelement: It prefers pioneer sandy places resulted from the deposit of alluvia. Southern Europe, East and South-West Asia, Australia.

Coenology: *Nanocyperion*.

Location:the Jiu Alluvial Plain, at the periphery of Ostroveni settlement, towards Lișteava.

Limoniumtomentellum(Boiss.)Kuntze (FamilyPlumbaginaceae)

Sozological characterization: It is a vulnerable taxon identified in some places withinDoljandOltCounties (Răduțoiu&Costache, 2009). It is well represented in Dolj County, Bratovoieștisettlement. Its first mention in Romania flora is in a paper elaborated by Dihoru (1990).

Ecology and geoelement: It prefers salty grasslands with increased moisture content. West Pontic.

Coenology.*Puccinellio-Salicornietea*.

Location: the Jiu's Corridor, in the settlement: BratovoieștiN 44º06'101'', E 23º54'383'', alt. 39 m.s.m.

Sileneborysthenica(Gruner) Walters(FamilyCaryophyllaceeae)

Sozological characterization:Endangered species that has poor populations with a reduced number of specimens. The first mention of this taxon in Olteniais on the sand dunes from Obedeanu – Craiova (Popescu& al., 2003).

Ecology and geoelement:In open, sunny places, sandy fields, limestone hills and dry grasslands. Eurasian Continental.

Coenology:*Festucionvaginatae*.

Location:Ciuperceni-Desa: N43º51'993'', E22º53'551'', alt. 38 m.s.m..

Veronica catenataPennell (FamilyScrophulariaceae) (Fig. 5)

Sozological characterization: Although at national level it presents a reduced vulnerability, we assessed that, in this part of the country (Oltenia), the species is sporadic. It is mentioned in different settlements (Popescu& al. 2001, Răduțoiu, 2008; Răduțoiu&Costache, 2008), but, it appears in other unidentified locations, for sure.

Fig. 5.*Veronica catenata* along a water canal from Drăgoaiasettlement (orig.)

Ecology and geoelement:It is found in wetlands, at the edge of ponds, in canals with little water, ditches where water maintains for a long period. Circumpolar.

Coenology:*Glycerio-Sparganion*.

Locations: Oltenia Forest Steppe: Drăgoaiasettlement (Dolj County): N44º14'158", E23º30'645", alt. 113 m.s.m.; Criva: N44º14'807", E23º37'791", alt. 129 m.s.m.

The Jiu's Corridor: CălugăreniPool from Bistreț settlement: N43º52'485", E23º27'396", alt. 21 m.s.m.

CONCLUSIONS

In the present paper, there are analysed and rendered chorology data for 8 vascular species included in the red book of vascular plants of Romania. Among these, 4 are vulnerable (*Limoniumtomentellum*(Boiss.,) Kuntze, *Fimbristylisbisumbellata*(Forssk.) Bubani, *Azollafiliculoides*Lam., *Acanthus balcanicus* Heywood et I. Richardson), 2 critically endangered (*Aphanesaustralis*Rydb.,*Alkannatinctoria* (L.) Tausch), one endangered (*Sileneborysthenica*(Gruner) Walters) and one least concern (*Veronica catenata*Pennell).

The analysed taxa belong to different botanical families.

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