

SOME NEW ASPECTS OF THE SPREAD OF *SAXIFRAGA CYMBALARIA* SPECIES IN NEMIRA MOUNTAINS

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INTRODUCTION

This taxon is found in the herbarium of the first botanists who have studied Moldova Flora. Much later, in the twentieth century, has been studied chorology (Brandză D., 1903; Șerbănescu M., 1960), ecology and phytosociological (Mititelu D. and N. Barabas, 1970.1980, 1993; Barabas Victoria 1997; Dihoru Gh and Negrean Gv., 2009).

In Nemira Mountains area 1435 species of vascular plants were identified, among which the most popularized is *Saxifraga cymbalaria*. Near the balneal resort Slanic Moldova perhaps due to hydrotechnical works, the populations of this plant are almost extinct but we identified new points, at an altitude of 1000-1400 m in places without any threats, close to mountains Tiganca and Șandru.

MATERIAL AND METHODS

The most important area for this species is spread between Crestele Nemira, the resort Slanic Moldova and mineral springs Ciunget Dofteana. When habitat was inventoried on this area, association of populations *Cardamino flexuosae-Saxifragetum cymbalariae* were observed Mititelu et Barabas 1993. On identified 13 new populations on which observations were made regarding size, habitat, competition from other species, possible threats and conservation status was appreciated.

Description

Herbaceous, with many stems, up to 30 cm long, thin, flexuose, tender, rising and lying, highly branched towards the top.

The leaves are small, finished at the top with 3-7 lobes crenate toothed, has 5-25 mm long and 8-35 mm wide, light green, the basal part is cordate or reniform at lower and middle leaves. Upper leaves are ovate cuneate.

Flowers are arranged at leaves armpit and at the end of the branches, pedicels are 4-5 times longer than the flowers, the calyx is divided almost to the base, has triangular lobes, 1.5 - 2 mm long and 0.5 - 0.8 mm broad, are glabrous or glandulous near the moment of fruiting or reflect. The petals are yellow or pale yellow, has elongated elliptical form, 6 mm

length, 2 mm width, 3-4 times longer than the calyx. Stamens are 3 mm, gineceous length is similar to petals.

The fruit is an ovate capsule, 4 mm long and with 2 short style. The seeds are black and round shaped.

Spreading on the world: Caucasus, Armenia, Georgia, Iran, Romania (only Nemira Mountains), Northern Africa. It is considered a specie with sub-Mediterranean area (Mititelu D N. et Barabas, 1994) but in our country it ssp *cymbalaria* is growing up to altitudes of 1400 m, on the Tablei creek, under Tiganca Mountain. In these mountains is the northern limit of the geographical area.

Spreading in the Nemira Mountains:

- Slănicului Creek (Răvăruț M., 1956), not found in 2013 near the resort Slănic Moldova. The authors of the nineteenth century quoted near the springs.

- Slănicului Creek (Răvăruț M., 1956),
- Cerbului Creek (Răvăruț M., 1956),
- Dobrului Valley (Răvăruț M., 1956),
- Izvorul Negru Creek (Papp, 1957, 1958, Mititelu D. et Barabaș N, 1977)

- Dofteana Creek (Papp, 1957, 1958). In upstream of mineral springs they are very well preserved.

- confluence of the creeks Crăcurele with Izvorul Negru – com Dărmănești (Mititelu D., Barabaș N., 1970, 1994),

- between the Secătura Grozei Creek and Negru Creek (Mititelu D., Barabaș N., 1994),

- on Ciungetului Creek at the confluence with Radului Creek (Mititelu D., Barabaș N., 1994), is the affluent of Dofteana Creek.

- on Șălăriei Creek, under Cleja Mountain (Șerbănescu, M, 1960 ; Mititelu D., Barabaș N., 1994), is the affluent of Dofteana Creek.

- at the confluence of Creek Pufu with Slănicul (Mititelu D., Barabaș N., 1994), destroyed by the hydrotechnical constructions from Pufu and Slănic.

- at the confluence of Creek Cheșcheșul with Slănicul (Mititelu D. et Barabaș N. 1994),

- at the confluence of Creek Dobru with Cerbu (Mititelu D., Barabaș N., 1994), Valley

Dobrulei (Șerbănescu, M, 1960), the plants were found again.

- on Creek Feșca de Sus under Păltiniș field, behind the church from Hîrja village (Mititelu D., Barabaș N., 1994), in 2011, a population of a few m² was discovered, contested strongly by weeds.

- Poiana Sărată (Răvăruț M., 1956) was not found in 2012.

- large surfaces on the creeks from Bacau area, at the foot of the Mountains Șandru, Șandru Mare, Țiganca, Nemira (Table 1)

Table 1 Points inventoried for *Saxifraga cymbalaria*, in 2013

Point of observation	Coordinates	Coordinates
1	46°13'10.4" N	26°20'11.2" E
2	46°13'18.9" N	26°20'44.5" E
3	46°13'14.5" N	26°20'47.2" E
4	N 46°14'15"	026°19'43" E
5	46°25'67" N	26°33'41" E
6	46.311341972	26.311065366
7	46.311357802	26.311141800
8	46.303724678	26.305815593
9	46.256711340	26.334143386
10	46°12'29.4" N	26°22'26.7" E
11	46°12'34.3" N	26°22'07.5" E
12	46°12'33.4" N	26°22'02.5" E
13	46°12'32.5" N	26°21'58.8" E
14	46°12'33.4" N	26°22'32.4" E
15	46°11'40,0" N	26°20'57,2" E
16	46°11'37,1" N	26°21'43,0" E

Paragraphs 1, 2 and 3 are at the foot of Sandru Mare Mountain, on marshy places located on rough terrain and rocky substrate.

Point 4 is located at the springs of Tablei Creek from the foot of Țiganca Mountain (N 46 ° 14'15 "and 026 ° 19'43"), at an altitude of 1400 m. *Saxifraga cymbalaria* forms some phytocenosis with surfaces of 2-20 m². It is a passage for sheepfolds but not rolled or log grazed because they are protected. Below 1387 m, (N 46 ° 14'12 "and 026 ° 19'36"), phytocenosis has over 100 m² and is in a good state of preservation.

Point 5 has an area of 100 m² is situated upstream Nemira Ponds, at 46 ° 25'67" N, 26 ° 33'41" E.

Besides Nemira Ridges near the dam reservoir Uz Valley on springs creek was identified only one exemplar of *Saxifraga cymbalaria*.

Point 6 has only few m² is located on Mount Farcu Mic, spring downstream to an altitude of 1275 m in plot 80 C from UP3.

Beside sites on coastal springs with swamps, in the woods, under Sandru Mare, phytocenosis were identified in points: 46 ° 12'29 .4" N and 26 ° 22'26

.7" E, 46 ° 12'34 .3" N and 26 ° 22'07 .5" E, 46 ° 12'33 .4" N and 26 ° 22'02 .5" E, 46 ° 12'32 .5" N and 26 ° 21'58 .8" E, 46 ° 12 '33 .4" N and 26 ° 22'32 .4" E. These places are at Dofteanei Springs (coordinates are not given for phytocenosis between Ciunget and foot mountains where the above phytocenosis were identified).

On Șandru Creek (Basin Slănic) at 46 ° 11'40, 0" N and 26 ° 20'57, 2" E (1287 m altitude); 46 ° 11'37, 1" N and 26 ° 21'43, 0" E, (1028 m altitude) are phytocenosis were not tourists or sheepfold ever came.

Ecology

It is spread predominantly alluvial wet with cobble substrate. It was identified in several eutrophic swamps, on the atop of Mountain Sandru, located between river basins Dofeana Springs and Cheșcheș.

Propagation

Plant bush is thick, produce a sufficient quantity of seeds to be maintained from one year to another.

Measures to prevent population shrinking.

In spring of mineral water Ciunget we don't believe this plant has been broken although it is an area visited by a large number of tourists. If they make a billboard in which to be passed several species and habitats that needs to be protected, it would be enough to raise citizen awareness.

CONCLUSIONS

For two centuries, ever since the presence of this plant is known in Romania and in Europe inclusive no disturbances of populations were reported. In past decades, when humans executed numerous works torrential correction and roads consolidations near the village Slanic Moldova most of populations no longer appeared. Instead, we reported new points, probably always existent near ridges formed by Nemira Mountains. We do not know the influences of tourists at low altitudes near the resort, but toward peaks phytocenosis are fully protected from the action of animals.

ABSTRACT

In Nemira Mountains area 1435 species of vascular plants were identified, among which the most popularized is *Saxifraga cymbalaria*.

Near the balneal resort Slanic Moldova perhaps due to hydrotechnical works, the populations of this plant are almost extinct but we identified new points, at an altitude of 1000-1400 m in places without any threats, close to mountains Țiganca and Șandru.

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