

## LOST AND FOUND: REDISCOVERY OF *SAUSSUREA PORCII* DEGEN IN THE RODNEI MOUNTAINS (EASTERN CARPATHIANS, ROMANIA) AFTER MORE THAN A CENTURY

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**Abstract:** The present floristic note reports the rediscovery of *Saussurea porcii* Degen in the Rodnei Mts, at a new site for the species located in the headwaters area of the Rebra river. This new site, therefore, currently represents the only known occurrence of the species in Romania as it is probably extinct at its *locus classicus*. The number of individuals found is extremely low, which makes the population of particular conservation concern.

**Keywords:** Carpathian endemic, conservation, floristics, rare species, wet habitat.

### Introduction

The Red List of Vascular Plants of Romania [4] includes a couple of species of which their presence in the flora of the country has not been confirmed for at least a century. Possible causes hindering the attainment of such floristic targets include the disappearance of the species due to ongoing climate change or through zoo-anthropogenic or anthropogenic impacts on the species' habitats. Another cause may be the relatively lower interest in floristic research as compared with the second part of 19<sup>th</sup> or first part of 20<sup>th</sup> centuries when this research interest flourished. Despite these factors, remarkable floristic discoveries still happen in Romania, as with the rediscovery of *Ranunculus glacialis* L. in the Eastern and Southern Carpathians [7, 8].

*Saussurea porcii* Degen (*Asteraceae*) is a narrow endemic of the Eastern Carpathians and has been regarded as a ‘mythical’ species in the flora of Romania because living specimens were not seen on the territory of the present-day Romania for more than a century. The species was discovered by the botanist Florian Porcius at the eastern side of Mt. Corongiș (Rodnei (Rodna) Mts.) in 1856. Initially the plant was identified as *S. serrata* DC., a species distributed in Siberia. Notes of the botanist Antal Czetzy on his herbarium sheet of *S. porcii* (CL 42434) provide a glimpse into the ‘conservation status’ of the species from the mid-19<sup>th</sup> century. He considered the plant ‘very rare’ and saw it on Mt. Corongiș on 10 August 1858, in a wet meadow habitat and only within a small area with difficult access. Shoots of the plants, however, were grazed and trampled by cattle and he (Czetzy) found then no specimens with flowers. He excavated a shoot with roots and re-planted it in his garden, from where the aforementioned herbarium specimen originated. The species was also cultivated by F. Porcius. He and Czetzy were friends and frequently collected plants together. Specimens from Porcius's garden cultivation also are deposited in the Herbarium of the A. Borza Botanical Garden.

*Saussurea porcii* was described as a species new to science late, in 1904, by Árpád Degen and dedicated to its discoverer [3].

In the 1920s additional populations of *S. porcii* were discovered in the Ukrainian Carpathians in the Chyvchyny and Chornohora massifs ([5], and references therein). Recently, Kobiv *et al.* (2007) [5] assessed the distribution of species within the Ukrainian Carpathians and also reported new occurrences of the plant within the Svydovets massif. The distribution of the species in Ukraine is presented in Fig. 1, based on the compilation of Kobiv *et al.* (2007) [5].

Most information about habitat requirements of *S. porcii* could be learnt on the basis of its distribution in Ukraine, where the species still has stable populations. *Saussurea porcii* grows there at altitudes of 1295–1560 m a.s.l. and is confined to hygrophytic to hygromesophytic vegetation of calciferous habitats including peat bogs (with calciferous influence), mown fen meadows and edges of streams ([5], and references therein).

*Saussurea porcii* has been widely regarded as ‘probably extinct’ in Romania (at least at the *locus classicus* of the species) [6, 5, 4] because repeated endeavours to find the species in the surroundings of Mt. Corongiș failed (G. Coldea, A.S. Bădărău, *pers. comm.*). A second site for the species in Romania (a locality named ‘Lanul Cercănel’ close to the city of Borșa in the Maramureșului Mts.) was erroneously reported by Coman (1941) [1] based on a misidentified specimen of *Crepis biennis* L. [2] confirmed by E.I. Nyárádi. *Saussurea porcii* is included in the Red Data Book of Ukraine [9] and in The Red List of Vascular Plants of Romania [4].

### Results and Discussion

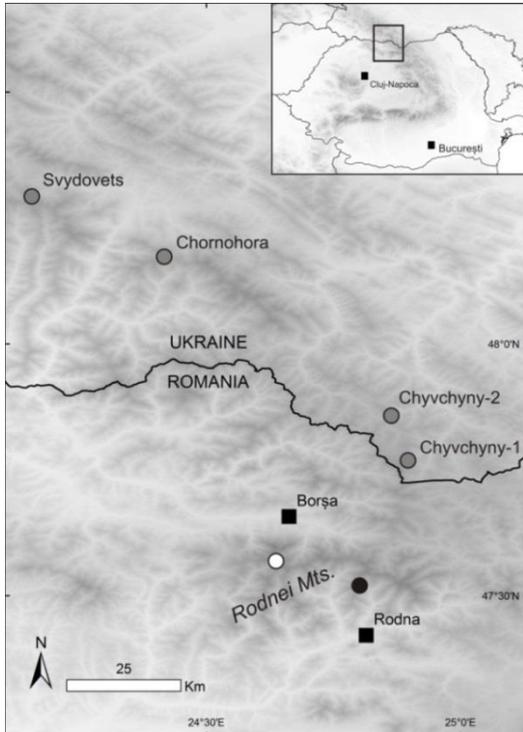
After more than a century, *S. porcii* was rediscovered by the authors in Romania, on 19 August 2014, during a several day field trip throughout the Rodnei Mts. while surveying spring mires. Some 12 shoots were found on a surface of 1m<sup>2</sup> very close to a rapid-flowing river stream. Due to the clonal growth habit of the species, these 12 shoots could be considered ramets belonging to two genets. Only three of the shoots were fertile, where the number of capitula was 8–14. The fertile shoots were found after anthesis, and already forming cypselae in the capitula. The shoots had a height of 10–30 cm. The location is situated at 1796 m a.s.l. and lies within the headwaters area of the Rebra river. Thus, it is relatively far from the *locus classicus* of the species (Fig. 1). A voucher specimen (CL 664545) of the species collected at this new site was deposited in the Herbarium of the A. Borza Botanical Garden, as well as photos taken of the specimens (Fig. 2).

The location has a southern-southeastern exposure and a slope of 50–60°. Although such a slope can be considered relatively steep, this was not the main factor in protecting the species and assuring its survival in an environment over-grazed by sheep. The authors consider that dwarf pine (*Pinus mugo* Turra) and the Siberian juniper (*Juniperus sibirica* Burgsdorf.) bushes growing nearby and surrounding the *S. porcii* specimens apparently had a protective effect on the species while blocking grazing animals.

According to the Natura 2000 classification, the site belongs to the ‘Petrifying springs with tufa formations (*Cratoneurion*) priority natural habitat’ (code \*7220). It has a *Doronico carpatici* – *Saxifragetum aizoidis* Coldea (1986) 1990 association, where the following species could be recorded (with corresponding grades of abundance on the Braun-Blanquet scale):

*Saxifraga aizoides* L. — 2, *Carex lepidocarpa* Tausch — 1, *Pinguicula vulgaris* L. — +, *Silene pusilla* Waldst. & Kit. — +, *Parnassia palustris* L. — +, *Swertia perennis* L. — 1, *Carex*

*sempervirens* Vill. — 1, *Saussurea porcii* Degen — 1, *Bartsia alpina* L. — +, *Phyteuma orbiculare* L. — +, *Leontodon hispidus* L. — 1, *Ranunculus pseudomontanus* Schur — +, *Festuca carpatica* F.Dietr. — +, *Viola biflora* L. — +, *Filipendula ulmaria* (L.) Maxim. — +, *Thalictrum aquilegiifolium* L. — +, *Carex paniculata* — 1 (G. Coldea, pers. comm.).



**Fig. 1: (Left) Distribution of *Saussurea porcii* Degen in the Carpathians, based on Kobiv et al. (2007) [5] and our own data. Circles represent populations, squares depict settlements. Grey circles represent the Ukrainian populations named according to the mountain massifs in which they occur. Black and white circles represent the *locus classicus* and the new site for the species, respectively.**



**Fig. 2: Photos of *Saussurea porcii* taken on 19.08.2014 at the headwaters area of the Rebra river (Rodnei Mts., 1796 m a.s.l.)**

The newly discovered site for *S. porcii* in the Rodnei Mts. is currently the only known location in Romania where this species grows. The extremely low number of individuals

growing in an island within an over-grazed environment (otherwise part of Rodnei Mts. National Park) provides the species *particular* conservation concern. The authors have informed officials of the Rodnei Mts. National Park about the discovery in order that appropriate conservation strategies could be applied (e.g. closing down of grazing on the territory of the whole watershed). In spite of the fact that additional specimens of *S. porcii* were not found in the area during subsequent botanical excursions (G. Coldea, M. Pușcaș, A. Bartók, *pers. comm.*), a future study should survey the whole watershed in order to further assess the conservation status of the population.

**Acknowledgements:** The authors are grateful to Gheorghe Coldea for providing the botanical relevé of the site where *S. porcii* was discovered and for helpful discussion on the association. This study was supported by the project entitled “Monitorizarea stării de conservare a speciilor și habitatelor din România în baza articolului 17 din Directiva Habitate”, and funded by “Programul Operațional Sectorial Mediu” (POS Mediu), Axa prioritară 4, SMIS-CSNR 17655”, contract no. 130537/10.01.2011.

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#### REDESCOPERIREA SPECIEI *SAUSSUREA PORCII* DEGEN ÎN MUNȚII RODNEI (CARPAȚII ORIENTALI) DUPĂ MAI MULT DE UN SECOL

##### (Rezumat)

*Saussurea porcii* Degen este o specie endemică a Carpaților Orientali descoperită de către botanistul Florian Porcius în Munții Rodnei pe versantul estic al Muntelui Corongiș în anul 1856. Specia a fost descrisă drept specie nouă de către Árpád Degen abia în anul 1904 și a fost dedicată descoperitorului. În Ucraina *S. porcii* crește în patru masive muntoase iar localitățile respectiv statutul de conservare ale populațiilor sunt documentate în lucrări recente. *Saussurea porcii* a fost considerată ‘probabil dispărută’ din Flora României pentru că demersurile repetate din ultimii ani pentru regăsirea speciei la locul ei clasic nu au avut succes. În 19 august 2014, după mai mult de un secol de când exemplarele vii ale speciei *S. porcii* au fost văzute în M-ții Rodnei, specia a fost redescoperită de către autorii studiului în zona de obârșie a Râului Rebra (M-ții Rodnei), acesta fiind o locație nouă pentru specie. Descoperirea a fost documentată cu o coală de herbar (CL 664545) depusă la Herbarul Grădinii Botanice A. Borza din Cluj-Napoca. De asemenea, este prezentată, pentru prima dată, ambianța eco-cenotică în care crește aceasta specie în România, grație sprijinului dlui. dr. Gheorghe Coldea. Numărul extrem de mic al indivizilor din populația nou găsită, respectiv pășunatul intens din zonă necesită măsuri stricte de conservare (interzicerea pășunatului) în vederea ocrotirii speciei.

Received: 9.10.2014; Accepted: 23.10.2014.