

## **REDISCOVERY OF *JASIONE ORBICULATA* GRISEB. EX VELEN. – A CRITICALLY ENDANGERED SPECIES – IN THE RETEZAT MOUNTAINS (SOUTHERN CARPATHIANS)**

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**Abstract:** *Jasione orbiculata* Griseb. ex Velen. is one of the rarest representatives of the *Campanulaceae* family from the whole of the Carpathians. Here the species was first reported in 1937 by J. Scheffer in the Retezat Mountains (Southern Carpathians) on the siliceous rocks and screes of the Custura Peak area (c.2000 m altitude).

After 1937 the species has not been collected and deposited in public herbaria by other botanists, and the exact location of *Jasione orbiculata* was not known.

After almost 80 years since the first mention of the species in the Carpathians, this paper reports the recent rediscovery of *Jasione orbiculata* in the area of Custura Păpușii Peak.

The species is highly threatened due to intensive grazing in the area where it occurs. In consequence, the author proposes the establishment of a special protected area, and including *Jasione orbiculata* as Critically Endangered (CR) in the next edition of the Romanian Red Book of Vascular Plants.

**Keywords:** Chorology, *Jasione orbiculata*, Red Book, Retezat Mountains, Southern Carpathians, threatened species.

### **Introduction**

*Jasione orbiculata* Griseb. ex Velen. (*J. laevis* Lam. subsp. *orbiculata* (Griseb. ex Velen.) Tutin is a Balkanic-Appenninic-Dacian floristic element [15], a very rare species in the Carpathians.

The species was mentioned for the first time by A.H.R. Grisebach [6] from Macedonia (Kobelitza, Peristeri) and Bithynian Olympus (Uludağ), Turkey, in *Spicilegium Florae rumelicae et bithynicae* (non rite publ.) [13]. The first official description of the species was made in 1891 by Velenovsky in *Flora Bulgarica* [16].

*Jasione orbiculata* is a caespitose, perennial plant, with several decumbent to ascending flowering stems 2-10 (-15) cm long, and usually numerous vegetative rosettes; sometimes mat-forming with rooting, procumbent vegetative stems with several years' growth before flowering. The leaves (10-15 x 1.5-3 mm) are oblanceolate to spatulate, obtuse, entire to slightly and irregularly dentate, not or very rarely undulate, ciliate at the base. Outer involucral bracts are ovate to orbicular-obovate, rarely lanceolate or oblanceolate, 4-9 x 3-7 mm, incise-serrate with acuminate teeth, ciliate at the base, ± pilose-tomentose within. Pedicels are 1-2 mm, more or less equalling the ovary. Calyx teeth are 1.5-2 (-2.5) mm, linear-lanceolate to subulate, glabrous, rarely ciliate. The corolla is blue. The flowering period is July and August [13].

The habitat of species is represented by rocky meadows and grassland, stabilised screes and gravel, at 1800-2500 m, on serpentine, granite, micaceous schist and flysch [13].

In the Romanian flora, *Jasione orbiculata* Griseb. ex Velen. is a rare species [9, 2, 11], recorded in the Red Lists of vascular plants of Romania as Rare (R) [8] or placed in the Indeterminate zoological category (I) [1, 3]. The species was not included in the Red Book of Vascular Plants of Romania [4].

In the Carpathians the species was discovered for the first time by Josef Scheffer on 27 July 1935 in the Retezat Mountains (Southern Carpathians), on the siliceous rocks and screes of the Custura Peak area (c.2000 m altitude) [12]. A photo of the specimen deposited at the Hungarian Natural History Museum Herbarium (BP) is shown in Figure 2.

After two years, B. Pawłowski organized a botanical excursion (5-24 August 1937) in the Southern Carpathians (Retezat, Parâng and Făgăraş Mountains). He found *Jasione orbiculata* in the Retezat Mountains in a place named Butea (in “Vulcan-Pass” geographical-military map, 1904, the place was named “Mt. Păpuşii”) [10].

Pawłowski specified that the Carpathian individuals were different from those in the Musala Mountains (Rila Planina, Bulgaria). Based on the involucre bracts, the Rila Mountains populations were assigned to var. *balcanica* Urum and those from Retezat Mountains to var. *eu-orbiculata* Stoj. [10]. P. Hartvig [in 13] noted that this species occurs as more or less isolated alpine populations, many of which have been given taxonomic rank.

E.I. Nyárády in his monograph on the Retezat Mountains [7] pointed out: “Scheffer mentioned the species on Custura Peak, Pawłowski said the place referred to Butea”.

Since 1937 no botanist has collected and deposited *Jasione orbiculata* from the Carpathians in a public herbarium.

### Material and Methods

Our investigations were based on recent field studies, analysis of herbarium material (BP, CL, BVS, SIB, I, B, P, CRAI) [14], as well as literature data.

The identification of the taxon has been carried out using: the Romanian Flora, vol. 9 [5]; *Flora Europaea*, vol. 4 [15]; *Flora ilustrată a României–Pteridophyta et Spermatophyta* [2]; *Plante vasculare din România: determinant ilustrat de teren* [11].

The material collected has been lodged in the „A. Borza” Botanical Garden Herbarium, Cluj-Napoca (CL no. 664781) and the personal herbarium of A. Bartók.

### Results and Discussion

#### *Herbarium and literature data*

It is worth mentioning that only one voucher specimen with *Jasione orbiculata* was found in all herbaria consulted (BP herbarium no. 465675).

*Jasione orbiculata* was mentioned in Romanian botanical literature in the following locations: Custura Peak [12, 7, 5, 9], Butea [10, 7, 5, 9] and Munţii Retezat [2, 11].

The chorological map of *Jasione orbiculata* in the Carpathians is shown in Figure 1.

#### *Field observation*

During a botanical trip in the area of Custura Păpuşii Peak (Retezat Mountains, Southern Carpathians) on 3 August 2014 the author found the very rare and endangered species *Jasione orbiculata*, 80 years after the last collection in the Carpathians (photo in Figure 3).

Locality: Romania, Southern Carpathians, Retezat Mountains, near Custura Păpuşii Peak, alt. 2040 m a.s.l., aspect N-NE, slope 30°, on granitic rocks and screes, in ass. *Potentillo*

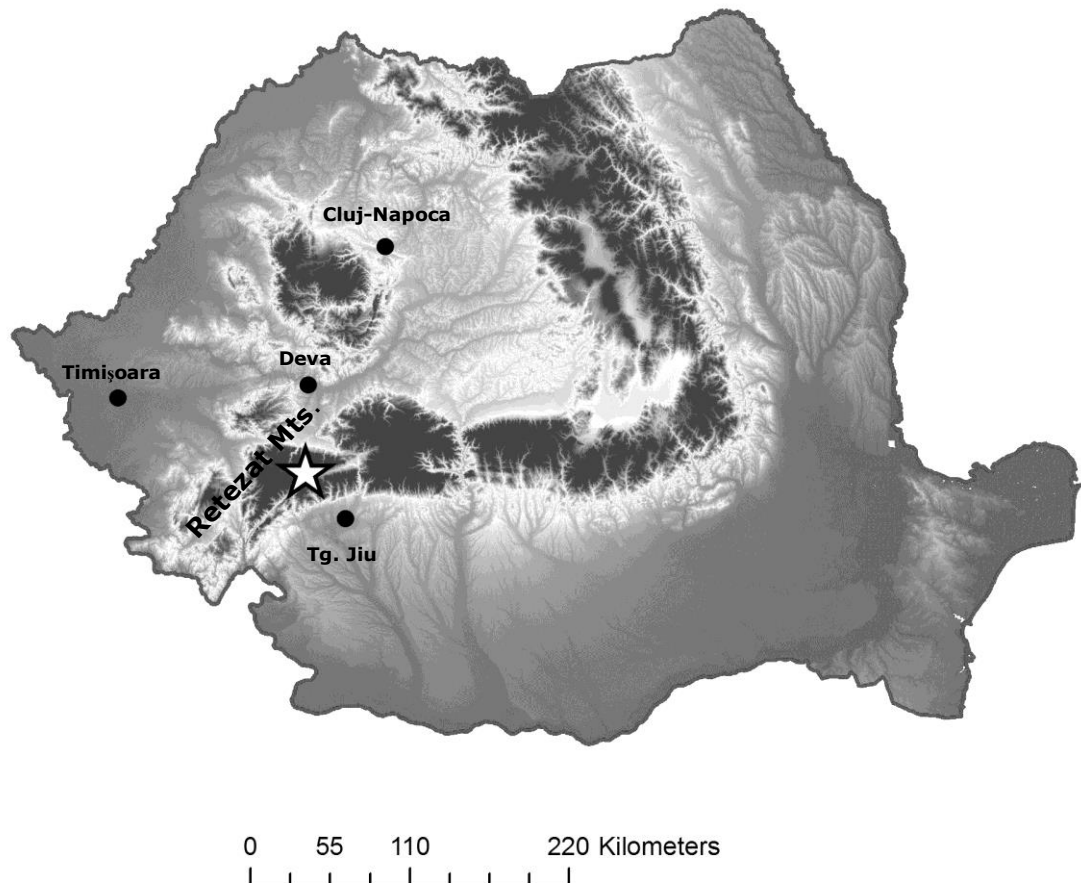
*chrysocraspedae-Festucetum airoidis*, total area approximately 15 m<sup>2</sup>, leg. A. Bartók, date: 3/VIII/2014, CL no. 664781.

Together with *Jasione orbiculata* Griseb. ex Velen. we also found the following species: *Festuca airoides* Lam., *Luzula spicata* (L.) DC., *Loiseleuria procumbens* (L.) Loisel., *Hieracium alpinum* L., *Phyteuma nanum* Schur, *Minuartia recurva* (All.) Schintz & Thell., *Juncus trifidus* L., *Thymus praecox* Opiz subsp. *polytrichus* (A.Kern. ex Borbás) Jalas, *Rhododendron myrtifolium* Schott & Kotschy, *Primula minima* L., *Campanula alpina* Jacq., *Cerastium alpinum* L. and *Polygonum viviparum* L.

**Recommended IUCN threat category**

A single population of *Jasione orbiculata* is known in the Carpathians, in a restricted area in the Retezat Mountains. The place where the species occurs is apparently protected (Retezat National Park) but in reality the area is very exposed to intense grazing.

We therefore recommend the establishment of a special protected area for this species and the inclusion of *Jasione orbiculata* in the next edition of the Romanian Red Book of Vascular Plants as Critically Endangered (CR) according to criteria B1a and B1c(ii,iii) [17] .

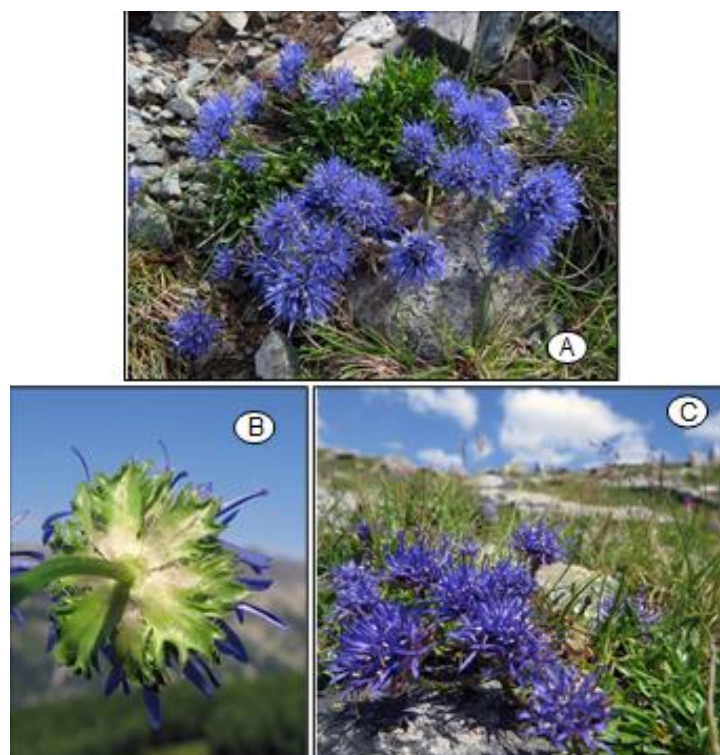


**Fig. 1: Chorological map of *Jasione orbiculata* in Romania (the white star represents the location of *J. orbiculata* in the Retezat Mountains)**



Fig. 2: Original herbarium sheet of J. Scheffer with first collection of *Jasione orbiculata* from the Retezat Mountains (Southern Carpathians), (BP 465675)





**Fig. 3: A,C- Habitus of *Jasione orbiculata*, growing on granitic rocks and screes near Custura Păpușii peak B- Outer involucral bracts of *Jasione orbiculata***

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**REDESCOPERIREA SPECIEI CRITIC PERICLITATE *JASIONE ORBICULATA* GRISEB. EX VELEN.  
ÎN MUNȚII RETEZAT (CARPAȚII MERIDIONALII)**

**(Rezumat)**

*Jasione orbiculata* Griseb. ex Velen. este unul dintre cei mai rari reprezentanți ai familiei *Campanulaceae* din Carpați. Specia a fost găsită pentru prima oară în Carpați de J. Scheffer în anul 1935 în Munții Retezat (Carpații Meridionali) în zona Vârfului Custura (la altitudinea aproximativă de 2000 m).

După anul 1935 planta nu a mai fost colectată de niciun botanist, din păcate zeci de ani locul descoperirii a rămas enigmatic.

Bazându-se pe unica sursă obiectivă care dovedește existența speciei în Carpați (coala de herbar BP 465675) autorul acestei publicații a pornit în vara anului 2014 în Munții Retezat, în scopul regășirii acestei comori floristice a României.

Căutarea a fost încununată de succes, planta regăsindu-se în zona Vârfului Custura Păpușii, după aproape 80 de ani de la descoperirea speciei pentru prima oară în Carpați.

Specia a supraviețuit doar pe o arie restrânsă și este periclitată din cauza pășunatului intensiv din zonă.

Autorul propune înființarea unei rezervații naturale (în cadrul Parcului Național Retezat) și includerea speciei în viitoarea ediție a Cărții Roșii a Plantelor Vasculare din România, cu statutul zoologic "Critic periclitat".

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