

# NEW LOCALITY OF DISTRIBUTION OF RAMONDA NATHALIAE PANČIĆ & PETROVIĆ (GESNERIACEAE) IN REPUBLIC OF NORTH MACEDONIA

Agim HAZIRI<sup>1\*</sup>, Sheval MEMISHI<sup>1</sup>, Nasuf ABDII<sup>1</sup>

<sup>1</sup>Department of Biology, Faculty of Natural Sciences and Mathematics, University of Tetova, Republic of North Macedonia

\*Corresponding author e-mail: agim.haziri@unite.edu.mk

---

## Abstract

From the current knowledge of flora in North Macedonia, *Ramonda nathaliae* Pančić & Petrović is present in some localities along the mouths of the River Vardar. New localities of spread of this species were discovered several years ago, near the village of Cerovo and in Karpallak. During the ongoing research of *Ramonda nathaliae* Pančić & Petrović, in North Macedonia, another new locality, was recognized which represents a new record of distribution of this species in the flora of North Macedonia. Examine specimens: on steep rocky terrain: 364 m, 41° 58' N, 21° 11' E, May 2022, in Laskartsi, Municipality of Zelino.

*Keywords:* New locality, Gesneriaceae, *Ramonda nathaliae* Pančić & Petrović, Laskartsi.

---

## 1. Introduction

The tropical family Gesneriaceae in the Balkan Peninsula as well as in the flora of Northern Macedonia is represented by only two species of the genus *Ramonda* Rich., *Ramonda nathaliae* Pančić & Petrović. and *Ramonda serbica* Pančić. These are two endemic species and tertiary relics, which testify to the early presence of a tropical climate in this part of the Balkan Peninsula (Contandriopoulos, J., 1966, Daskalova et al. 2012).

From the current knowledge of flora in North Macedonia, *Ramonda nathaliae* is present in some localities along the mouths of the Vardar river, while *Ramonda serbica* in the gorges of Black Drin. New localities of spread of this species were discovered several years ago, near the village of Cerovo and in Karpalak; 612 m, 41° 48' N, 20° 55' E, 16 May 2008 (Abdullai K., Haziri A., Millaku F. and Krasniqi E, May 2008).

During the ongoing research on the distribution of *Ramonda nathaliae* Pančić & Petrović, we also discovered a distribution locality, which is a new locality for this species. This locality is located near the village of Laskartsi, Municipality of Zelino.



**Fig 1.** New locality of *Ramonda nathaliae* Pančić & Petrović in Zelino

## **2. Material and methods**

For the realization of this study are applied standard methods for floristic research. Such studies involve the identification of individual species and also the assessment of the abundance of species. The techniques applied are known as floristic methods of description. Specimens of these species are deposited in the Department of Biology, University of Tetova.

## **3. Results and discussion**

Paleoendemic species of the monophyletic genus *Ramonda* Rich., (*Ramonda nathaliae* Pančić & Petrović and *Ramonda serbica* Pančić) are the remnants of the Tertiary tropical and subtropical flora in Europe (Meyer, K. F. 1970). They are the rare resurrection plants of Northern Hemisphere temperate zone. From the current knowledge of flora in North Macedonia, *Ramonda nathaliae* Pančić & Petrović is present in some localities along the mouths of the Vardar river, while *Ramonda serbica* Pančić in the gorges of Black Drin (Košanin, N., 1921, 1939).

*Ramonda nathaliae* Pančić & Petrović is a species of flowering plants of the tropical family Gesneriaceae with a limited distribution in the Balkan Peninsula, that grows in Serbia, Albania, North Macedonia and partially in Greece and in Kosovo (Lazarević, M. R. 2012, 2013).

*Ramonda nathaliae* Pančić & Petrović (Fig . 2.), is a low-growing perennial producing rosettes of pale, evergreen leaves about 5cm long. The small clusters of saucer-shaped, deep mauve-blue flowers are produced in late spring and early summer Whereas most flowers in Gesneriaceae are composed of five lobes to the

corolla, the flower of *Ramonda nathaliae* Pančić & Petrović has two fused petals which give the overall appearance of four lobes (most of the time), somewhat distinctive among gesneriad flowers.



**Fig 2.** *Ramonda nathaliae* Pančić & Petrović

In Republic of North Macedonia is present in some localities along the mouths of the Vardar river (Rakić, T., 2013). New localities of spread of this species were discovered several years ago, near the village of Cerovo and in Karpalak; 612 m, 41° 48' N, 20° 55' E, 16 May 2008 (Abdullai K., Haziri A., Millaku F. and Krasniqi E, May 2008). During the ongoing research of *Ramonda nathaliae* Pančić & Petrović, in North Macedonia, another new locality, was recognized which represents a new record of distribution of this species in the flora of North Macedonia. Examine specimens: on steep rocky terrain: 364 m, 41° 58' N, 21° 11' E, May 2022, near the village of Laskartsi, Municipality of Zelino.



**Fig 3.** Distribution of *Ramonda nathaliae* Pančić & Petrović in North Macedonia: distribution of known localities (■) and new locality in Laskartse (●).

## 4. Conclusions

Based on what was said above, we can conclude that:

- Genus *Ramonda* Rich., in the flora of North Macedonia is represented with two endemo – relic species: *Ramonda nathaliae* Pančić & Petrović. and *Ramonda serbica* Pančić.
- *Ramonda nathaliae* Pančić & Petrović is present in some localities along the mouths of the River Vardar.
- During the ongoing research of *Ramonda nathaliae* Pančić & Petrović, in North Macedonia, another new locality, was recognized which represents a new record of distribution of this species in the flora of North Macedonia.
- Research on the spread of this species should continue in the future because the chances of finding new sites of spread are very high.

## Acknowledgements

This paper is dedicated to the late professor and colleague Kasamedin Abdullahu, as a sign of gratitude for his contribution to the ongoing research of the *Ramonda nathaliae* species.

## References

- [1]. Abdullai, K., Haziri, A., Millaku, F. Krasniqi, E. 2008. New localities for *Ramonda nathaliae* (Gesneriaceae) in Macedonian flora. International Conference on Biological and Environmental Sciences. 26-28 September, FNS, Tirana, Albania.
- [2]. Contandriopoulos, J., 1966. Contribution à l'étude caryologique des Gésneriacées d'Europe et de leur germination. 91 Congrès des Sociétés Savantes. Rennes 3, 271–280.
- [3]. Daskalova, E., Dontcheva, S., Zekaj, Z., Bacu, A., Sota, V., Abdullai, K., et al. 2012. Initial determination of polymorphism and in vitro conservation of some *Ramonda serbica* and *Ramonda nathaliae* populations from Albania, Macedonia and Bulgaria. *Biotechnol. Biotec. Equip.* 26, 16–25. doi: 10.5504/50YRTIMB.2011.0004 doi: 10.5504/50YRTIMB.2011.0004.
- [4]. Košanin, N., 1921. La Distribution Géographique des Deux Espèces de *Ramondia* du Balkan. Belgrade: Academie des Sciences et Arts de Belgrade, 34–49.
- [5]. Košanin, N., 1939. Contribution to the biology of *Ramondia nathaliae*, *R. serbica* and *Ceterach officinarum*. *Spomenik Srp. Kralj. Akad. LXXXIX*, Prvi razred 20, 1–68.
- [6]. Lazarević, M. R. 2012. Cytogenetics, palynology and phylogeography of genus *Ramonda* (Gesneriaceae) in the Balkan Peninsula. PhD thesis, University of Belgrade, Faculty of Biology, Belgrade.
- [7]. Lazarević, M., Siljak-Yakovlev, S., Lazarević, P., Stevanović, B., and Stevanović, V. 2013. Pollen and seed morphology of resurrection plants from the genus *Ramonda* (Gesneriaceae): relationship with ploidy level and relevance to their ecology and identification. *Turk. J. Bot.* 37, 872–885. doi: 10.3906/bot-1209-58.
- [8]. Meyer, K. F. 1970. Gesneriaceae als Glieder der Flora des Tertiär in Europa. *Reiche: Wiss. Ztschr. Friedrich-Schiller University Jena. Math. Naturwiss.* 19, 401–411.
- [9]. Rakić, T., Ilijević, K., Lazarević, M., Gržetić, I., Stevanović, V., and Stevanović, B. 2013. The resurrection flowering plant *Ramonda nathaliae* on serpentine soil – coping with extreme mineral element stress. *Flora* 208, 618–625. doi: 10.1016/j.flora.2013.09.006.