

TWO NEW SPECIES FOR THE FLORA OF REPUBLIC OF MACEDONIA

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During two botanical expeditions in the Republic of Macedonia in 2017 (Mts Šar Planina and Mt. Jakupica), two plants were found that are new for the flora of this country: *Campanula wanneri* Rochel in Mt. Jakupica and *Carduus ramosissimus* Pančić in Mts Šar Planina. The plant species habitats and phytogeographic importance of these new findings were discussed within the scope of their newly established distribution patterns in the Balkan Peninsula.

Key words: *Campanula wanneri*, *Carduus ramosissimus*, new records, Republic of Macedonia

INTRODUCTION

In the last decade, several articles were published regarding new taxa for the flora of the Republic of Macedonia (Matevski & Teofilovski 2004, 2011, Matevski 2016, Niketić *et al.* 2014, Teofilovski 2011, 2017). Still, there are many areas/localities in Macedonia that, in botanical terms, are

not well explored. Among them are the silicate parts of Mt. Jakupica, due to the fact that many botanists more frequently visited the attractive and higher limestone parts of the mountain. Some remote parts of Mts Šar Planina are also insufficiently studied. As a result, on these two mountains we discovered two new species for the flora of the Republic of Macedonia. In this article we present these new plants with their ecological preferences, as well as the phytogeographical importance of these new findings.

MATERIAL AND METHODS

Field surveys were carried out in Mt. Jakupica and Mts Šar Planina in July and August 2017 respectively, and identification of the collected plant material was performed by use of standard botanical literature. Distribution of the species in the Republic of Macedonia is presented according to the grid map with squares of 10×10 km, based on the Military Grid Reference System (MGRS) projection (Lampinen 2001). Collected plant material was stored in the Herbarium of the Natural History Museum in Belgrade (BEO) and the Herbarium of the Institute of Botany and Botanical Garden “Jevremovac”, University of Belgrade (BEOU) (Thiers 2017, <http://sciweb.nybg.org/Science2/Index-Herbariorum.asp>). Nomenclature followed Euro+Med Plantbase (<http://ww2.bgbm.org/EuroPlusMed/query.asp>).

RESULTS AND DISCUSSION

Campanula wanneri Rochel – CAMPANULACEAE (Fig. 1)

≡ *Symphyandra wanneri* (Rochel) Heuff.

When it was described by Rochel (1828), this species was primary included in the genus *Campanula* L. while later, Heuffel (1858) placed it into the genus *Symphyandra* A. DC. based on connate anthers in a tube surrounding the style at anthesis. In the recent database (Castroviejo *et al.* 2010) it was returned back into the genus *Campanula*, while Raus (2014) included it into the newly established section *C. sect. Symphyandra* (A. DC.) Raus. The closest relatives of *C. wanneri* in the Balkan Peninsula are *C. hofmannii* (Pant.) Greuter & Burdet (syn. *Symphyandra hofmannii* Pant.) distributed in Bosnia and Herzegovina (Redžić 1976, Parić *et al.* 2015), *C. cretica* (A. DC.) D. Dietr. (syn. *S. cretica* A. DC.) from Kriti, *C. samothracica* (Degen) Greuter & Burdet (≡ *S. samothracica* (Degen) Halácsy) from Samothraki, *C. boreosporadum* Raus (syn. *S. sporadum* Halácsy) from the Northern Sporades and *C. orphanidea* Boiss. (syn. *S. pangaea* Heldr. & Charrel) from Mt. Pangeo in NE Greece (Dimopoulos *et al.* 2013, Raus 2014).



Fig. 1. – *Campanula wanneri* Rochel in Mt. Jakupica (Korda – Begovi virovi):
a) species habitat; b) plant rosette; c) flowering plant (photo G. Tomović).



Fig. 2. – *Campanula wanneri* Rochel – herbarium specimens from Mt. Jakupica (BEO).

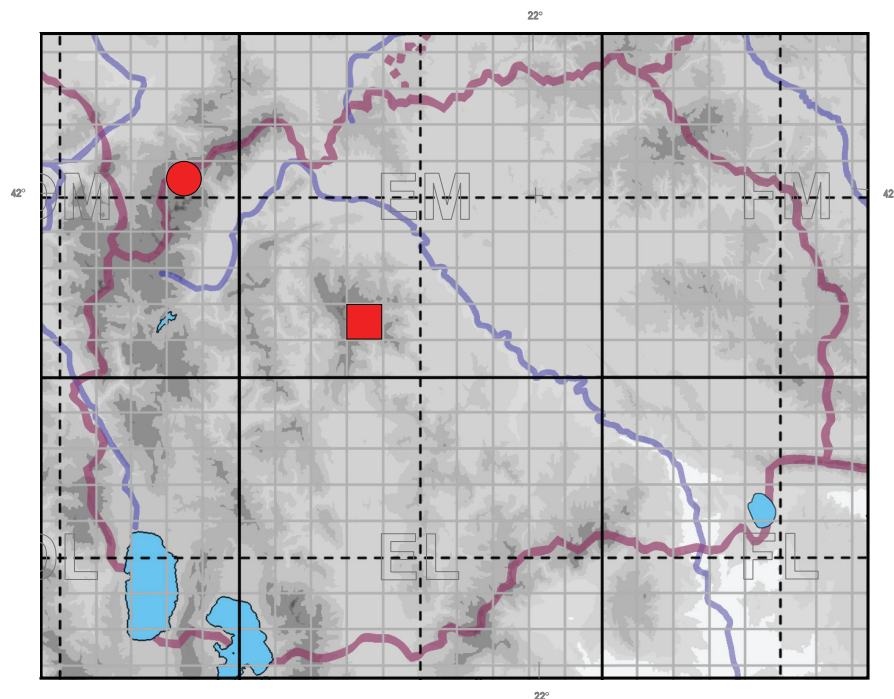


Fig. 3. – Distribution of two new species in the Republic of Macedonia, indication of locations: square - *Campanula wanneri* Rochel; circle - *Carduus ramosissimus* Pančić.

C. wanneri is a Balkan-Carpathian subendemic species, distributed in the eastern part of the Balkan Peninsula (Bulgaria, Serbia and Greece) with its northern distribution extending to Romania. In Romania it grows in several regions/localities, but only in the Eastern and Southern Carpathians (Guşuleac 1964, Bartók *et al.* 2016). In Bulgaria this plant was recorded in the following mountains: Central Rhodopi, Rila, West Frontier Mountains (Mt. Osogovska Planina), Western Predbalkan, Central and Western Stara Planina (Assyov *et al.* 2012, Ančev 2013). In Serbia it is present only in several localities on Mts Stara Planina (Obradović 1974), while in Greece it is distributed in NC and NE Greece (Mts Central Rhodopes) (Strid & Papanicolaou 1981, Dimopoulos *et al.* 2013). Presence of this species in Croatia (Nikolić 2000) should be treated as erroneous.

First record in the Republic of Macedonia: Mt. Jakupica: Korda – Begovi Virovi, rock crevices, c. 1550 m, silicate, 21.473830° E, 41.671544° N, EM31, coll. M. Niketić, G. Tomović, det. G. Tomović, M. Niketić, 24-Jul-2017 (BEOU, 37150; BEO, 20170708) (Fig. 2).

So far there have been no data about the presence of this species in the R. of Macedonia (Bornmüller 1928). The record of *C. wanneri* on Mt.

Jakupica represents the westernmost locality of the species distribution range; the closest locality the Mt. Osogovski Planini in eastern Bulgaria, which is c. 100 km distant from Mt. Jakupica (Fig. 3). At a single locality on Mt. Jakupica this chasmophytic plant is a member of vegetation of siliceous rock crevices at high altitudes that are included in the vegetation alliance *Silenion lerchenfeldianae* Simon 1958 which is present in the Eastern Carpathians and the Southern Balkans. It can be found at the elevation between 1,500 m and 2,100 m a.s.l. in the zone of montane beech forest. Habitat of the species is dominated by the following plant taxa: *Campanula wanneri* Rochel, *Atocion lerchenfeldianum* (Baumg.) M. Popp, *Silene waldsteinii* Griseb., *Cytisus hirsutus* L., *Scrophularia aestivalis* Griseb., *Asplenium septentrionale* (L.) Hoffm., *Campanula rotundifolia* L., *Saxifraga pedemontana* subsp. *cymosa* Engl., etc.

Carduus ramosissimus Pančić – ASTERACEAE (Fig. 4)

This Balkan endemic species was described by Pančić (1875) from Mt. Durmitor (Crvena Stijena peak) in Montenegro; it also grows on Mt. Orjen (Bijela Gora peak) (Rohlena 1942, Vuksanović 2016). In Bosnia and Herzegovina it can be found on Mt. Trebević, Mt. Prenj (Tisovica peak), Mt. Bjelašnica and Mt. Čvrsnica (Crepulja peak) (Mayer 1983). In Albania and Serbia it grows only in the Prokletije mountains (the Albanian Alps) (Rechinger fil. 1935, Gajić 1975, Tomović 2007, Barina 2017). The closest relative of *C. ramosissimus* is the common ruderal plant *C. acanthoides* L. from which it differs in having longer and denser spines (Amal Franco 1975). Another relative is *C. tmoleus* Boiss., distributed in E Balkans and Anatolia, which has larger and firmer spines than *C. ramosissimus*.

First record in the Republic of Macedonia: Mts Šar Planina: E slopes of Mt. Džinibeg towards Krivošija cirque (Fig. 5), screes, c. 1920 m, limestone, 20.780607° E, 42.005532° N, DM85, coll. M. Niketić det. M. Niketić, 02-Aug-2017 (BEOU, 37150; BEO, 20170801) (Fig. 6).

This species has not been recorded in the R. of Macedonia (Bornmüller 1926) and a new locality of *C. ramosissimus* in the Šar Planina mountains represents the southernmost record of the species' distribution range; the closest occurrence of the species is situated in the Mts Prokletije, which is c. 70 km distant from this one (Fig. 3). Earlier record of *C. thessalus* Boiss. & Heldr. (currently a synonym of *C. acanthoides*) for adjacent Mt. Kobilica on Šar Planina mountains (Bornmüller 1926) could have actually referred to *C. ramosissimus*. Typical habitats of this species in Montenegro are high-mountain limestone rocks, rocky grounds and screes on ± nitrophilous places (Vuksanović 2016), while in Albania it grows in alder and beech



Fig. 4. – *Carduus ramosissimus* Pančić in Mt. Durmitor (Montenegro): a) habitus; b) capitula in fruit; c) capitula in flower (photo M. Niketić).

forests at the elevation ranging from 1,000 to 1,400 m a.s.l. (Barina 2017). It has not been recorded for the “serpentine rocks” as it was noted in Amal Franco (1975). Only few individuals were observed at Mt. Džinibeg on limestone screes at the elevation of 1,920 m a.s.l. together with the

following plants: *Lactuca intricata* Boiss., *Crepis macedonica* Kitan., *Drypis spinosa* L., *Cardamine glauca* Spreng. ex DC., *Aubrieta scardica* (Wettst.) Gustavsson, *Silene uniflora* subsp. *prostrata* (Gaudin) Chater & Walters, etc. On the surrounding limestone rock crevices several species of *Hieracium* sect. *Pannosa* Zahn were detected. Similar ecological pattern was also observed in the habitat of *C. ramosissimus* in the SE Dinarides.

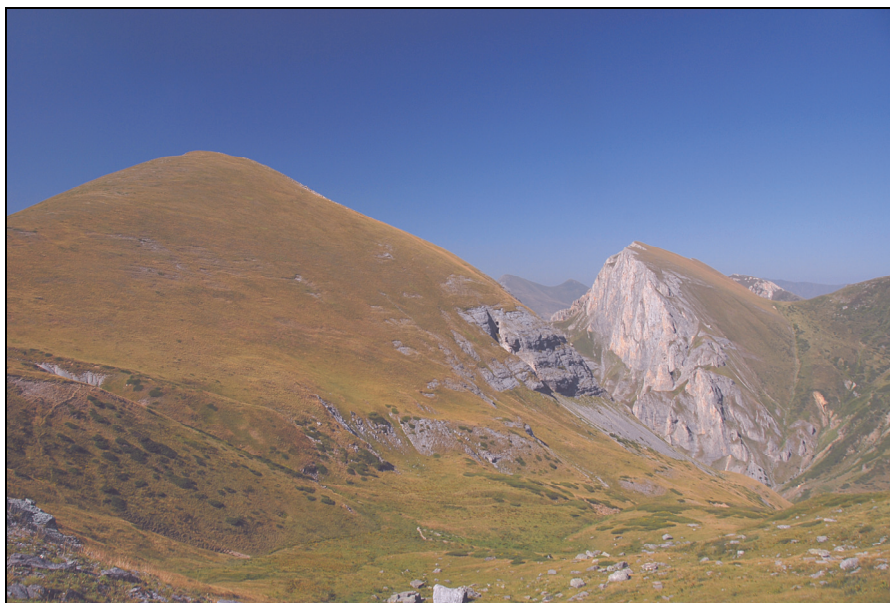


Fig. 5. – *Carduus ramosissimus* Pančić in Mts Šar Planina (Džinibeg peak towards Krivošije cirque): species habitat (photo M. Niketić).

CONCLUSIONS

Two plant species were reported as new for the flora of the Republic of Macedonia: *Campanula wanneri* and *Carduus ramosissimus*. Very restricted locality of *C. wanneri* on Mt. Jakupica in northern Macedonia is c. 100 km distant from the nearest known site in eastern Bulgaria (Mts Osogovske Planini) and marks the westernmost limit of the species distribution range in the Balkan Peninsula. New record of *C. ramosissimus* on Mts Šar Planina represents the southernmost locality of the species distribution range; the nearest locality is situated in the Mts Prokletije, at the distance of c. 70 km.



Fig. 6. – *Carduus ramosissimus* Pančić – herbarium specimens from Mts Šar Planina (BEO).

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ДВЕ НОВЕ ВРСТЕ ЗА ФЛОРУ РЕПУБЛИКЕ МАКЕДОНИЈЕ

МАРЈАН НИКЕТИЋ, ЉУПЧО МЕЛОВСКИ, ВЛАДО МАТЕВСКИ,
ГОРДАНА ТОМОВИЋ

РЕЗИМЕ

Током две ботаничке екскурзије у Републици Македонији у 2017. години (Шар-планина и Јакупица) нађене су две нове васкуларне биљке за флору ове територије: *Campanula wanneri* Rochel на Јакупици и *Carduus ramosissimus* Рапчић на Шар-планини. Дати су прецизни подаци о њиховим локацијама, описи станишта, као и осврт на фито-географски значај нових налазишта.