

METZGERIA VIOLACEA (MARCHANTIOPSIDA, METZGERIACEAE) IN THE POLISH CARPATHIANS

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Abstract. *Metzgeria violacea* (Ach.) Dumort. is one of the rarest and most threatened epiphytes in many European countries. Its Carpathian localities are situated at the southeastern distributional limit of the European range. Until recently this liverwort was regarded as extinct in the Polish Carpathians. Here a newly discovered locality is presented and the ecology, distribution and conservation status of the species are discussed.

Key words: Marchantiophyta, *Metzgeria violacea*, threatened liverwort, distribution, Carpathians, Poland

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In the Polish Carpathians, *Metzgeria violacea* (Ach.) Dumort. was first found in the Bieszczady Zachodnie Mts by Szwejkowski (1959). In 2003, during bryological research in the vicinity of Brzozów town in the Carpathian foothills (Fig. 1), I found a new locality of this species. This locality is the first one in this region and the fourth in the Polish Carpathians.

The species is the only representative of subgenus *Biforma* Kuwah. in Poland (Klama 2006b). It was previously known under the name *Metzgeria fruticulosa* (Dicks.) A. Evans (Szwejkowski 1968; Grolle & Long 2000). However, Grolle and So (2003) showed that *Riccia fruticulosa* O. F. Müll. is a valid name referring to *Riccardia palmata* (Hedw.) Carruth. and therefore has to be replaced with *Metzgeria violacea*.

It is a characteristic thalloid liverwort, difficult to misidentify, with its pointed and highly modified gemmiparous branches and intense blue color which develops postmortem. It is a predominantly epiphytic species growing in yellowish-green patches or mixed with other bryophytes on the bark of sheltered trees and shrubs, especially on alder, willow, ash, beech and sycamore, rarely occurring on rocks (Hallingbäck 1989; Smith 2004; Frey *et al.* 2006). The species is considerably adapted to shade and humidity and prefers moderately acidic

or subneutral substrates. In Europe, *Metzgeria violacea* occurs mostly in communities belonging to the alliances *Hypno resupinati-Lejeunion ulicinae* (Lecointe 1979) Marst. 1985, *Ulotion crispae* Barkm. 1958 and *Isothecion myosuroidis* Barkm. 1958 *emend.* Marst. 1984 (Dierssen 2001). It also grows as an epiphyll, directly on the surface of leaves, a feature only exceptionally seen in Europe (Porley 1996).

The species is certainly distributed in Western and Central Europe, North America (Schuster 1992) and South America, which is the center of diversity for the genus (Kuwahara 1986). The records from other parts of the world including Africa, Asia and New Zealand are probably all

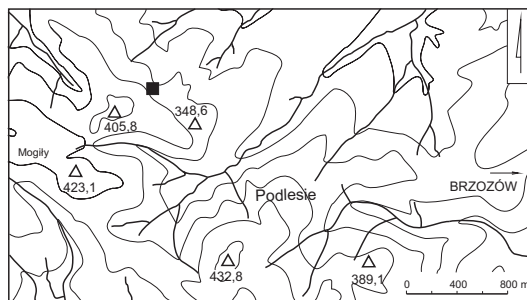


Fig. 1. The new locality of *Metzgeria violacea* (Ach.) Dumort. in the vicinity of Brzozów.

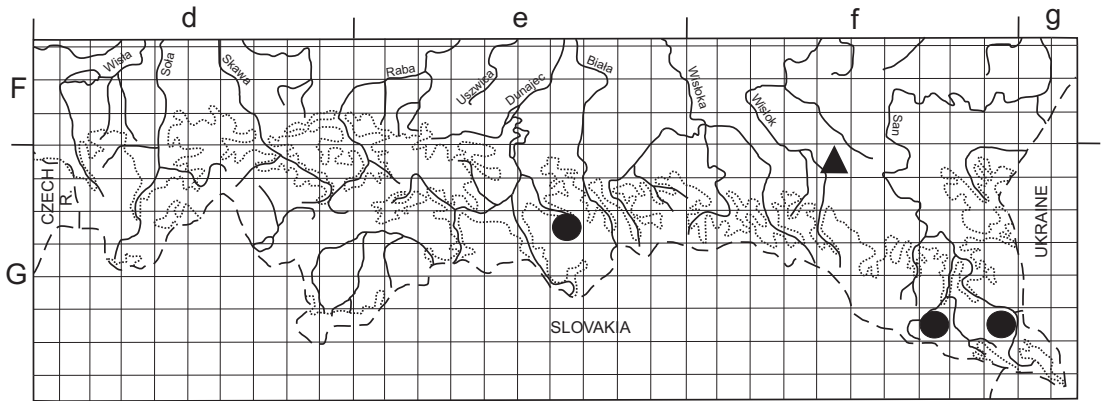


Fig. 2. Distribution of *Metzgeria violacea* (Ach.) Dumort. in the Polish Carpathians. ▲ – new locality.

erroneous (Hodgson 1961; Grolle & So 2003; So 2004). In Europe it is a distinctly oceanic species, distributed in the British Isles and on the continent from the Mediterranean to Central Europe and Fennoscandia, with its easternmost localities in Lithuania, Poland and Ukraine (Söderström *et al.* 2002).

Szweykowski (1968) presented the distribution of this liverwort in Poland and gave two regions of occurrence, one in West Pomerania and the other in the Bieszczady Zachodnie Mts (Polish Eastern Carpathians). In the Bieszczady Zachodnie Mts the species was found in only two places, where it grew on the bark of solitary trees (alder, willow) in the late 1950s. Despite longlasting and thorough searches it was not rediscovered later and was described as extinct in this mountain range (Szweykowski & Buczkowska 1996). Another locality of it was reported from the Beskid Sądecki Mts in the Western Carpathians (Mamczarz 1975). This one seems to be only a literature record, because the LBL herbarium which is supposed to house the mentioned collection lacks the specimen.

The new locality of *Metzgeria violacea* was found in mixed forest between Brzozów and Zmiennica in the Pogórze Dynowskie foothills (Carpathian foothills, Western Carpathians, 49°41'N/22°01'E). The species grew here on the bark of an old sycamore tree and formed a small mat on the most damp and sheltered part of the trunk. I collected part of the population in 2003

and preserved it in LBL. However, this population is no longer exists because the tree that it was occupying was recently cut down. Fortunately, additional searching in 2007 revealed another population growing on a sycamore tree in the area. There it forms a relatively small mat (4 cm²) and grows accompanied by the liverworts *Frullania dilatata* (L.) Dumort., *Metzgeria furcata* (L.) Dumort. and *Radula complanata* (L.) Dumort., as well as the moss *Orthotrichum obtusifolium* Brid. The plant is sterile and produces gemmae abundantly.

Because of its scarce occurrence, *Metzgeria violacea* was classified as Endangered (E) in the last edition of the 'Red List' of Polish liverworts (Klama 2006a). It is also threatened in many European countries, including Norway (Direktorat for Naturforvalning 1999), the Netherlands (Siebel *et al.* 2000), Belgium (De Zuttere & Schumacker 1984), Germany (Ludwig *et al.* 1996), Austria (Saukel & Köckinger 1999), the Czech Republic (Kučera & Váňa 2005), Slovakia (Kubinská *et al.* 1996), Spain (Sérgio *et al.* 2006) and Italy (Aluffi & Schumacker 1995). The species seems to have a very restricted distribution in the Polish Carpathians (Fig. 2). It therefore meets the IUCN criteria for classification as Endangered (IUCN 2001, 2008) based on its small fragmented area, decline of habitat quality and the declining number of locations – EN [B1+2ab(iii,iv)]. The main factors threatening it are decreasing air humidity and inappropriate forest management, especially the destruction of old standing trees.

All of the known locations in the Polish Carpathians are presented below, located in grid squares adopted from the bryological cartographic system (Ochyra & Szmajda 1981).

POGÓRZE DYNOWSKIE FOOTHILLS: Grid square Gf 04 – vicinity of Brzozów, forest between the town and Zmiennica, alt. 350 m, 19 March 2003, *leg. L. Armata* (LBL B-5180).

BIESZCZADY ZACHODNIE MTS: Gf 57 – Przysłup (between Kalnica and Krywe), alt. 600 m (Tobolewski & Glanc 1960); Gf 59 – Pszczeliny, alt. 700 m (Szweykowski 1959). BESKID SADECKI MTS: Ge 26 – Przysłup Mt. near Krynica Zdrój, alt. 800 m (Mamczarz 1975).

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