

Dichelyma falcatum: a new aquatic moss to the bryophyte flora of Bulgaria

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Abstract. *Dichelyma falcatum* is reported as new to Bulgaria. This is the second locality of the species on the Balkan Peninsula.

Kew words: bryophytes, Bulgaria, *Dichelyma falcatum*, *Fontinalaceae*, new aquatic moss

Introduction

Two species of the family *Fontinalaceae* are reported in Bulgaria: *Fontinalis antipyretica* Hedw. and *F. hypnoides* C.Hartm (Natcheva & Ganeva 2005). In this paper I report the occurrence of the first member of the genus *Dichelyma*, also belonging to the same family.

Dichelyma falcatum (Hedw.) Myrin (*Fontinalaceae*, *Bryophyta*)

Description. A robust pleurocarpous moss forming yellowish-brown to dark-green patches. Shoots up to 7–10 cm long, irregularly branched (Fig. 1). Leaves tristichous, keeled and folded, falcate to falcato-second, lanceolate, acuminate. Margin plane to narrowly recurved, finely serrate in the upper part. Nerve single, well developed, ending below apex or shortly excurrent. Leaf cells long and narrow, incrassate. Unisexual. Sporophytes lacking on the Bulgarian material, but all patches examined had well developed perichaetia, each with 2–3 archegonia.

Ecology. The species grows on granite stones submerged in a fast running stream flowing through a relatively level part of a subalpine meadow.

Distribution in Bulgaria. *Dichelyma falcatum* was found in the Rila Mts, Mousala circus, along the footpath to Mousala chalet, in a tributary of riv-

er Mousalenska Bistritsa (close to the place where the path crosses the river), 2300 m, 42°12'08" N, 23°35'35" E, GM-17, 17.08.2007, coll./det. R. Natcheva (SOM-B 9309, 9310).

General distribution. *Dichelyma falcatum* is a boreal species. It occurs in North (Sweden, Norway, Finland, Iceland, Estonia) and Central Europe (Switzerland, Czech Republic and Poland), and rarely in some mountainous regions of South Europe (Spain and Romania), also in Morocco, the northern part of Ural Mts, Siberia, the boreal zone of North America. On the Balkan Peninsula the species is known only from Romania.

It is surprising that such a conspicuous large aquatic moss as *D. falcatum* has remained undetected in the Rila Mts. The area of the Mousala circus is relatively well known bryologically, having been visited by several bryologists, e.g. Podpéra (1911), Simon & Vajda (1959), Düll & al. (1999), etc. The species was found in a formerly glaciated area and its migration history in the region is unclear. In contrast to other recently found conspicuous mosses (e.g. *Sphagnum fimbriatum*, Natcheva 2005), it is unlikely that *D. falcatum* is a recent migrant to Bulgaria, but rather a rare glacial relict member of our bryophyte flora. The species becomes more rare to the south and is red-listed in



Fig. 1. *Dichelyma falcatum* – general view.

all countries of its southern occurrences in Europe. In Spain and Romania, *D. falcatum* is evaluated as *Critically Endangered* (Sérgio & al. 2007; S. Ștefănuț, pers. com.), in Poland it is considered *Endangered* (Żarnowiec & al. 2004), in Switzerland it is *Vulnerable* (Schnyder & al. 2004), and in the Czech Republic is Data Deficient, probably vanished (Kučera & Váňa 2003). The region, where *D. falcatum* was found in the Rila Mts, is strongly affected by development of tourist facilities, and the natural habitats just half a kilometer below the stream where the species grows are almost completely destroyed by ski-truck and road constructions. At the present state of knowledge, it is too early to give formal evaluation according to the IUCN categories, but the species matches the criteria for Critically Endangered. Therefore, the populations of *D. falcatum* in Bulgaria need further research and monitoring with respect to local distribution, ecology, biology, and potential threats.

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