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## New interesting moss records from the Pollino National Park (Southern Italy)

### Abstract

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Some interesting moss records in Pollino National Park, noteworthy protected area of the southern Apennines, are reported. Among them, *Mnium spinosum* and *Brachythecium tommasinii* are new to southern Italian peninsula, *Grimmia laevigata*, *G. montana*, *G. tergestina*, *G. trichophylla* and *Orthotrichum pumilum* are new to Basilicata region, and, finally, *Campylidium sommerfeltii* is rare in southern Italy and little known in Mediterranean area.

*Key words*: mosses, new records, Pollino.

### Introduction

The Pollino massif is the highest mountain range of the Southern Apennines located in Italy between Basilicata and Calabria regions. This mountain chain is included within the Pollino National Park, the largest National Park in Italy. The landscape of the protected area is characterized by the occurrence of *Pinus leucodermis* Antoine, which, having the Italian range restricted to this area, is the symbol of the park. In addition to this species, the Pollino massif hosts several other interesting amphi-adriatic species (e.g. *Festuca bosniaca* Kumm. & Sendtn, *Sesleria autumnalis* (Scop.) F.W. Schultz, etc.), testifying the biogeographical relation with the southern Balkans. Moreover, many endemics (e.g. *Campanula scheuchzeri* subsp. *pollinensis* (Podlech) Bernardo, Gargano & Peruzzi, *Hieracium terracciano* Di Grist., Gottschl. & Raimondo, *Ranunculus pollinensis* (Terr.) Chiov., *Sesleria calabrica* (Deyl.) Di Pietro, etc.) and boreal or arctic-alpine species (e.g. *Orthilia secunda* (L.) House, *Saxifraga aizoides* L., *Carex pallescens* L., *Carex vesicaria* L., *Senecio alpinus* (L.) Scop.) are found too. From a geological point of view the Pollino is mostly composed of Meso-Cenozoic limestone rocks of sedimentary origin, with outcrops of ophiolitic rocks (basalt vulcanites) characterizing “Timpa della Murge” and “Timpa di Pietrassasso”.

Despite the botanical interest of the massif, the bryophyte flora of this mountain system is not yet well known; no specific study on the bryoflora of the Pollino is known at present,

but only sporadic reports in old papers with more general topic on the Italian bryoflora (Brizi 1890; Bottini 1894; Zodda 1913) and recent contributions, regarding some new records, have been provided by Campisi & al. (2008), Puglisi & al. (2009), D'Avella & al. (2011) Colacino & al. (2013), Puglisi & al. (2014).

## Material and Methods

During a fieldtrip with students of Catania University to the Pollino National Park in June 2013, some floristic and vegetation surveys were conducted and some interesting bryophyte records were done.

The nomenclature of bryophyte taxa follows Söderström & al. (2016) for liverworts and Ros & al. (2013) for mosses. The Italian regional distribution is based on Aleffi & al. (2008), while the chorotypes and the ecological features are drawn from Hill & Preston (1998) and from Dierssen (2001), respectively. The specimens are kept in the Vegetal Biology Section of the Department of Biological, Geological and Environmental Sciences of University of Catania (CAT).

## Results

In this paper the occurrence of some rare mosses in Italy, as well as of some taxa previously unknown in the Basilicata region, is reported from the Pollino National Park. They are *Mnium spinosum* (Voit) Schwägr. and *Brachythecium tommasinii* (Sendtn. ex Boulay) Ignatov & Huttunen, new to southern Italy, *Campylidium sommerfeltii* (Myrin) Ochyra, very rare in southern Italy, *Grimmia laevigata* (Brid.) Brid., *G. montana* Bruch & Schimp., *G. tergestina* Tomm. ex Bruch & Schimp., *G. trichophylla* Grev. and *Orthotrichum pumilum* Sw., new records for the Basilicata region.

*Mnium spinosum* (Voit) Schwägr.

Italy, Basilicata, Conte Orlando Refuge (Pollino National Park), 1200 m a.s.l., 39°49'0.79"N 15°58'56.80"E, in rock crevices together with *Anomodon viticulosus* (Hedw.) Hook. & Taylor and *Encalypta streptocarpa* Hedw., 23 June 2013, M. Privitera (CAT).

This chionophilous moss mainly grows on humus and turf among rocks in coniferous forests, beechwoods and oakwoods. *Mnium spinosum*, a Circumpolar Boreal-montane species is present in Europe, northern and central Asia, China, Turkey and N. America (Smith 2004). In Italy it is known in almost all the northern regions, while it is rare in the center of the peninsula. The new Lucanian locality is the first one reported in southern Italy, representing the southern limit of the range of this species.

*Brachythecium tommasinii* (Sendtn. ex Boulay) Ignatov & Huttunen

Italy, Basilicata, Piano Iannace (Pollino National Park), 1650 m a.s.l., 39°56'31.63"N,

16°11'53.06"E, on calcareous rocks, with *Homalothecium sericeum* (Hedw.) Schimp., *H. philippeanum* (Spruce) Schimp. and *Porella platyphylla* (L.) Pfeif, 22 June 2013, *M. Puglisi*; Conte Orlando Refuge 1200m, 39°49'0.79"N 15°58'56.80"E, on calcareous rocks, 23 June 2013, with *Cirriphyllum crassinervium* (Taylor) Loeske & M. Fleisch. and *Tortella tortuosa* (Hedw.) Limpr. var. *tortuosa*, 23 June 2013, *M. Puglisi*.

It is an epilithic moss that lives on shady basic rocks. It is temperate-montane species distributed in Northeast and Central Asia and in Europe (Düll, 1985). Not very common in the Mediterranean area (Hodgetts 2015; Ros & al. 2013), in the Italian peninsula is known only from some northern and central regions, representing a new record for the southern part. Moreover, it has been reported from Sicily where its presence, based only on old reports, is to be confirmed.

*Campylidium sommerfeltii* (Myrin) Ochyra

Italy, Basilicata, Conte Orlando Refuge (Pollino National Park), 1200 m a.s.l., 39°49'0.79"N 15°58'56.80"E, on soil covering calcareous rocks, 23 June 2013, *M. Privitera* (CAT).

It is a cryophylous-mesothermic moss that lives on calcareous soils over rocks, humus and sometimes on rotten wood. Widely distributed in the Americas, it is also present in North and East Asia and Europe, where is rather common in the eastern countries. (Hedenäs 2014; Hodgetts 2015). Also in the Mediterranean area it is mainly present in the eastern regions (Ros & al. 2013). In Italy this species is distributed in northern and central regions and is known only by old reports from Campania and Puglia. The species is new to Basilicata where it is at the southern limit of its range.

*Grimmia laevigata* (Brid.) Brid.

Italy, Basilicata, Timpa delle Murge, (Pollino National Park), 1210 m a.s.l., 39°58'47,7"N 16°15'10,2"E, on dry, exposed rocks, 22 June 2013, *M. Privitera* (CAT).

It is a species sensitive to acidic precipitation and eutrophication and its frequency decreases in polluted areas (Dierßen 2001). It lives on acidic to slightly basic rocks on different continents (Hastings & Greven 2007). This Circumpolar Southern-temperate species is widespread in Europe, but endangered or regionally extinct in some countries (Norway, Ireland, Belgium, Germany, Luxembourg, Netherlands, Romania, Belarus, Estonia) (Hodgetts 2015). Well-known in Italy, it is new to Basilicata.

*Grimmia montana* Bruch & Schimp.

Italy, Basilicata, Piano Iannace (Pollino National Park), 1700 m a.s.l., 39°56'23,75"N, 16°11'44,38"E, on rocks, 22 June 2013, *M. Privitera* & *M. Puglisi* (CAT).

This acrocarpous moss grows on exposed, well-illuminated mostly acidic rocks where forms dark green, sometimes almost blacks cushions. Regionally it has a tendency to

decline due to air pollution (Dierßen 2001). It is a Circumpolar-temperate species distributed in Europe, Asia, North Africa, Macaronesia and North America (Smith 2004). In Italy, where it was assessed as “Endangered” by Cortini Pedrotti & Aleffi (1992), it is known only in a few regions; it is new to Basilicata.

*Grimmia tergestina* Tomm. ex Bruch & Schimp.

Italy, Basilicata, Timpa delle Murge (Pollino National Park), 1210 m a.s.l., 39°58'47,7"N 16°15'10,2"E, on dry, exposed rocks, 22 June 2013, *M. Privitera* .

This species forms whitish green cushions on rocks and cliffs, mostly on dry mountain habitats. It occurs in Europe, Asia, , North Africa, North, Central and South America (Smith 2004). Rather common in northern Italy, it becomes rarer in the central and southern part of the peninsula, where it was known only from Campania.

*Grimmia trichophylla* Grev.

Italy, Basilicata, Piano Iannace (Pollino National Park), 1700 m a.s.l., 39°56'23,75"N, 16°11'44,38"E, on rocks, 22 June 2013, *M. Puglisi* .

It mostly grows on exposed, dry, acidic rocks outcrops, boulders and cliffs. It is widespread in the temperate areas of Northern, Central and Southern South America, South-western Asia, North Africa, Macaronesia, Australasia and Europe (Smith 2004). The Lucanian report fills one of the few gaps in the Italian regional distribution of the species.

*Orthotrichum pumilum* Sw.

Italy, Basilicata, Conte Orlando Refuge (Pollino National Park), 1230 m a.s.l., 39°49'02.58"N 15°58'44.11"E, on trunks of *Fagus sylvatica* L., together with *Frullania dilatata* (L.) Dumort., *Homalothecium sericeum* (Hedw.) Schimp., *Orthotrichum striatum* Hedw., *Radula complanata* (L.) Dumort., 23 June 2013, *M. Privitera*; Visitone Refuge, 1430 m a.s.l., 39°56'21.71"N, 16°08'42.07"E, together with *Frullania dilatata*, *Hypnum cupressiforme* Hedw. var. *cupressiforme* and *Orthotrichum affine* Schrad ex Brid., 22 June 2013, *M. Privitera* (CAT).

*O. pumilum* preferably grows on trunks and branches of trees in open forests. It is an European-temperate species distributed in Europe, Asia, North Africa, Macaronesia and North America (Smith 2004). Mainly known in northern Italy, it is rare in central and southern peninsula. This report is the first for Basilicata.

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