

## Some interesting records for the Italian moss flora

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**Abstract** – Some rare and interesting mosses, new records for the Bryophyte flora of S Italy and Sicily, are here reported. They are *Mielichhoferia elongata* (Hoppe & Hornsch. ex Hook.) Hornsch., *Grimmia torquata* Hornsch. ex Grev., *Ephemerum serratum* (Hedw.) Hampe var. *rutheanum* Jur., *Tortula brevissima* Schiffn., *Grimmia capillata* De Not., *Schistidium flaccidum* (De Not.) Ochyra. Ecological and chorological remarks are given for each taxon; for some of them, phytosociological comments are added.

**Bryogeography / Ecology / Mosses / Sicily / S Italy**

### INTRODUCTION

In recent years an increase of the bryological research happens in Italy; in fact, local floristic investigations still hallow the discovery of new interesting species for the Italian or European Bryophyte flora (Lo Giudice, 1995, 1996a, 1996b; Privitera & Puglisi, 1999, 2000a, 2000b).

In this paper some taxa rare in Italy and showing a remarkable phytogeographical interest are reported. They are *Mielichhoferia elongata* (Hoppe & Hornsch. ex Hook.) Hornsch., *Grimmia torquata* Hornsch. ex Grev., *Ephemerum serratum* (Hedw.) Hampe var. *rutheanum* Jur., *Tortula brevissima* Schiffn., new for Sicily and the last two second records for Italy; *Grimmia capillata* De Not., new for Calabria and S Italy. Moreover, the occurrence in Sicily of *Schistidium flaccidum* (De Not.) Ochyra is here reported.

The specimens are kept at the *Herbarium* of the Department of Botany of Catania (CAT).

***Mielichhoferia elongata*** (Hoppe & Hornsch. ex Hook.) Hornsch.  
ITALY: Sicily, Mt Etna, Mts. Silvestri (southern slope), 1920 m, 15°00'18" E, 37°41'58" N, 22 May 1991, Puglisi (CAT).

It is an acidophile, sciophilous, mesophytic to hygrophytic species, growing on acidic and heavy-metal containing rocks. It was found on Mts. Silvestri, secondary craters of the Mount Etna today partially covered by lava. Here it grows in the area of *Astragaletum siculi* Poli 1965, the phanerogamic association of the high montane belt of the volcano. In this area the species occurs in light green patches on volcanic rocks together with *Desmatodon latifolius* (Hedw.) Brid., *Bartramia ithyphylla* Brid., *Pohlia cruda* (Hedw.) Lindb., *Tortula subulata* Hedw.

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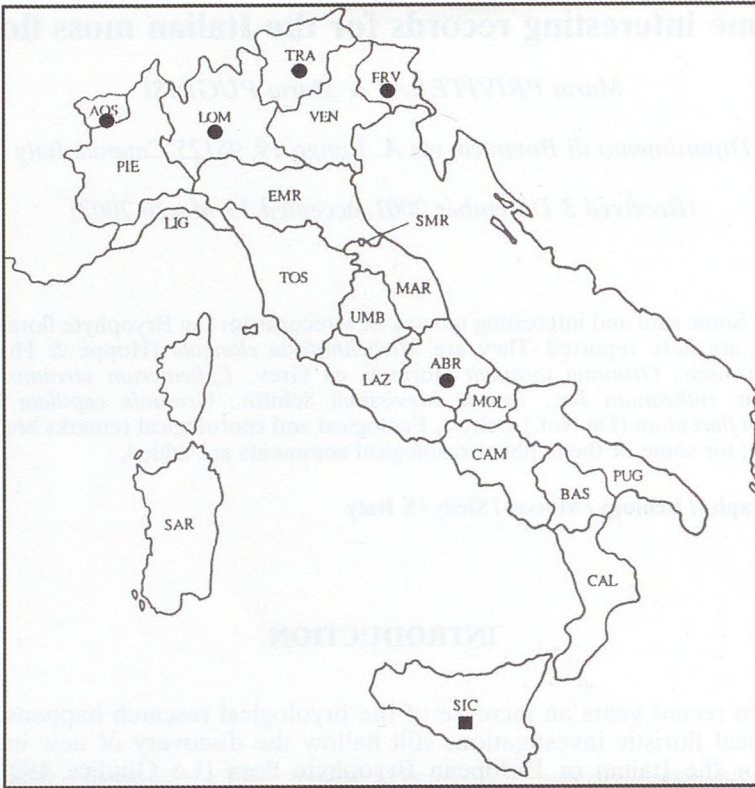


Fig. 1. Italian distribution of *Mielichhoferia elongata*. ● Old record; ■ new record.

*Mielichhoferia elongata* is a subarctic-alpine species occurring in Europe (mostly in the North and Centre), N America and in some localities of Africa and Asia. In Italy it is known from few northern regions (Val d'Aosta, Lombardy, Trentino Alto Adige, Friuli Venezia Giulia) and for C Italy only in Abruzzo (Fig. 1). It is a new interesting record for the moss flora of Sicily where the alpine species are very few and exclusively localized in refuge areas.

***Grimmia torquata* Hornsch. ex Grev.**

ITALY: Sicily, Mt Etna, Palombe cave (northern slope), 1575 m, 15°01'432" E, 37°49'15" N, 30 April 1994, Brullo (CAT).

*Grimmia torquata* was found in the montane belt of Mt Etna in the Palombe cave, where it grows in light green cushions on damp walls near the cave mouth. Here it is associated with *Amphidium mougeotii* (Bruch & Schimp.) Schimp., *Isopterygiopsis pulchella* (Hedw.) Z. Iwats. *Bartramia pomiformis* Hedw., *Cynodontium bruntonii* (Sm.) Bruch, Schimp. & Gümb., *Rhabdoweisia fugax* (Hedw.) Bruch, Schimp. & Gümb.

*Grimmia torquata* is an acidophile, mesophytic to hygrophytic, sciophilous moss. It is a subarctic-subalpine species whose range includes Europe, Asia, Canada, Greenland, Hawaii, N America (Greven, 1995). In Italy it is known from some northern regions (Val d'Aosta, Piedmont, Lombardy, Trentino Alto Adige), from Tuscany and Sardinia (Fig. 2); recently it was reported from the south





Fig. 2. Italian distribution of *Grimmia torquata*. ● Old record; ■ new record.

of the Peninsula (Calabria) where it was found on the Aspromonte massif at 1700 m (Aleffi *et al.*, 2001).

The discovery in Sicily of the alpine species *Grimmia torquata* and *Mielichhoferia elongata* is of considerable phytogeographical interest since they add to the exiguous number of alpine taxa up to now found in Sicily. At present, they are the most interesting glacial relicts among the Sicilian bryophyte flora.

***Ephemerum serratum* (Hedw.) Hampe var. *rutheanum* Jur.**

ITALY: Sicily, Syracuse, Ortigia, near Fonte Aretusa, 5 April 2001, sea level, 15°17'43" E, 37°03'24" N, 5 April 2001, Privitera (CAT).

It is an ephemeral, rare taxon occurring on moist substrata in open places; ecologically it is a photophile, meso-hygrophytic, acidophilous taxon. It is a pioneer moss of disturbed habitat, growing in temporarily available niches from late autumn to early spring.

*Ephemerum serratum* var. *rutheanum* is a submediterranean taxon known from few European countries (France, Czechoslovakia, Poland, ex Yugoslavia, Italy) and from N Africa (Düll, 1984-85). In Italy, up to now it has been reported only from one locality in Piedmont (N Italy) where it was found by Sotti (1977) in Sangone Valley (Fig. 3). The new finding locality is Syracuse (SE Sicily) where it has been collected in the old centre of Ortigia on a wall moistened by a dripping-pipe in urban habitat. Here the plants were found in loose tufts arising from



Fig. 3. Italian distribution of *Ephemerum serratum* var. *rutheanum*. ● Old record; ■ new record.

an abundant, green protonema with numerous, ovoid, gemmae. The Sicilian record represents the second for Italy.

***Tortula brevissima* Schiffn.**

ITALY: Sicily, Syracuse, Ortigia, sea level, 15°17'50" E, 37°03'36" N, 5 April 2001, Privitera (CAT); Linosa islet (Pelagian archipelago), Mt Vulcano, 90 m a.s.l., 12°52'20" E, 35°51'24" N, 9 May 1993, Brullo (CAT).

It is a terricolous, xerophilous species, growing generally in open and sunny places, on basic substrata (i.e. clayey, loam, calcareous), more rarely walls and rocky fissures.

The distribution area of the species is typically Circum-Tethyan, mostly occurring in the continental and subdesertic areas of the Irano-Turanian region. In Europe it has been found frequent in Spain and sporadically in Germany, France and Switzerland. In Italy, it was recently found for the first time in S Calabria (Privitera & Puglisi, 1999). In this paper, *Tortula brevissima* is reported for two Sicilian localities: the urban centre of Syracuse (SE Sicily) and the islet of Linosa (Pelagian archipelago, SW Sicily), (Fig. 4). Particularly, in Syracuse it was collected in Ortigia on dry and exposed wall in disturbed habitat where it sparsely occurs together with *Tortula muralis* Hedw., *Tortula marginata* (Bruch & Schimp.) Spruce, *Bryum caespitium* Hedw. In Linosa it was found on Mt Vulcano at 90 m on volcanic tufa associated with *Tortula atrovirens* (Sm.) Lindb., *Bryum bicolor*





Fig. 4. Italian distribution of *Tortula brevissima*. ● Old record; ■ new record.

Dicks., *Dicranella howei* Renaud & Cardot, and other terricolous species. In both localities *Tortula brevissima* occurs in the thermo-Mediterranean belt in dry and very dry habitat. Particularly, Linosa is characterized by a very marked summer aridity with annual precipitations (370 mm) decidedly lower than the Syracuse ones (543 mm).

Syntaxonomically, *Tortula brevissima* is a characteristic species of the alliance *Aloino-Crossidion crassinervis* Ros & Guerra 1987 and the order *Tortulo-Aloinetalia bifrontis* Ros & Guerra 1987. In Linosa, the species was found in the ambit of the association *Aloino bifrontis-Tortuletum atrovirentis* Brullo, Privitera & Puglisi 1991, described for some desertic areas of Israel (Brullo *et al.*, 1991).

### *Grimmia capillata* De Not.

ITALY: Calabria, Contrada Stavrò near Palizzi Marina (Reggio Calabria), 40 m, 15°59'12" E, 37°54'52" N, 20 April 1994, Puglisi (CAT).

*Grimmia capillata* is a saxicolous and rarely terricolous species growing on basic substrata, such as basic walls, loamy sandstone and gypsiferous soils (Greven, 1995). The species was found in S Calabria at Contrada Stavrò on compact clayey soil in open and sunny places where it was mixed with *Crossidium crassinerve* (De Not.) Jur., *Crossidium squamiferum* (Viv.) Jur., *Dicranella howei* and other terricolous and xerophilous mosses. In Italy it is known from Sardinia



Fig. 5. Italian distribution of *Grimmia capillata*. ● Old record; ■ new record.

(Cagliari, *locus classicus*; De Notaris, 1838) and recently for Sicily (Lo Giudice & Cristaudo, 1999); the record reported here is new for the Italian Peninsula (Fig. 5).

It is a Circum-Tethyan species occurring in some Mediterranean and Irano-Turanian areas. Particularly, it is known in Europe from Sicily, Sardinia, Spain, Mallorca, France, in Africa from Algeria and in Asia from Israel, Jordan, Iraq, Syria, Republic of Turkmenia; from many of these localities it has been reported sub the synonym *Grimmia mesopotamica* Schiffn. (Lo Giudice & Cristaudo, 1999).

Syntaxonomically, *Grimmia capillata* is a characteristic species of the association *Grimmia mesopotamicae-Tortuletum obtusatae* Frey & Kürschner 1992, described from Jordan (Frey & Kürschner, 1992). At Contrada Stavrò it was possible to recognize this association, occurring as a spotted community with low cover (Tab. 1). The area of the relevés is characterized by a bioclimate of the thermo-Mediterranean dry type with mean annual temperature of 18.6°C and mean annual precipitation of 636 mm. Syntaxonomically, the association is referred to *Aloino-Crossidion crassinervis*, alliance of the order *Tortulo-Aloinetalia bifrontis*.

***Schistidium flaccidum*** (De Not.) Ochyra

ITALY: Sicily, Mt Etna, Caves of Casa del Vescovo, 1675 m, 15°07'30" E, 37°41'48" N, 13 March 1994, Privitera & Puglisi (CAT); Entrance of Demanio Forestale,



Tab. 1. *Grimmia mesopotamicae-Tortuletum obtusatae* Frey & Kürschner 1992 in S Italy (Palizzi Marina - S Calabria)

Relevés number	1	2	3
Surface (dm <sup>2</sup> )	3	2	3
Cover (%)	30	15	25
Slope	10	20	-
Orientation	S	SE	-
Species number	3	4	5
Characteristics of association			
<i>Grimmia capillata</i> De Not.	1	+	+
<i>Tortula revolvens</i> (Schimp.) G. Roth var. <i>obtusata</i> Reim.	+	.	+
Characteristics of higher units ( <i>Aloino-Crossidion crassinervis</i> , <i>Tortulo-Aloinetalia bifrontis</i> , <i>Barbuletea unguiculatae</i> )			
<i>Crossidium crassinerve</i> (De Not.) Jur.	.	1	1
<i>Dicranella howei</i> Renauld & Cardot	1	.	1
<i>Aloina ambigua</i> (Bruch & Schimp.) Limpr.	.	1	.
Other species			
<i>Crossidium squamiferum</i> (Viv.) Jur.	2	.	1

1660 m, 15°05'13" E, 37°41'20" N, 22 May 1991, *Puglisi* (CAT); E of Casa del Vescovo, 1500 m, 15°08'20" E, 37°41'45" N, 24 July 1992, *Puglisi* (CAT); Mt Minardo, 1100 m, 14°58'15" E, 37°44'05" N, 2 May 1978, *Privitera & Lo Giudice* (CAT).

Specimens of *Schistidium flaccidum* (De Not.) Ochyra were found for the first time in Sicily on Mt Minardo (Mt Etna) and reported sub *Schistidium apocarpum* (Hedw.) Bruch, Schimp. & Güm. var. *pulvinatum* (Hedw.) C. Jens. (Privitera & Lo Giudice Bonanno, 1979); they were successively quoted as *Schistidium pulvinatum* (Hedw.) Brid. by Düll (1984-85) and Dia *et al.* (1987). In 1989 Ochyra published a study on the lectotypification of *Schistidium pulvinatum* (Hedw.) Brid., reducing this species to a synonym of *Grimmia anodon* Bruch & Schimp. For this reason the Etnean specimens were reported under this binomial in Greven (1995) and in Cortini Pedrotti (2001). Considered the complicated nomenclatural history of the species, a careful revision of the Etnean specimens was carried out. This revision has pointed out that they are to refer to *Schistidium flaccidum* and not to *Grimmia anodon* for the leaves sharply keeled above, leaf margins recurved on both sides above, seta straight and centrally attached. Moreover, the specimens collected in other Etnean localities previously and erroneously reported as *Schistidium pulvinatum* (Privitera & Puglisi, 1996) are to refer to *Schistidium flaccidum* too. Finally, the new report Caves of Casa del Vescovo, located on Mt Etna at 1676 m of altitude, is in this paper reported for the first time. Since the Etnean localities are the only reports of *Grimmia anodon* for Sicily, in this region *Schistidium flaccidum* replaces *Grimmia anodon*.

*Schistidium flaccidum* is a rare species occurring in the montane areas of central and southern Euroasiatic region, in N America and N Africa (Blom, 1996). The present Italian distribution includes Val d'Aosta, Lombardy, Calabria and Sicily (Fig. 6).



Fig. 6. Italian distribution of *Schistidium flaccidum*. ● Old record; ■ new record.

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