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## Italian distribution and first record for Sicily of *Grimmia capillata* De Not. (*Grimmiaceae*)

### Abstract

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*Grimmia capillata* was recently found in Enna (C. Sicily) during a research project on the bryophytes and tracheophytes of urban ecosystems.

In Italy, *Grimmia capillata* has been previously discovered on old mortar of the walls around Cagliari in Sardinia (*locus classicus*). A description, the ecology and a drawing of the plant are given.

### Introduction

The genus *Grimmia* comprises 41 species from Europe of which 29 species have been found in the Mediterranean islands of Cyprus, Corsica, Crete, Mallorca, Sardinia and Sicily. The mountainous character of these islands has resulted in a rich saxicolous epilythic bryoflora in which *Grimmia* species are very important (Greven 1995a).

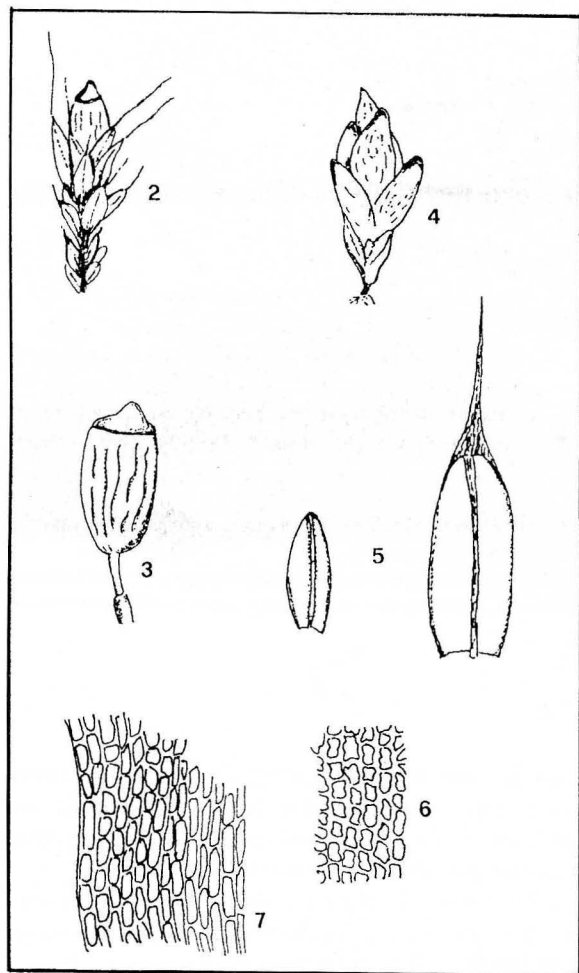
Previously 15 species of *Grimmia* were known in Sicily: *Grimmia affinis* Hornsch., *G. anodon* Bruch et Schimp., *G. crinita* Brid., *G. curvata* (Brid.) De Sloover, *G. decipiens* (Schultz) Lindb. ex C. Hartm., *G. elatior* Bruch ex Bals et De Not., *G. hartmanii* Schimp., *G. laevigata* (Brid.) Brid., *G. lisae* De Not., *G. montana* Bruch et Schimp., *G. orbicularis* Bruch in Wils., *G. ovalis* (Hedw.) Lindb., *G. pulvinata* (Hedw.) Sm., *G. tergestina* Tømm. ex Bruch et Schimp. and *G. trichophylla* Grev. (Cortini Pedrotti 1992, Greven 1995b).

In October 1997, while conducting surveys on the bryophyte and tracheophyte flora of Enna, we collected an unknown *Grimmia* species on old stone walls.

This species has been identified as *Grimmia capillata* De Not., hitherto unrecorded in Sicily (Greven 1995a, b).

*Grimmia capillata* is closely related to *Grimmia crinita* but can be easily distinguished from the latter mainly by its carinate leaves with recurved margins, vegetative shoots with muticous leaves and perichaetial leaves with long hair-points. Voucher specimens of *Grimmia capillata* are kept in the Herbarium of the Botanical Department of Catania (CAT).

Description of *Grimmia capillata* De Not. (syn.: *Grimmia mesopotamica* Schiffn., *Grimmia crinita* Brid. var. *capillata* (De Not.) De Not. (Fig. 1, 2).



*Autoicous*. — In small, flat, dense, dark green patches; leaves 1.5-3.0 mm long, erecto-patent, ovate-lanceolate to obovate, concave. Vegetative shoots with mucicous, carinate leaves recurved on both sides; fertile shoots with leaves much larger, concave, plane or slightly recurved, with long hair-points. Basal cells rectangular, thin walled, pellucid; cells above slightly incrassate and sinuose. Costa stronger at apex, projecting on dorsal side. Capsules bearing plants scattered; capsules 1.4 mm long, brownish, ovoid, lid obtusely conical, peristome teeth orange - orangy-brown, papillose, perforated and cleft into two or three branches; spores 10-12  $\mu\text{m}$ , smooth, yellowish.

*Taxonomic remarks* — The Sicilian species differ in some features: leaves 1.5-2.5 mm, rather than 2-3 and peristome teeth orange-brown rather orange.

Fig. 1. *Grimmia capillata* De Not. 2, capsule-bearing plant; 3, capsule; 4, vegetative shoot; 5, leaves; 6, mid-leaf cells; 7, basal cells (modified from Greven 1995).

### Geographical area

*Grimmia capillata* has its main distribution in the Mediterranean. In Europe, it has been recorded in Spain (Guerra & al. 1993 - as *Grimmia mesopotamica*), Mallorca and France (Greven 1995a, b). It also occurs in Africa (Algeria) and Asia (Israel, Jordan, Iraq, Syria, Republic of Turkmenia) where it is reported as *Grimmia mesopotamica* (Herrnstadt & al. 1982, El-Oqlah & al. 1988, Abramova & Abramova 1988, Frey & Kürschner 1992). Given this distribution, *Grimmia capillata* can be considered a Mediterranean-Turanian species (Fig. 3).



Fig. 2. *Grimmia capillata* De Not.

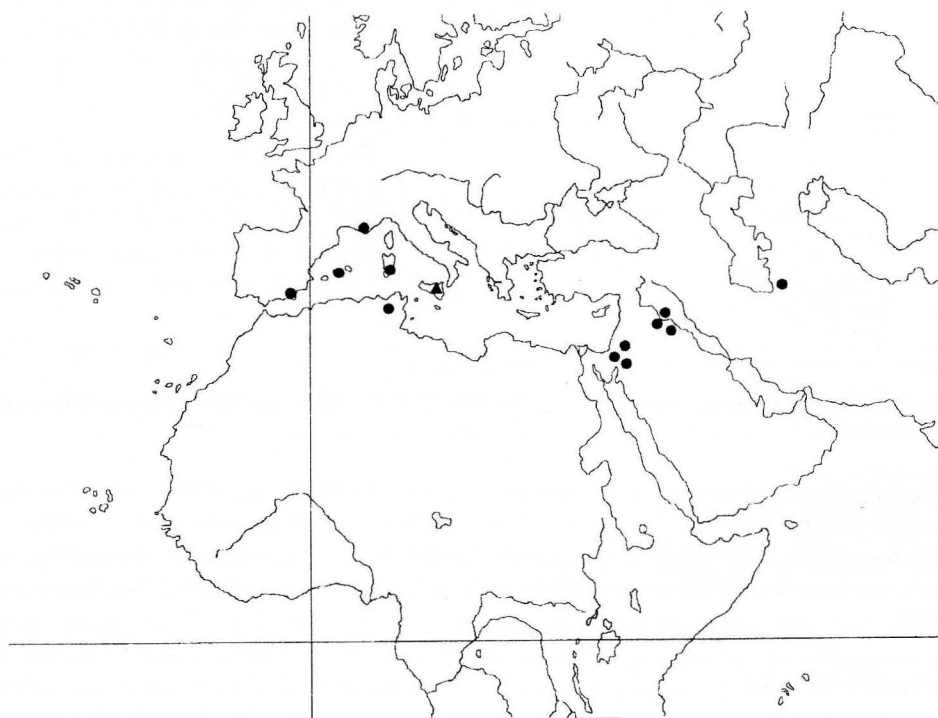


Fig. 3. The global geographical distribution of *Grimmia capillata* De Not. The new locality in Italy is marked by a triangle.

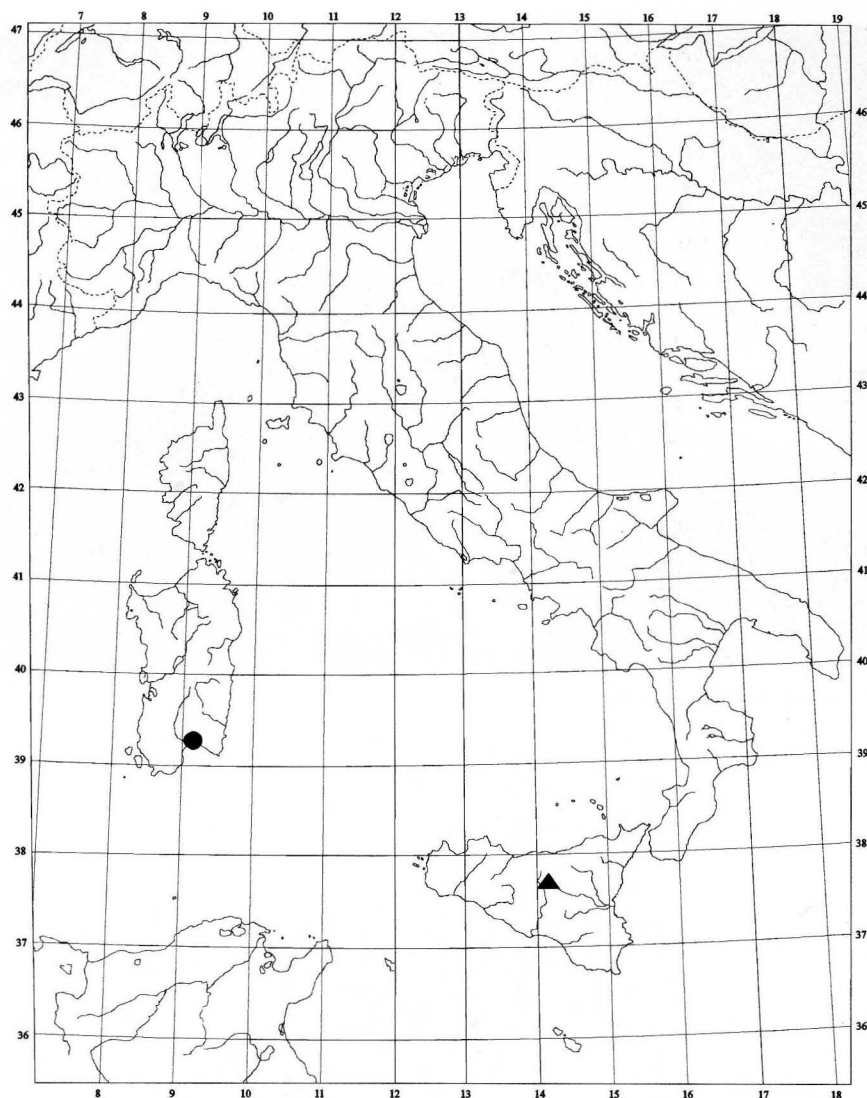


Fig. 4. Distribution of *Grimmia capillata* De Not. in Italy: (●) data from literature, (▲) new Sicilian station.

In Italy (Fig. 4), *Grimmia capillata* was discovered by De Notaris (1838) on old mortar of walls around Cagliari (Sardinia) - *locus classicus* - and published as a variety of *Grimmia crinita*. The typus of De Notaris is kept in the Herbarium of Rome (RO). In Sicily, we have found *Grimmia capillata* in the urban centre of Enna (U.T.M.: VB 35.58, 35.57).

#### Ecological remarks

*Grimmia capillata* is a thermophilous, photophilous, moss growing mostly on basic

substrate: old mortar of walls, loamy limestone and gypsiferous soils.

In Enna it has been collected on weathered stone walls and more rarely on calcareous sand-stone. The area where this species has been found is characterized by an annual precipitation of 895 mm and an annual mean temperature of 13°C corresponding to a climate of the upper mesomediterranean, superior subhumid type (Brullo & al. 1996).

From a phytosociological point of view, the species (as: *Grimmia mesopotamica*) is known from the *Grimmia mesopotamicae-Tortuletum obtusatae*, an association described by Frey & Kürschner (1992) from the arid and semiarid regions of Jordan and belonging to *Tortulo brevissimae-Aloinetalia bifrontis* Ros & Guerra 1987, an order of *Barbuletea unguiculatae* von Hubschmann 1967 including terricolous and xerophilous communities of clayey, marlclayey, gypsiferous soils. Frey & Kürschner (1992) also report finding a community of *Grimmia mesopotamica* on rocks, which according to them cannot be included in *Tortulo-Aloinetalia bifrontis* but in the *Grimmietales anodontis* Smarda 1947.

In Enna *Grimmia capillata* occurs only in saxicolous bryophytic communities belonging to *Grimmietales anodontis* Smarda 1947, a syntaxon of the *Tortulo-Homalotheceia sericea* Hertel 1974, including saxicolous, basiphilous, neutrophilous communities with xerophilous and photophilous characteristics.

Species of bryophytes occurring with *Grimmia capillata* were: *G. crinita*, *G. orbicularis*, *Pseudocrossidium revolutum* (Brid.) R. H. Zander and *Tortula intermedia* (Brid.) De Not.

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