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New or interesting regional bryophyte records for Italian bryoflora

Abstract

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Based on recent bryophyte collections five records are added to the bryophyte flora of some Italian regions. The hepatic *Riccia beyrichiana* is new to Campania, *Archidium alternifolium*, *Campylopus introflexus* and *Hedwigia stellata* are new mosses to Lazio and *Hylocomium splendens* to Basilicata. In addition, the presence of *Campylopus atrovirens* and *Pleuridium acuminatum* in Lazio is confirmed after more than half a century.

Key words: Italian bryoflora, new records, mosses, liverworts.

Introduction

During some investigations aimed at improving the knowledge of the Italian bryophyte flora and vegetation some interesting *taxa* not previously known in some regions of central and southern Italy (Aleffi & al. 2008) were found. These include the first finding of the hepatic *Riccia beyrichiana* Hampe ex Lehm. (*Ricciaceae*) in Campania, as well as of the mosses *Archidium alternifolium* (Hedw.) Mitt. (*Archidiaceae*), *Campylopus introflexus* (Hedw.) Brid. (*Leucobryaceae*) and *Hedwigia stellata* Hedenäs (*Hedwigiaceae*) in Lazio and, lastly, *Hylocomium splendens* (Hedw.) Schimp. (*Hylocomiaceae*) in Basilicata. In addition, reports of *Campylopus atrovirens* De Not. and *Pleuridium acuminatum* Lindb. (*Ditrichaceae*) allow us to confirm the presence of these *taxa* in Lazio after more than half a century.

The nomenclature followed is that of Ros & al. (2007) for liverworts and Ros & al. (2013) for mosses. The specimens are kept in the *Herbarium Mediterraneum Panormitanum* (PAL) and the Vegetal Biology Section of the Department of Biological, Geological and Environmental Sciences of University of Catania (CAT), as specified below for each species.

Riccia beyrichiana Hampe ex Lehm

Italy, Campania, Palinuro al Faro (Cilento and Vallo di Diano National Park), 169 m a.s.l., 40° 01’ 34” N, 015° 16’ 45” E, *M. Privitera* (CAT).

Riccia beyrichiana grows on acidic soils and rocks in Mediterranean forests, on cliff tops, in wetlands and in grasslands. In the new locality it was found on damp, acidic soil of temporary ponds, together with *Archidium alternifolium*, *Trichostomum brachydontium* Bruch and *Epipterygium tozeri* (Grev.) Lindb.

Known in North America, it is widely distributed in the Mediterranean Europe and more rare in eastern part of this continent (Hodgetts 2015). Also in Italy it is quite rare; in particular, in the South it was known only in Apulia (Aleffi & al. 2008).

In the Red list of the Italian bryophytes, it was considered Critically Endangered (Cortini Pedrotti & Aleffi 1992).

Archidium alternifolium (Hedw.) Mitt.

Italy, Lazio, Bosco della Cerasella (Circeo National Park), 40 m a.s.l., 41°20'58"N, 13°02'54"E, together with *Riccia glauca* L. var. *glauca* and *Trichostomum brachydontium*, *M. Privitera & M. Puglisi*; Bosco di Foglino (Nettuno) 40 m a.s.l., 41°28'20"N, 12°42'54"E, together with *Pleuridium acuminatum, Epipterygium tozeri* and *Scapania compacta* (A. Roth) Dumort., *S. Brullo;* Castel Porziano (Rome) 60 m a.s.l., 41°45'05"N, 12°25'58"E, together with *Epipterygium tozeri, S. Brullo* (CAT).

It grows on sandy or clay soils, disturbed or subjected to periodic immersion, especially in damp open habitats at the edge of stretches of water but also in forest areas. In the finding localities it was collected on damp soil along the edge of some shallow ponds in the ambit of the Priority Habitat "Mediterranean temporary ponds "(code 3170, Habitats Directive 92/43/ EC).

Archidium alternifolium is present in America, Europe, N Africa, Atlantic islands (Spence 2007). In Europe, it is widely distributed although is rare and considered threatened in several countries (Hodgetts 2015). In Italy, it is not very common (Cortini Pedrotti 2001).

Campylopus introflexus (Hedw.) Brid.

Italy, Lazio, Castel Porziano (Rome), 65 m a.s.l., 41°44'39"N, 12°25'33"E, *S. Brullo*, together with *Campylopus atrovirens*; Bosco di Foglino (Nettuno), 45 m, 41°28'22"N, 12°42'56"E, *S. Brullo*, together with *Campylopus atrovirens*, *Hypnum cupressiforme* Hedw. var. *cupressiforme* (CAT).

It is a widespread species in the Southern hemisphere, in the Southern part of South America, Africa, Australia, islands in the Pacific, Atlantic and Indian Ocean (Gradstein & Sipman 1978; Söderström 1992; Klinck 2009). In 1941 was discovered in Europe in the Southern part of Great Britain (Richards 1963). After it continued its spread through Europe until now (Klinck 2010) and moreover its presence was registered as a neophyte in California, USA in 1975 (Frahm 1980). In Italy it is known in few northern and central regions and it has also been reported for Campania and Sardinia. In the new sites it was found on acidic, seasonally moist soil.

Campylopus introflexus is considered an invasive alien species; it shows a high ecological tolerance, as well as other species of the genus *Campylopus* (Spagnuolo & al. 2014), growing on sandy soils, on cliff, along paths and forest edges as well as on dunes and in wet areas (Hallingbäck & al. 1985).

Hedwigia stellata Hedenäs

Italy, Lazio, Bosco di Foglino (Nettuno), 45 m, 41°28'22"N, 12°42'56"E, *S. Brullo* (CAT).

It grows on acidic or weakly basic rocks, usually in open mountain habitats. It occurs in North America, Chile, Asia, Atlantic Islands, Morocco and Europe (Jiménez & al. 2002; Smith 2004; Eckel 2012). In Italy it is mostly known in the southern part and also in Piedmont, Tuscany and Liguria (Aleffi & al. 2008, Puglisi & al. 2013). In the Lazio it grows on acid rocks covered by soil together with *Hypnum cupressiforme* var. *cupressiforme*.

Hylocomium splendens (Hedw.) Schimp.

Italy, Basilicata, Monte Viggiano (Lucano Apennine Val D'Agri Lagonegrese National Park), 1500 m a.s.l., 40°22'38" N, 15°51'25" E 09.07.2014, *E. Di Gristina* and *F. Scafidi* (PAL).

Hylocomium splendens is a common *taxon* that usually lives on acidic substrate, soil and decaying wood or rocks in mostly forest environments. In the new locality it was collected from carbonate rocks.

It is widely distributed in the northern hemisphere and is also known in New Zealand (Schofield 2014). Due to sensitivity to air pollution it for some time shows signs of regression in Europe (Dierβen 2001). It is known in almost all Italian regions, even if it is rarer in the South (Aleffi & al. 2008).

Campylopus atrovirens De Not.

Italy, Lazio, Castel Porziano (Rome), 65 m a.s.l., 41°44'39"N, 12°25'33"E, *S. Brullo*, together with *Campylopus introflexus*; Bosco di Foglino (Nettuno), 45 m, 41°28'22"N, 12°42'56"E, *S. Brullo*, together with *Campylopus introflexus*, *Hypnum cupressiforme* var. *cupressiforme* (CAT).

This *taxon* lives on wet rocks and soils in oceanic-montane belt. It is distributed in Asia, Europe, where it is included in some *red lists* (Hodgetts 2015), and North America. In Italy, it is known especially in the north and central part, mostly by reports dating back more than half a century ago (Aleffi & al. 2008). The finding in Lazio allows confirm its presence in this region.

Pleuridium acuminatum Lindb.

Italy, Lazio, Bosco di Foglino (Nettuno), 40 m a.s.l., 41°28'20"N, 12°42'54"E, *S. Brullo* (CAT).

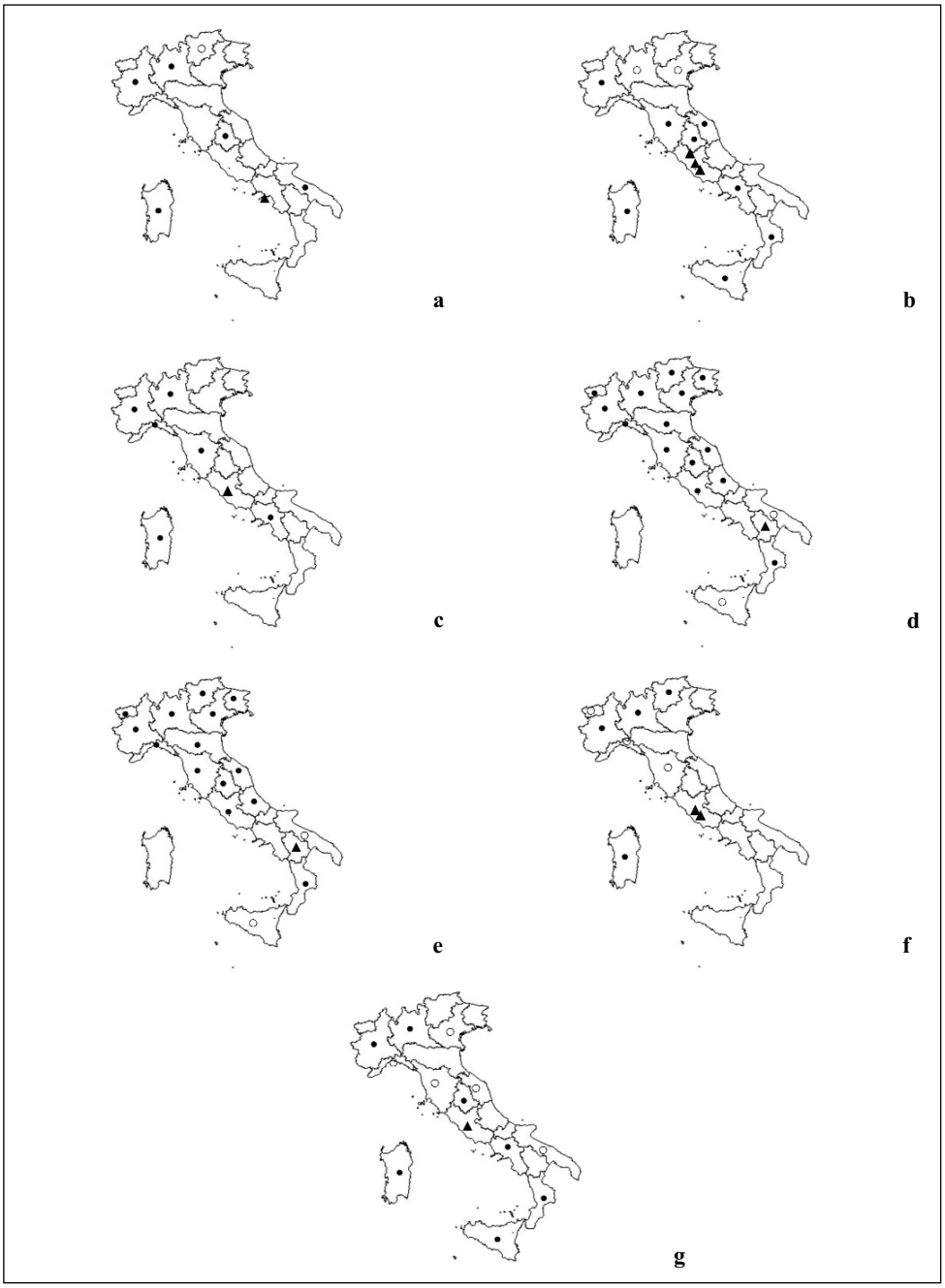

Fig. 1. Italian regional distribution of: a) *Riccia beyrichiana* Hampe ex Lehm; b) *Archidium alternifolium* (Hedw.) Mitt.; c) *Campylopus introflexus* (Hedw.) Brid.; d) *Hedwigia stellata* Hedenäs; e) *Hylocomium splendens* (Hedw.) Schimp.; f) *Campylopus atrovirens* De Not.; g) *Pleuridium acuminatum* Lindb. ● reports published before 1950; ○ reports published after 1950; ▲ new record.

It grows on open and disturbed soil in fields, pastures or slopes in woods, at low to moderate elevations. It is distributed in Europe, Asia (China), S Africa; Atlantic Islands, New Zealand (Seppelt 2007). In the new site it was found along the edge of some temporary ponds in the ambit of the Priority Habitat "Mediterranean temporary ponds", together with *Archidium alternifolium*, colonizing the same type of habitat.

In Italy, the species is known throughout the peninsula but in some regions, including Lazio, by old reports. Its presence in this region, recorded more than half a century ago, is here confirmed (Aleffi & al. 2008).

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