New, rare, and noteworthy lichens in the Pollino National Park (Basilicata, southern Italy)

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ABSTRACT – 42 lichens new to the Basilicata Region were found in the territory of the Pollino National Park (southern Italy). There are two very interesting groups of species: the first, the *Caliciales*, indicator of the ecological continuity of the forest, are present on old trees (*Abies alba* Mill.). The second one consists of foliicolous species that are present in a small humid valley with subtropical microclimatic conditions. From the results of this work, the number of *taxa* of the lichen flora of Basilicata rises to 558 species, with an increase of 9%.

KEY WORDS: *Ascomycota*, new taxa, lichen biodiversity

Introduction

The earliest and most important studies devoted to the Basilicata lichen flora were published at the end of the 19th century. They refer to reliefs and collections acquired during the floristic trips in southern-central Italy by the German botanist G.L. Rabenhorst (1850) and the Italian naturalist A. Jatta (1874, 1875, 1880, 1882, 1885, 1886, 1889, 1900, 1909–11).

All these data, and others that sporadically appeared thereafter, were summarized in the Checklist of the Italian Lichen Flora (Nimis 1993), that showed how Basilicata at that time was one of the lichenologically less known regions of Italy, with only 216 taxa (c. 10% of the national lichen flora) for a territory of 9992 km^2. From the end of the '90s new contributions appeared, such as that concerning the lichen flora of the Maratea coast (Bartoli & Puntillo, 1998) and the paper of Nimis & Tretiach (1999), that brought the number of species recognized for the regional territory up to 377.

Some recent contributions to the lichen flora of the Basilicata derived from research projects carried out by the Natural History Museum of Calabria and Botanical Garden and the Laboratory of Environmental and Applied Botany of the Basilicata University (Puntillo et al. 2009, 2010; Potenza & Fascetti 2005, Potenza 2006, Potenza et al. 2010, Ravera et al. 2011). They led to the acquisition of 41 new taxa and to the formation of new important collections, kept in the Herbarium Lucanum (HLUC). At 2010 the floristic list of Basilicata included 516 species.

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More recently, Brackel (2011) presented a field study with special emphasis on lichenicolous fungi from Puglia and Basilicata, in which a list of 92 taxa, with notes on some remarkable lichens (e.g., *Collema italicum*) and two hepaticolous fungi, is given.

A number of interesting and/or protected areas of Basilicata are still lichenologically uninvestigated and thus further studies are necessary to give a complete overview of the lichen diversity of the Basilicata as well as details on the distribution range of single species.

The most interesting and still inadequately studied part of the region is Mt. Pollino, one of the highest calcareous peaks of the southern Apennines, that is located along the administrative border between Basilicata and Calabria. The area is about 1930 km^2, with altitudes ranging from 200 m a.s.l. (lower Sinni River valley) to over 2000 m a.s.l. (Pollino massif, highest peak 2267 m).

The landscape is predominantly mountainous, with very little urbanisation. The climate is characterised by sharp variations of temperature that reflect the wide altitudinal range.

The following main forest or pasture habitats are recognizable. The low-elevation level is dominated by mixed sclerophyllous evergreen oak forests, with *Quercus ilex* L. associated with *Pistacia lentiscus* L. and *Myrtus communis* L. At medium elevation, mixed deciduous forests predominate (*Quercus cerris* L., *Q. pubescens* Willd., *Q. frainetto* Ten., *Ostrya carpinifolia* Scop., *Carpinus betulus* L. and *C. orientalis* Miller, *Corylus avellana* L., *Ruscus aculeatus* L.). Higher elevations are characterised by forests, mostly occupied by beech (*Fagus sylvatica* L.), *Abies alba* Mill., and cuirassed pine (*Pinus leucodermis* Antoine), an endemic relict species which represents the true emblem of the park. Mountain pastures are dominated by *Selseria tenuifolia* Schrader and *Carex kitaibeliana* Degen.

Annual temperature and precipitation patterns indicate a Mediterranean climate, humid type: high temperatures and irradiance in summer and irregular distribution of precipitation throughout the year (Avena & Bruno 1975).

In a recent floristic survey of the Pollino National Park, that encompasses both regions, 430 infrageneric taxa were found (Puntillo 2006; unpublished report).

Materials & methods

The samplings were carried out from 2001 to 2010, in 12 localities of the Pollino National Park, within the Basilicata region. The main habitats visited during the floristic surveys were: 1) montane forests dominated by deciduous trees (*F. sylvatica* and *Q. cerris*); 2) montane forests dominated by coniferous trees (*A. alba*); 3) siliceous rocks in the oromediterranean belt.

In each of the 12 localities, the lichen flora was carefully sampled on every suitable substrate inside 20 × 20 m plots.

Morphological and microscopic investigations were performed under a binocular dissecting microscope, and supported with standard chemical spot tests. Specimens were examined in water, 10% KOH, Lugol's iodine solutions, and cotton blue.

For the identification of the species were followed the keys of Clauzade & Roux (1985), Purvis et al. (1992), and Wirth (1980, 1995). Critical material was submitted to the revision of specialists.

Nomenclature follows Nimis & Martellos (2008). The specimens are now kept at the herbaria of Calabria University (CLU) and in the herbarium of Basilicata (HLUC).

The taxa are listed in alphabetical order, followed by municipality, locality, elevation, substrate type and date of collection. In the following notes, the Italian geographic distribution (mostly from Nimis & Martellos 2008) and a remark on the observed situation in the Pollino National Park are given.

Results

Acarospora smaragdula (Wahlenb.) A. Massal. subsp. ***smaragdula***

SPECIMEN EXAMINED – Terranova di Pollino, Timpa di Pietrasasso, alt. c. 1300 m, on ophiolitic rocks, 16.VIII.2001, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – A cool-temperate to boreal-montane, perhaps circumpolar, variable species of steeply inclined base-rich, sometimes weakly calciferous siliceous rocks. In the Pollino National Park it has been collected on one of the few acidic outcrops in this calcareous region.

Acrocordia cavata (Ach.) R.C. Harris

SPECIMEN EXAMINED – Viggianello, Vallone Zifero, alt. c. 420 m, on *Corylus avellana*, 17.VIII.2001, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – A mild-temperate, incompletely holarctic species on smooth bark in humid deciduous forests. Rare throughout the country, but most frequent in Tyrrhenian Italy. In the Pollino National Park it has been collected in humid forests.

Alectoria sarmentosa (Ach.) Ach.

SPECIMEN EXAMINED – Terranova di Pollino, Fontana Rummo, alt. c. 1710 m, on *Fagus sylvatica*, 4.VI.2001, leg. et det. D. Puntillo (CLU); G. Potenza (HLUC).

DISTRIBUTION & ECOLOGY – A cool-temperate to boreal-montane, probably circumpolar species, found on branches, more rarely on trunks of (mainly) conifers in forests with frequent fog. More common in the past, it is presently confined to upland areas, and is certainly declining, being very sensitive to forest management. In the Pollino National Park it occurs on dead branches in the forest canopy.

Arthonia arthonioides (Ach.) A.L. Sm.

SPECIMEN EXAMINED – Terranova di Pollino, Fontana Rummo, alt. c. 1710 m, on *F. sylvatica*, 4.VI.2001, leg. et det. D. Puntillo (CLU); G. Potenza (HLUC).

DISTRIBUTION & ECOLOGY – A southern species, known from Europe and N America, found on acid rocks and exposed roots in dry underhangs, also on dry undersides of trees in sheltered, humid situations, such as in forests. In the Pollino National Park it occurs on the smooth bark of *F. sylvatica*, in sheltered situations, with a rather humid climate.

Bacidina inundata (Fr.) Vězda

SPECIMEN EXAMINED – San Severino Lucano, Peschiera river, alt. c. 800 m, on acid stone, 4.II.2001, leg. et det. D. Puntillo (CLU).

Distribution & Ecology – Apparently a holarctic lichen, found on periodically inundated or otherwise moist rocks, but also on lignum, in humid-shaded situations. In the Pollino National Park it occurs on periodically submerged siliceous rocks.

Bacidina vasakii (Vězda) Vězda

Specimen examined – Viggianello, Vallone Zifero, alt. c. 420 m, on *R. aculeatus*, 17.VIII.2001, leg. et det. D. Puntillo (CLU).

Distribution & Ecology – A mild-temperate to humid pantropical species described from the Caucasus and also known from the Pyrénées; in Italy it is restricted to warm-humid situations and undisturbed stands of the Tyrrhenian region. In the Pollino National Park it occurs in a small valley well sheltered from the wind with high, constant humidity.

Calicium abietinum Pers.

Specimen examined – Viggianello, Cappella di S. Lucia, alt. c. 430 m, on lignum, 11.III.2001, leg. et det. D. Puntillo (CLU).

Distribution & Ecology – A temperate to boreal-montane, circumpolar species, found on old wood of conifers, but also on bark, esp. of *Abies*, much more rarely on deciduous trees (e.g. on *Castanea sativa*) and, in humid areas, on wooden poles. Old records (Nimis,1993) might refer to *C. glaucellum*. In the Pollino National Park was collected on a wooden pole that defines a property.

Caloplaca cerina* var. *muscorum (A. Massal.) Jatta

Specimen examined – Terranova di Pollino, Colle Impisu, alt. c. 1610 m, on bryophytes on limestone, 4.VI.2001, leg. et det. D. Puntillo (CLU).

Distribution & Ecology – In Italy it was found on mosses and plant debris, especially in dry-continental areas with basic siliceous substrata. In the Pollino National Park it occurs in upland areas.

Caloplaca herbidella (Hue) H. Magn.

Specimen examined – Terranova di Pollino, Serra del Prete, alt. c. 1620 m, on *F. sylvatica*, 4.VI.2001, leg. et det. D. Puntillo (CLU).

Distribution & Ecology – A temperate to boreal-montane, probably holarctic species, found on bark of old coniferous and broad-leaved trees, esp. on basal parts of trunks, more rarely on lignum, absent from the plains of the north. Populations from southern Italy, found in the Mediterranean zone (e.g. on *Olea* and *Juniperus*) are worthy of further study. In the Pollino National Park it occurs in eu-mediterranean vegetation.

Chaenotheca brunneola (Ach.) Müll.Arg.

Specimen examined – Terranova di Pollino, Cugno dell'Acero, alt. c. 1320 m, on *A. alba*, 2.VI.2002, leg. et det. D. Puntillo (CLU).

Distribution & Ecology – In Italy it was found on relatively soft-decomposed lignum of old coniferous stumps in humid woodlands, more rarely on wood of deciduous trees or even of *Q. ilex*, very rarely corticolous. In the Pollino National Park it occurs in shaded and humid situations.

Chaenotheca ferruginea (Sm.) Mig.

SPECIMEN EXAMINED – San Severino Lucano, Bosco Magnano, alt. c. 320 m, on *A. glutinosa*, 7.VII.2002, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY - A cool-temperate to boreal-montane, circumpolar species, found on acidic bark, esp. of very old oaks, *Castanea* and conifers, on faces protected from rain, sometimes on decorticated stumps and even charred wood, reported as tolerant of air pollution, and expanding, in N Europe, but rare and bound to natural habitats throughout Italy. In the Pollino National Park it occurs in humid situations.

Chaenotheca phaeocephala (Turner) Th. Fr.

SPECIMEN EXAMINED – San Severino Lucano, Valle del Peschiera, alt. c. 320 m, on *A. glutinosa*, 4.III.2001, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – Cool-temperate, holarctic lichen, found on old oaks in open woodlands, in bark fissures rearely wetted by rain, certainly more widespread in the Alps. In the Pollino National Park it occurs on bark of deciduous trees at low elevations in shaded situations.

Chaenotheca trichialis (Ach.) Th. Fr.

SPECIMEN EXAMINED – San Severino Lucano, Valle del Peschiera, alt. c. 320 m, on *A. glutinosa*, 4.III.2001, leg. et det. D. Puntillo (CLU); Terranova di Pollino, Cugno dell'Acero, alt c. 1280, on *A. alba* 4.VI.2002, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – A widespread holarctic species, found on acid-barked deciduous trees, conifers and lignum, sometimes even on *Q. ilex*, in forests and woodlands, more widespread in upland areas throughout the country, but most common in the Alps. In the Pollino National Park it occurs at the base of very old trunks in moderately shaded and humid situations.

Chaenothecopsis debilis (Sm.) Tibell

SPECIMEN EXAMINED – Terranova di Pollino, Spezzavummula, alt c. 1650 m, on *F. sylvatica* 4.VI.2002, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – A cosmopolitan species. In Italy it was found on dry and weathered lignum of deciduous trees (*Populus, Fraxinus, Ulmus*), more rarely on conifers, in open situations, often in hollows of the trunks, in species-poor stands, probably overlooked and more widespread, but never common. In the Pollino National Park it occurs in cavities of old deciduous trees, whereas according to Tibell (1984) grows on very dry and weathered lignum in open situations.

Chaenothecopsis pusilla (Ach.) A.F.W. Schmidt

SPECIMEN EXAMINED – Terranova di Pollino, Spezzavummula, alt c. 1650 m, on *F. sylvatica* 4.VI.2002, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – In Italy it was found on trunks of old conifers in ancient forests, and on lignum, sometimes on old oaks, on squamules of *Cladonia* and even on soil, perhaps as a parasite of free-living algal colonies, or possibly as a saprophyte. In the Pollino National

Park it occurs in cavities of old deciduous trees; according to Puntillo (1994) it grows on slightly decomposed lignum exposed to high light.

Cliostomum griffithii (Sm.) Coppins

SPECIMEN EXAMINED – San Severino Lucano, Piana di San Francesco, alt. c. 1540 m, on *A. alba*, 4.II.2001, leg. et det. D. Puntillo (CLU); Terranova di Pollino, Cugno dell'Acero, alt c. 1280 m, on *A. alba* 4.VI.2002, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – A mild-temperate species with a fragmented holarctic range, found on bark of old isolated trees in open, humid woodlands, rarely on lignum. Probably more widespread in the past, presently mostly Tyrrhenian. In the Pollino National Park it occurs in rather humid and warm situations.

Cyphelium inquinans (Sm.) Trevis.

SPECIMEN EXAMINED – San Severino Lucano, Piana di San Francesco, alt. c. 1540 m, on *A. alba*, 4.III.2001, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – A temperate to southern boreal-montane, circumpolar lichen, found on old conifer stumps, more rarely on lignum of broad-leaved deciduous trees (esp. *Quercus* and *Castanea*), and on wooden fence-posts, with an optimum in upland areas. In the Pollino National Park it occurs in rather humid and sheltered, shaded situations.

Cyphelium karelicum (Vainio) Räsänen

SPECIMEN EXAMINED – San Severino Lucano, Piana di San Francesco, alt. c. 1540 m, on *A. alba*, 4.III.2001, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – A mainly cool-temperate to southern boreal-montane lichen, found on ancient boles of conifers in semi-natural forests, often on the basal parts of trunks, mostly on old *Abies,* much more rarely on lignum, to be looked for further in the Alps. In Italy it is evidently very rare, having been found only in a few localities of Trentino Alto Adige (Thor & Nascimbene 2007) and Calabria (Puntillo 1989, 1994). In the Pollino National Park it was found on the base of a very old trunk in shaded situations.

Evernia divaricata (L.) Ach.

SPECIMEN EXAMINED – San Severino Lucano, Piana di San Francesco, alt. c. 1540 m, on *A. alba*, 4.III.2001, leg. et det. D. Puntillo (CLU); Rotonda, Colle Gaudolino, alt. c. 1440 m on *F. sylvatica*, 5.V.2010, leg. et det. G. Potenza (HLUC).

DISTRIBUTION & ECOLOGY – A cool-temperate to S boreal-montane, circumpolar lichen, found on twigs of coniferous and deciduous trees in semi-natural forests with frequent fog, rarer in the south, with an optimum in beech-fir forests. In the Pollino National Park it occurs on the branches of coniferous trees commonly.

Evernia mesomorpha Nyl.

SPECIMEN EXAMINED – Rotonda, Colle Gaudolino, alt. c. 1440 m on *F. sylvatica*, 5.V.2002, leg. et det. G. Potenza (HLUC).

DISTRIBUTION & ECOLOGY – A boreal-montane, circumpolar lichen, found on bark (often on twigs) of conifers, sometimes on lignum. In the Pollino National Park it occurs on branches of deciduous trees.

Hymenelia epulotica (Ach.) Lutzoni

SPECIMEN EXAMINED – Terranova di Pollino, Colle Impisu, alt. c. 1555 m, on limestone, 4.VI.2001, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – An arctic-alpine to cool-temperate, circumpolar species, found on calciferous rocks, such as limestone, dolomite, calcareous schist in sheltered-humid situations, most frequent in the Alps. In the Pollino National Park it occurs on calcareous schist.

Megalaria laureri (Th. Fr.) Hafellner

SPECIMEN EXAMINED – San Severino Lucano, Bosco Magnano, alt. c. 920 m, on *F. sylvatica*, 5.V.2002, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – A mild-temperate lichen, found on bark of *Quercus* and *Fagus*, more rarely of *Abies* in humid forests, certainly declining. In the Pollino National Park it occurs on bark in humid deciduous forests.

Micarea misella (Nyl.) Hedl.

SPECIMEN EXAMINED – Terranova di Pollino, Timpa di Pietrasasso, alt. c. 1300 m, on lignum, 16.VII.2001, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – A cool-temperate to circumboreal-montane species, found on wood, more rarely on acid bark, most common in the Alps, but probably occurring throughout the Apennines. In the Pollino National Park it occurs on the wood of old beech tree.

Moelleropsis nebulosa (Hoffm.) Gyeln.

SPECIMEN EXAMINED – San Severino Lucano, Bosco Magnano, alt. c. 800 m, on acid soil, 5.X.2001, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – A mild-temperate early colonizer of clay-sandy soil, esp. earth banks along unpaved roads, in humid areas with siliceous substrata, most frequent in Tyrrhenian Italy, from the lowlands (in very humid areas) to the mountains. In the Pollino National Park it occurs on siliceous rocks in humid situations, as already reported by Codogno & Puntillo (1993).

Mycocalicium subtile (Pers.) Szatala

SPECIMEN EXAMINED – San Severino Lucano, Piana di San Francesco, alt. c. 1540 m, on *A. alba*, 4.VI.2002, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – In Italy it was found as a saprophyte on dry, hard lignum, esp. of conifers, in open situations. In the Pollino National Park it occurs on dry coniferous trees in open situations, as observed by Puntillo 1994.

Pertusaria flavicans Lamy

SPECIMEN EXAMINED – San Severino Lucano, Bosco Magnano, alt. c. 920 m, on rock, 21.VII.2006, leg. et det. G. Potenza (HLUC).

DISTRIBUTION & ECOLOGY – In Italy it was found on lime-free but mineral-rich rocks, mostly on sheltered, steeply inclined faces; it is chemically variable and in need of further study. In the Pollino National Park it occurs in a sun-exposed site.

Phaeophyscia cernohorskyi (Nádv.) Essl.

SPECIMEN EXAMINED – San Severino Lucano, Bosco Magnano, alt. c. 920 m, on rock, 21.VII.2006, leg. et det. G. Potenza (HLUC).

DISTRIBUTION & ECOLOGY – A widespread, often misunderstood species, chiefly epilithic in the northern part of its range, but found on a wide variety of substrata in the south. It is common and abundant only in dry-warm areas, esp. in Alpine valleys, several records from Tyrrhenian Italy, and esp. Tuscany, are therefore dubious (Nimis & Martellos 2008). In the Pollino National Park it occurs in upland areas.

Porina hoehneliana (Jaap) R. Sant.

SPECIMEN EXAMINED – Viggianello, Vallone Zifero, alt. c. 420 m, on *R. aculeatus*, 17.VIII.2001, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – A humid subtropical to Mediterranean-Atlantic lichen, founds on smooth bark and leaves of evergreen plants in warm-humid woodlands near the coast, exclusively Tyrrhenian. In the Pollino National Park it occurs in a small valley, well sheltered from the wind, with high and constant humidity.

Porina oxneri R. Sant.

SPECIMEN EXAMINED – Viggianello, Vallone Zifero, alt. c. 420 m, on *R. aculeatus*, 17.VIII.2001, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – An obligately foliicolous lichen, confined to warm-moist forests, on needles of *Abies*, leaves of evergreen trees, and cladodes of *Ruscus* sp. In the Pollino National Park it occurs in a small valley, well sheltered from the wind, with high and constant humidity.

Protoparmelia atriseda (Fr.) R. Sant. & V. Wirth

SPECIMEN EXAMINED – Terranova di Pollino, Timpa delle Murge, alt. c. 1439 m, on acid rock, 3.VI.2002, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – Parasitic on yellow *Rhizocarpon* species. In Italy it was found on hard siliceous rocks, and is certainly more widespread in the Alps. The taxon is heterogeneous (see Nimis 1993).

Protoparmelia montagnei (Fr.) Poelt & Nimis

SPECIMEN EXAMINED – Terranova di Pollino, Timpa delle Murge, alt. c. 1439 m, on acid rock, 3.VI.2002, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – A Mediterranean-Macaronesian, chemically variable species of siliceous rocks. For further details see Barbero et al (2006). In the Pollino National Park it occurs on rocks in open situations.

Pyrrhospora quernea (Dicks.) Körb.

SPECIMEN EXAMINED – San Severino Lucano, Bosco Magnano, alt. c. 920 m, on *Q. cerris*, 21.VII.2006, leg. et det. G. Potenza (HLUC).

DISTRIBUTION & ECOLOGY – A mainly mediterranean-atlantic species, found on bark, sometimes on lignum, abundant in humid coastal-Mediterranean, mostly Tyrrhenian sites, where it is often fertile, much rarer elsewhere, also occurring, albeit rarely – and then mostly sterile – in the Insubrian District of Lombardia, probably extinct in Friuli (Nimis & Martellos 2008). In the Pollino National Park it occurs in a deciduous wood.

Ramalina panizzei De Not.

SPECIMEN EXAMINED – San Severino Lucano, Bosco Magnano, alt. c. 920 m, on *F. sylvatica*, 5.V.2002, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – In Italy it was found on bark in humid montane forests, its total distribution is still poorly known, being frequently confused with the more common *R. fastigiata*, from which it is distinguished by the presence of sekikaic and homosekikaic acids. In the Pollino National Park it was found in a humid beech wood.

Ramalina polymorpha (Lilj.) Ach.

SPECIMEN EXAMINED – Terranova di Pollino, Timpa di Pietrasasso, alt. c. 1300 m, on ophiolitic rocks, 16.VIII.2001, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – On the top of isolated siliceous boulders manured by birds, e.g. in grasslands and pastures, common only wherever suitable substrata are present, esp. in the mountains of the south (e.g. Sila Massif in Calabria, siliceous mountains of Sardegna). In the Pollino National Park it has been collected in one of the few basic outcrops of this acidic region.

Rhizocarpon tavaresii Räsänen

SPECIMEN EXAMINED – Terranova di Pollino, Timpa delle Murge, alt. c. 1439 m, on acid rock, 3.VI.2002, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – This is a south European, poorly known taxon In Italy it was found on basic siliceous rocks. In the Pollino National Park it was found in a sun-exposed site.

Rimularia insularis (Nyl.) Rambold & Hertel

SPECIMEN EXAMINED – Terranova di Pollino, Timpa delle Murge, alt. c. 1439 m, on *Lecanora rupicola* s.l., on acid rock, 3.VI.2002, leg. et det. D. Puntillo (CLU).

DISTRIBUTION & ECOLOGY – A widespread parasite on species of the *Lecanora rupicola* group. This holarctic lichen is, contrary to the host, absent from disturbed habitats.

Sclerophora nivea (Hoffm.) Tibell

SPECIMEN EXAMINED – San Severino Lucano, Bosco Magnano, alt. c. 800 m, on *A. pseudoplatanus* 5.V.2002, leg. et det. D. Puntillo (CLU); on *C. betulus,* 5.V.2006, leg. et det. G. Potenza (HLUC).

Distribution & Ecology – A temperate species found on old trees, such as *Acer*, *Ulmus* and *Fraxinus* in dry crevices of the bark, certainly strongly declining, esp. in the north (Nimis & Martellos 2008).

In the Pollino National Park it is common on old trees with scarce direct solar irradiation in a humid area near Peschiera river.

Sclerophora peronella (Ach.) Tibell

Specimen examined – Terranova di Pollino, Colle Impisu, alt. c. 1610 m, on lignum of *F. sylvatica*, 4.VI.2001, leg. et det. D. Puntillo (CLU).

Distribution & Ecology – On bark and lignum of mature broad-leaved trees. Italian records are recent, but the species is probably declining (Nimis & Martellos 2008). In the Pollino National Park it occurs in cavities of cracked and very old trees in an area of very abundant rainfall (see Puntillo 1994).

Solorina saccata (L.) Ach.

Specimen examined – San Severino Lucano, Madonna di Pollino, alt. c. 1537 m, on soil, 16.VIII.2001, let. et det. D. Puntillo (CLU).

Distribution & Ecology – A cool-temperate to arctic-alpine, circumpolar lichen, found on calciferous soil rich in humus and terricolous mosses, often in cracks of the rock, most common in the Alps, rarer in the Apennines, but descending to the submediterranean belt in Tyrrhenian Italy. In the Pollino National Park it occurs in rock fissures over calcareous substrata.

Sphaerophorus globosus (Huds.) Vain.

Specimen examined – San Severino Lucano, Grande Porta del Pollino, alt. c. 2000 m, on bark of *P. leucodermis*, 21.IX.2006, leg. et det. D. Puntillo (CLU).

Distribution & Ecology – Restricted to cold-humid areas, mostly on rocks, very rarely (in Italy) at the base of old boles in natural forests, probably extinct in several regions. In the Pollino National Park it occurs on acid bark.

Thelidium papulare (Fr.) Arnold

Specimen examined – San Severino Lucano, Peschiera river, alt. c. 800 m, on limestone, 4.III.2001, leg. et det. D. Puntillo (CLU).

Distribution & Ecology – An arctic-alpine to boreal-montane, circumpolar species, found on calcareous rocks, with an optimum on limestone and dolomite, but also on calciferous schist and sandstone. In the Pollino National Park it occurs on a shaded and steeply inclined schist.

Verrucaria hydrela Ach.

Specimen examined – San Severino Lucano, Peschiera river, alt. c. 800 m, on limestone, 4.III.2001, leg. et det. D. Puntillo

Distribution & Ecology – On siliceous pebbles in humid-shaded situations (e.g. in open woodlands), sometimes on boulders in creeks, but never submerged for long periods. Several

records, and esp. those from southern Italy, need confirmation (Nimis & Martellos, 2008). In the Pollino National Park it occurs in a humid and shaded situation.

Discussion

The knowledge of the lichen flora of southern Italy is incomplete. Many areas are still lichenologically uninvestigated and further collecting efforts will certainly bring a large number of new records.

According to Nimis & Martelllos (2008), the total number of lichen species known from Basilicata is 516. In this paper 42 taxa, collected in the years 2001–10, are reported for the first time for the Basilicata, and therefore the total number of lichen species known is now 558, a figure that will certainly increase considerably in the future.

Several of the newly reported species (*Arthonia arthonioides*, *Bacidina vasakii*, *Chaenothecopsis debilis, Cyphelium karelicum, Sclerophora peronella*) are extremely rare in Italy. The find of *Evernia mesomorpha* is the first record in southern Italy. Further studies of the lichen flora of southern Italy may reveal interesting distribution patterns of phytogeographically different lichen taxa and will help in the identification of threatened species in need of conservation actions.

Three groups of species are of particular interest. The first consists of species belonging to *Caliciales* s.l., that have received little attention by lichenologists in southern Italy. Only a few species have been reported in the past from the Basilicata Region. In this paper notices regarding 11 species new to the Basilicata flora are given. All the species are quite common in the Pollino Park area and can be considered as indicators of long ecological continuity of forests and of atmospheric purity. The second group, consisting in 2 subtropical foliicolous lichens (*Porina hoehnaeliana, P. oxneri*), were found on cladodes of *Ruscus aculeatus* in a valley well sheltered from the wind and with temperature and humidity fairly constant throughout the year. The third group consists of two parasitic siliceous species (*Protoparmelia atriseda* and *Rimularia insularis*) that were found on basaltic rock islands that emerge from the Apennine limestone, in particular on ophiolitic rocks in endemic geosites of the Basilicata Region.

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