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## LICHENOLOGICAL STUDIES IN NE-ITALY. II. THE DISTRIBUTION OF *NORMANDINA PULCHELLA* (BORR.) NYL. \*

*STUDI LICHENOLOGICI IN ITALIA NORD-ORIENTALE. II.  
LA DISTRIBUZIONE DI NORMANDINA PULCHELLA (BORR.) NYL.*

**Abstract** — This paper is a contribution to the knowledge of the distribution of *Normandina pulchella* (Lichenes). It presents two distribution maps, one concerning Europe, mainly based on literature data, and one concerning the Friuli-Venezia Giulia Region (NE-Italy), based on the samples preserved in the TSB lichen herbarium. The altitudinal range and the ecology of the species in Friuli-Venezia Giulia are briefly discussed.

**Key words:** Friuli-Venezia Giulia, *Normandina pulchella*, Phytogeography.

**Riassunto breve** — Questo lavoro è un contributo alla conoscenza della distribuzione del lichene *Normandina pulchella*. Presenta due carte di distribuzione originali, una riguardante l'Europa, costruita soprattutto sulla base di dati di letteratura, l'altra riguardante il Friuli-Venezia Giulia, basata sui campioni preservati presso l'erbario lichenologico TSB. Vengono brevemente discusse la distribuzione altitudinale e l'ecologia della specie nel Friuli-Venezia Giulia.

**Parole chiave:** Fitogeografia, Friuli-Venezia Giulia, *Normandina pulchella*.

### Introduction

This paper is a contribution to the knowledge of the distribution of *Normandina pulchella*, a rather inconspicuous lichen (fig. 1) which has been rarely collected in Italy until recent times. Special attention has been devoted to the Friuli-Venezia Giulia Region, an area in which *Normandina* is frequent and even common.

*Normandina pulchella* has a peculiar position in the European lichen flora. It

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was described from SE England by Borrer as *Verrucaria pulchella*, because the specimens bore perithecia resembling those of a *Verrucaria*. The lichen has been subsequently considered as a member of the *Pyrenolichenes* until Santesson (in HENSSEN, 1976) discovered that the fruiting bodies were those of a newly described parasitic fungus, *Sphaerulina chlorococca* (Leight.) R. Sant. Fruiting bodies of *Normandina pulchella* are unknown, so that the lichen has been provisionally placed in the group of the *Lichenes Imperfecti*. However, in regard to the external and internal morphology of the thallus, *Normandina pulchella* corresponds most closely to *Coriscium viride*, a lichen currently considered to be the imperfect stage of the Basidiomycete *Omphalina hudsoniana* (OBERWINKLER, 1970). The striking similarity between *Normandina* and *Coriscium* led Henssen to suggest the hypothesis that *Normandina pulchella* might be the imperfect stage of a Basidiomycete (HENSSEN & JAHNS, 1973). To test this hypothesis, Henssen studied the hyphal septa by electron microscope, and found that neither *Normandina pulchella* nor *Coriscium viride* have dollicopore

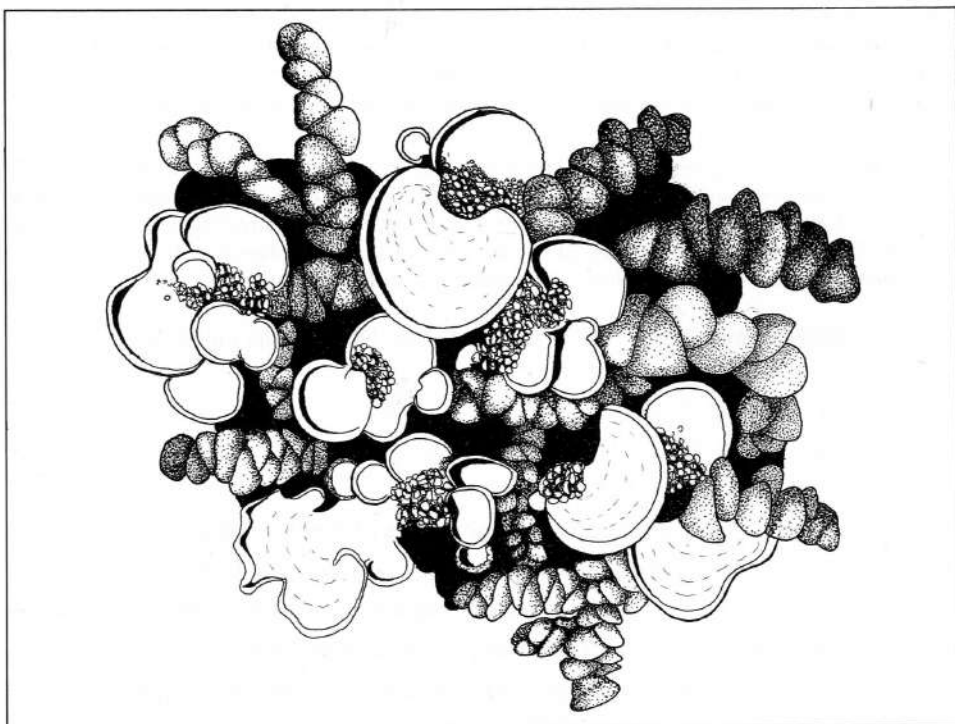


Fig. 1 - *Normandina pulchella* (Borr.) Nyl. growing on *Frullania dilatata*.  
- *Normandina pulchella* (Borr.) Nyl. su *Frullania dilatata*.

septa, which are typical of Basidiomycetes (HENSSEN, 1976). Thus, *Normandina* is unlikely to be a Basidiomycete lichen, and its systematic position remains an unsolved problem.

*Normandina pulchella* is a rather peculiar lichen also in regard to its ecology: BARKMAN (1958) cites it as one of the most striking examples of "hyperepiphytism": in most cases it does not grow directly on bark, but on the thallus of other epiphytes, chiefly liverworts, mosses and even other lichens (DEGELIUS, 1935). According to BARKMAN (1958) the most probable reason for this behaviour is the excretion of chemical substances by the hosts, which may be favourable to *Normandina*. This hypothesis, however, has been never confirmed by experimental works.

#### Distribution and ecology in Europe

*Normandina pulchella* has a worldwide distribution, being present in tropical,

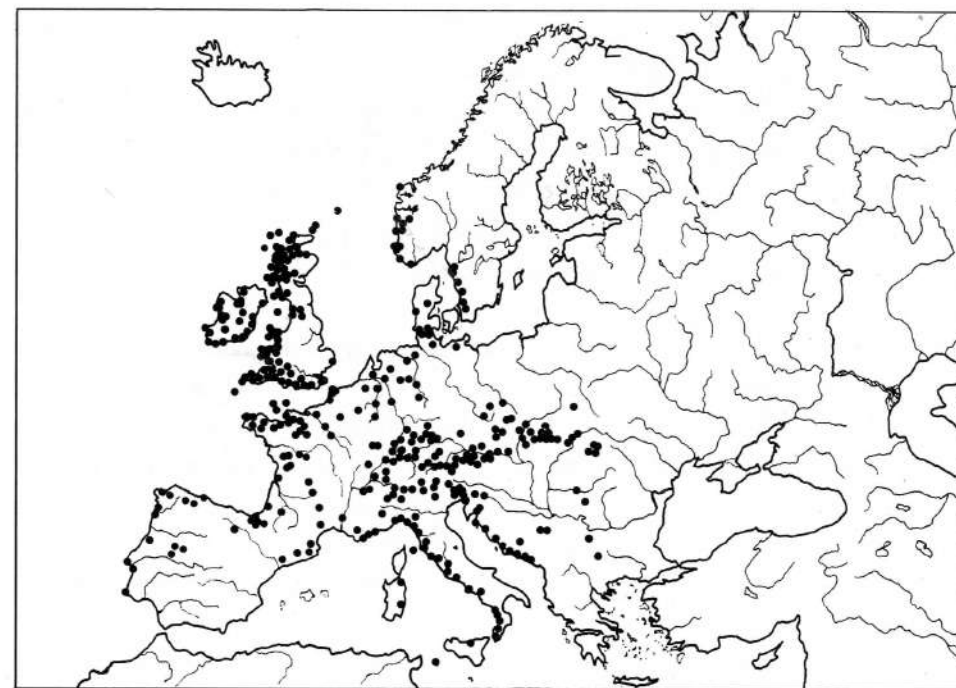


Fig. 2 - Distribution map of *Normandina pulchella* in Europe.  
- Carta di distribuzione di *Normandina pulchella* in Europa.

subtropical and temperate areas of the world, except the Antarctic. The first distribution map covering the whole of Europe was published by DEGELIUS (1935). The map in fig. 2 has been drawn adding to the map of Degelius the literature records taken from the following papers: ABBASSI-MAAF & ROUX (1986), ASTA-GIACOMETTI (1980), BARKMAN (1958), BOLEA (1985), CANIGLIA & DE BENETTI (1987), CRESPO et al. (1981), DELZENNE & GEHU (1978), DELZENNE et al. (1975), GRUMMANN (1963), KUŠAN (1953), LASO (1985), LYE (1970), NIMIS & DALLAI (1985), NIMIS & POELT (1987), NIMIS & SCHIAVON (1986), SCHAUER (1965), SEAWARD & HITCH (1982), TÜRK & WITTMANN (1987), VAZQUEZ (1981), VAZQUEZ & CRESPO (1978), WIRTH (1987). Unpublished localities regarding Italy are reported in the Appendix. *Normandina pulchella* is known also for Crimea, the Central and Southern Urals and the Caucasus (no detailed localities), where it is confined to sites with a particularly humid microclimate (SEDELNIKOVA, 1977).

According to DEGELIUS (1935) *Normandina* is a strongly oceanic species in Scandinavia, where it grows in shady and humid sites below 100 m, whereas in Central and especially in Southern Europe the species is considered as a montane element (WIRTH, 1980), most frequent in the Beech-belt, except along the Atlantic coast of France, where it frequently occurs in the lowlands. On the distribution in Italy, Degelius writes that, except for the Alps and Liguria, the species seems to be generally rare. Several other authors after DEGELIUS (1935) treated *Normandina* as an oceanic lichen. BARKMAN (1958) considers it as a submediterranean species.

The map of fig. 2 considerably enlarges the range of *Normandina pulchella* to the south; in comparison with the map of DEGELIUS (1935), the species appears to be frequent also along the Atlantic coast of Europe, as it could have been expected from its ecological requirements. From the map it is evident that *Normandina pulchella* cannot be considered neither as an oceanic nor as a submediterranean species: its distribution pattern can be defined as suboceanic in the broadest sense: the species has a frequency maximum along the Atlantic coast of Europe and in the Central European mountains, becoming rarer south- and eastwards. The isolated stations in the Urals are considered as "refugial" by SEDELNIKOVA (1977). The occurrence of this lichen also in some poorly explored regions such as Albania, Greece and parts of Turkey is probable.

*Normandina* is rather frequent in Italy, above all along the Tyrrhenian side of the Peninsula, which is characterized by a suboceanic-mediterranean climate type (NIMIS & SCHIAVON, 1986); in this area most of the samples have been collected be-

low 300 m. Another region in which *Normandina* appears to be common are the Eastern pre-Alps, which are also characterized by high precipitation. The Italian range strongly recalls that of *Parmotrema chinense* (COASSINI-LOKAR et al., 1987), another suboceanic species which is frequently associated with *Normandina* (DELZENNE et al., 1976).

According to BARKMAN (1958) *Normandina pulchella* is an ombrophytic and hygrophytic species. We think that its distribution pattern in Europe (fig. 2) can be interpreted on the basis of these ecological requirements. In Central Europe *Normandina pulchella* becomes more frequent at higher elevations not because of lower

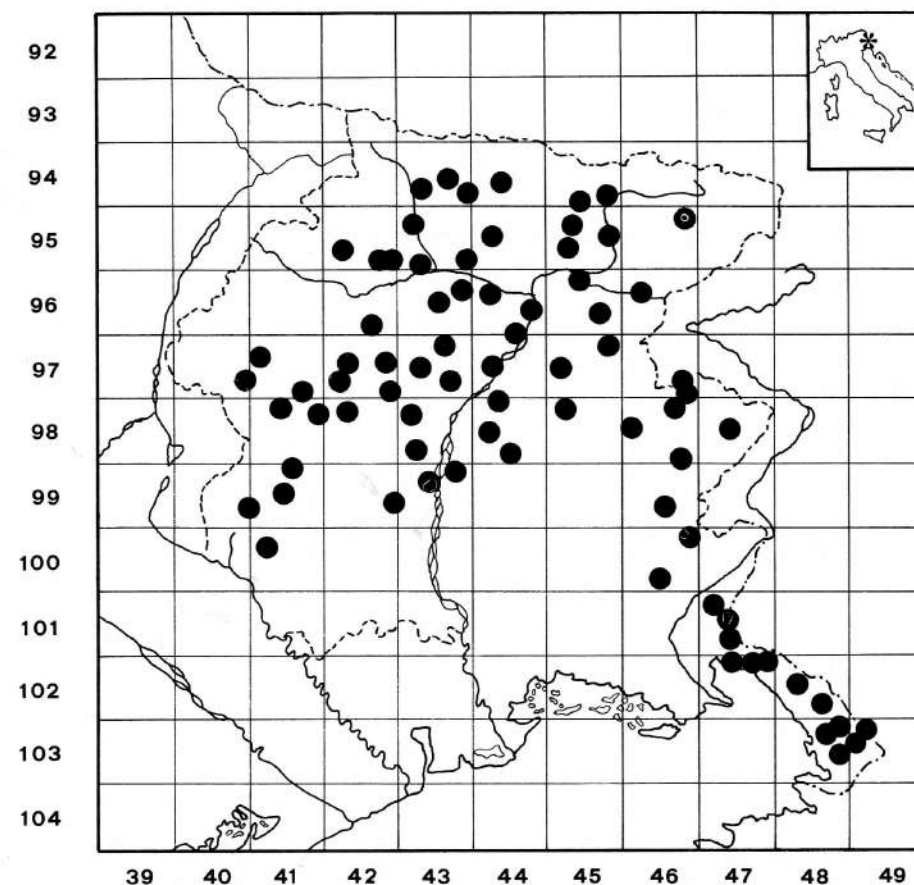


Fig. 3 - Distribution map of *Normandina pulchella* in Friuli-Venezia Giulia. Localities reported in the Appendix.

- Carta di distribuzione di *Normandina pulchella* in Friuli-Venezia Giulia. Le località sono riportate in Appendice.

temperatures, but because of higher precipitation and air humidity in the beech-belt. Also in Southern Italy, under a Mediterranean climate, the species has been never collected in the lowlands, and it mostly occurs within the beech-belt in the mountains, where it is submitted to higher air humidity due to the presence of a fog-belt. On the other hand, in all areas with an oceanic or suboceanic climate, such as the Atlantic coast of France, the Tyrrhenian coast of Italy and the Adriatic coast of Yugoslavia, *Normandina pulchella* is most frequent at low elevations.

### Distribution and ecology in Friuli-Venezia Giulia

The distribution map of fig. 3 has been drawn on the basis of 78 samples preserved in the TSB lichen herbarium. The species appears to be widespread and quite common in the Friuli-Venezia Giulia Region, except for a small area in the inner valleys of the Carnic Alps, where *Normandina* is absent or rare, and in the Friulan Plain. The high frequency of *Normandina* in the study area is evidently linked with

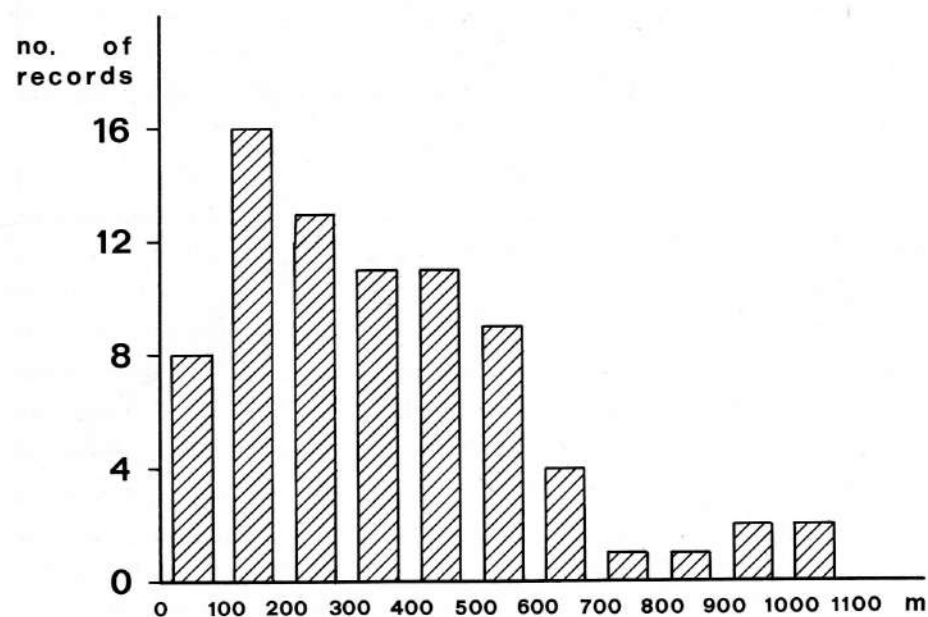


Fig. 4 - Altitudinal distribution of *Normandina pulchella* in Friuli-Venezia Giulia.  
- Distribuzione altitudinale di *Normandina pulchella* in Friuli-Venezia Giulia.

|                             | 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 |
|-----------------------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| <i>Quercus</i>              | 4 | 7   | 3   | 1   | 2   |     |     |     |     |     |      |      |
| <i>Populus</i>              | 1 | 2   | 3   |     | 1   |     |     |     |     |     |      |      |
| <i>Tilia</i>                |   | 1   | 1   |     | 3   | 3   |     | 1   |     |     |      |      |
| <i>Juglans</i>              |   | 1   | 1   | 2   | 3   | 2   | 1   |     |     |     |      |      |
| <i>Ulmus</i>                |   |     | 1   | 2   |     |     |     |     |     |     |      |      |
| <i>Malus, Prunus, Pyrus</i> |   |     | 1   | 3   | 1   | 4   |     |     |     | 2   |      |      |
| <i>Fagus</i>                |   |     |     |     |     |     |     |     |     |     | 2    |      |
| Others                      | 3 | 3   | 1   | 3   | 1   |     | 3   |     | 1   |     |      |      |

Tab. I - Occurrence of *Normandina pulchella* on different porophytes with respect to elevation in Friuli-Venezia Giulia.

- Distribuzione di *Normandina pulchella* su differenti alberi rispetto all'altitudine nel Friuli-Venezia Giulia.

its general climatic features, which are of a suboceanic type (GENTILLI, 1964). Probably, the absence of *Normandina* from the Friulian Plain is not due to climatical factors but simply to the rarity of suitable porophytes in an area which is heavily exploited by agriculture; its rarity in the Carnic Alps, on the contrary, is probably related to the fact that this area is transitional between the outer pre-alpine district with a suboceanic climate and the inner district with a more continental climate-type (NIMIS, 1982).

The altitudinal distribution of the samples is shown in fig. 4. In the study area *Normandina* appears to be most frequent between 100 and 500 m. The most frequent porophytes are listed in tab. I. Throughout its elevation range this lichen occurs both on trees with primarily acid bark and on those with eutrophic bark. Up to 300 m the most frequent porophytes are *Quercus* and *Populus* in natural or semi-natural vegetation, mostly open woods; between 300 and 600 m the species is most frequent on cultivated trees such as *Tilia* along small roads and *Juglans* and fruit-trees in orchards. In the montane belt the species is rare: it has been collected only 4 times above 900 m, and only two samples were growing on *Fagus* in natural woods.

On a total of 105 specimens (several localities were represented by more than one sample), 60 were growing on *Frullania dilatata*, 9 on *Radula complanata*, 6 on *Hypnum* (*H. cupressiforme*, *H. revolutum*), 4 on *Tortula* (*T. papillosa*, *T. laevipila*), 3 on other bryophytes (*Ortothrichum striatum*, *Metzgeria furcata* and *Pottia* sp.). 20 samples were growing directly on bark; however, in all cases the bark was covered

by a patina of green algae or cyanobacteria. In 3 cases *Normandina* was growing directly on lichens (*Physcia aipolia*, *Collema subflaccidum*).

DEGELIUS (1935) followed by most subsequent authors, considers *Normandina pulchella* as an element of the *Lobarion*-vegetation. DELZENNE et al. (1975) have described an association characterized by *Normandina pulchella* and *Frullania dilatata* from the French Atlantic Plains, called *Normandino-Frullanietum dilatatae*. We agree with these authors on the statement that *Normandina*, throughout most of its range, cannot be considered as a *Lobarion*-species. However, we are rather sceptical on a methodological approach by means of which an association is established "around a species", which of course becomes characteristic of the association itself. In the study area we have not performed a detailed phytosociological study of the *Normandina*-stands; however, we have got the impression that *Normandina*, together with its hosts, is a member of different community-types. One striking fact is that in the study area the species is almost constantly associated with *Candelariella reflexa*.

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**RIASSUNTO** — *Normandina pulchella* è un lichene di incerta posizione sistematica: inizialmente classificato tra i pirenolicheni per la confusione derivante dalla frequente infezione da parte di un pirenolichene parassita, e successivamente sospettato di appartenere ai Basidiolicheni a causa della sua somiglianza con il tallo di *Coriscium viride*, è attualmente sistemato provvisoriamente nel gruppo artificiale dei *Lichenes Imperfecti* in quanto non noto allo stato fertile. Ha una ecologia peculiare, essendo un iperepifita che cresce su briofite o licheni epifiti (o più raramente epitilici). La sua distribuzione mondiale è molto ampia, essendo presente su tutti i continenti, salvo l'Antartide.

In questo lavoro viene presentata una carta di distribuzione in Europa ed una in Friuli-Venezia Giulia. Dalla carta riguardante l'Europa risulta evidente un pattern di distribuzione di tipo suboceanico: la specie è frequente in tutte le zone con tale tipo di clima; nell'Europa Centrale e Meridionale ha un massimo di frequenza nella fascia montana a causa delle maggiori precipitazioni e della più alta umidità atmosferica. Nel Friuli-Venezia Giulia, a causa del carattere suboceanico del clima, *Normandina pulchella* è una specie molto comune, soprattutto sino ai 500 m; nel Carso Triestino essa cresce in boschi naturali aperti, prevalente-

mente su *Quercus*, mentre nella fascia collinare predilige alberi isolati lungo le strade o presso le case; è invece rara nelle faggete montane. L'ospite di gran lunga più frequente nell'area di studio è *Frullania dilatata*. Contrariamente a quanto spesso affermato in letteratura, la specie non è legata a vegetazione del *Lobarion pulmonariae*. Nell'area di studio è frequentemente associata a *Candelariella reflexa*.

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## Appendix

List of localities in Friuli-Venezia Giulia. (Abbreviations: F.d. - *Frullania dilatata*; N - Nimis; T - Tretiach; the number in parenthesis refers to the quadrant, as in fig. 3).

Ampezzo (UD, 9542), 580 m, on F.d., *Metzgeria furcata* (Tilia), 5.VIII.1986, leg. T - Andreis (PN, 9741), 410 m, on bark of *Juglans*, 3.VI.1988, leg. T - Assais (UD, 9643), 610 m, on F.d. (*Ostrya*), 3.VI.1988, leg. T - Aupa (UD, 9445), 960 m, on F.d. (*Pyrus*), 26.V.1988, leg. T - Barcis (PN, 9841), 410 m, on F.d., *Radula complanata* (*Juglans*), 3.VI.1988, leg. T - Bocca di Pradolino (UD, 9746), 380 m, on F.d., *Radula complanata* (*Ulmus montana*), 15.V.1988, leg. T - Braulins (UD, 9744), 212 m, on bark of *Populus*, 26.V.1988, leg. T - Bueris (UD, 9745), 220 m, on F.d., bark of *Quercus*, 10.XI.1983, leg. N - Campone (PN, 9742), 430 m, on F.d. (*Alnus*), 3.VI.1988, leg. T - Caneva di Tolmezzo (UD, 9543), 320 m, on F.d. (*Prunus avium*), 14.V.1988, leg. N & T - Cavazzo Carnico (UD, 9644), 320 m, on F.d. (*Ulmus*), 3.VI.1988, leg. T - Ceroglie (TS, 0247), 150 m, on F.d. (*Quercus*), 28.II.1988, leg. Castello - Chievolis (PN, 9742), 560 m, on F.d., *Physcia* sp., *Orthotrichum* sp., (*Juglans*), 3.VI.1988, leg. T - Claut (PN, 9741), 590 m, on F.d. (*Juglans*), 3.VI.1988, leg. T - Colle di Medea (GO, 0046), 90 m, on F.d. (*Quercus pubescens*), 14.V.1988, leg. N & T - Contron (PN, 9740), 490 m, on bark of *Juglans*, 3.VI.1988, leg. T - Debellis (UD, 9745), 310 m, on F.d., *Radula complanata* (*Fraxinus excelsior*), 26.VI.1985, leg. N - Dogna (UD, 9545), 450 m, on F.d. (*Pyrus*), 26.V.1988, leg. T - Domanins (PN, 9942), 75 m, on F.d., *Radula complanata* (*Ostrya*), 28.V.1988, leg. T - Enemonzo (UD, 9543), 390 m, on F.d. (*Malus*), 14.V.1988, leg. N & T - Erbezzo (UD, 9846), 590 m, on F.d. (*Malus*), 15.V.1988, leg. N & T - Faedis (UD, 9846),

110 m, on F.d., *Tortula papillosa*, on bark of *Fraxinus* e., IV.1979, leg. N - Fanna (PN, 9941), 170 m, on F.d., on bark of *Tilia*, 3.VI.1988, leg. T - Ferneti (TS, 0348), 350 m, on F.d. (*Fraxinus* o.), 1.II.1983, leg. N - Forcella di Pala Barzana (PN, 9841), 630 m, on F.d. (*Fraxinus*), 3.VI.1988, leg. T - Forgaria (UD, 9743), 250 m, on F.d., *Physcia adscendens*, *Pottia* sp. (*Populus*), 14.V.1988, leg. N & T - Gerchia (PN, 9743), 610 m, on F.d. (*Acer*), 3.VI.1988, leg. T - Gradisca (PN, 9943), 110 m, on bark of *Quercus pubescens*, 28.V.1988, leg. T - Grauzaria (UD, 9545), 490 m, on F.d., *Hypnum* sp. (*Populus*), 26.V.1988, leg. T - Grimacco (UD, 9847), 210 m, on F.d., *Tortula papillosa* (*Juglans*), 15.V.1988, leg. T - Gropada (TS, 0349), 390 m, on F.d. (*Quercus*), 1.V.1988, leg. Castello - Iamiano (GO, 0147), 80 m, on F.d. (*Quercus pubescens*), 14.V.1988, leg. N & T - Imponzo (UD, 9544), 360 m, on F.d. (*Malus*), 26.V.1988, leg. T - Lago di Sauris (UD, 9542), 1020 m, on *Fagus*, leg. Clarke - Ligosullo (UD, 9444), 990 m, on bark of *Prunus*, 16.VIII.1981, leg. N - Lischiazze (UD, 9645), 550 m, on F.d. (*Malus*), 27.IX.1987, leg. N & T - Malchina (TS, 0247), 170 m, on *Quercus pubescens*, 25.III.1985, leg. N - Marsure (PN, 9941), 130 m, on F.d., *Radula complanata*, *Hypnum* sp. (*Alnus*), 3.VI.1988, leg. T - Mediis di Ampezzo (UD, 9542), 450 m, on F.d., *Radula complanata*, on bark of *Quercus*, 26.IX.1986, leg. N - Monrupino (TS, 0248), 420 m, on *Quercus pubescens*, 8.IX.1987, leg. Codogno & Puntillo (CLU) - M.te San Michele (GO, 0147), 140 m, on F.d., *Radula complanata*, *Hypnum cupressiforme* (*Ostrya*), 14.V.1988, leg. N & T - Moruzzo (UD, 9844), 170 m, on F.d. (*Populus*), 14.V.1988, leg. N & T - Ovaro (UD, 9543), 530 m, on F.d., *Orthotrichum striatum* (*Pyrus*), 26.V.1988, leg. T - Palchisce (GO, 0147), 90 m, on F.d. (*Quercus pubescens*), 14.V.1988, leg. N & T - Peonis (UD, 9744), 205 m, on F.d., *Tortula brevipila*, *Collema subflaccidum* (*Malus*), 14.V.1988, leg. N & T - Pianta (PN, 9941), 170 m, on bark of *Populus*, 3.VI.1988, leg. T - Pielungo (PN, 9743), 390 m, on F.d. (*Juglans*), 3.VI.1988, leg. T - Pioverno (UD, 9644), 230 m, on F.d. (*Populus*), 26.V.1988, leg. T - Plessiva (GO, 0046), 60 m, on bark of *Morus*, 27.XII.1982, leg. N - Poffabro (PN, 9742), 450 m, on F.d. (*Tilia*), 3.VI.1988, leg. T - Polcenigo (PN, 9941), 70 m, on F.d., on bark of *Salix*, 3.VI.1988, leg. T - Pontebba (UD, 9445), 570 m, on F.d. (*Pyrus*), 26.V.1988, leg. T - Povici di Sotto (UD, 9645), 320 m, on F.d. (*Juglans*), 26.V.1988, leg. T - Povolaro (UD, 9443), 610 m, on F.d. (*Juglans*), 26.V.1988, leg. T - Pradis (UD, 9545), 350 m, on F.d. (*Robinia*), 26.V.1988, leg. T - Purgessimo (UD, 9846), 150 m, on F.d. (*Quercus petraea*), 15.V.1988, leg. T - Rive d'Arcano (UD, 9844), 240 m, on F.d. (*Quercus pubescens*), 14.V.1988, leg. N & T - Rocca Bernarda (GO, 9946), 120 m, on F.d., *Tortula laevipila*, *Hypnum cupressiforme* (*Quercus petraea*), 14.V.1988, leg. N & T - Rupinpiccolo (TS, 0248), 290 m, on F.d. (*Tilia*), 10.X.1985, leg. N - Sales (TS, 0248), 250 m, on bark of *Quercus petraea*, 17.IX.1983, leg. N - Sella Chianzutan (UD, 9643), 850 m, on F.d. (*Ostrya*), 3.VI.1988, leg. T - S. Giovanni di Duino (TS, 0247), 15 m, on bark of *Quercus ilex*, 1.II.1983, leg. N - Spilimbergo (PN, 9843), 130 m, II.1985, leg. Loi - Stolvizza (UD, 9646), 570 m, on F.d. (*Tilia*), 26.V.1988, leg. T - Stupizza (UD, 9746), 180 m, on F.d., *Physcia aipolia* (*Juglans*), 15.V.1988, leg. T - Susans (UD, 9844), 140 m, on F.d., *Radula complanata* (*Quercus pubescens*), 14.V.1988, leg. N & T - Sutrio (UD, 9443), 590 m, on F.d., *Hypnum cupressiforme* (*Pyrus*), 26.V.1988, leg. T - Toppo (PN, 9742), 220 m, 29.XI.1984, leg. Loi - Tramonti di Sopra (PN, 9642), 430 m, on F.d., *Radula complanata* (*Tilia*), 3.VI.1988, leg. T - Trieste (TS, 0348), 210 m, on bark of *Ulmus*, 10.I.1979, leg. N - Trieste, M.te Radio (TS, 0348), 130 m, on F.d. on sandstone, 15.VI.1985, leg. N - Usago (PN, 9843), 300 m, II.1985, leg. Loi - Valbruna (UD, 9546), 1100 m, on F.d. (*Fagus*), 20.XI.1982, leg. N - Vidulis (UD, 9943), 140 m, on F.d. (*Quercus petraea*), 14.V.1988, leg. N & T - Vigonovo (PN, 0041), 30 m, on F.d. (*Populus*), 3.VI.1988, leg. T - Jugoslavia, Slovenia, Lipica (Sezana, 0349), 450 m, on F.d. (*Tilia*), 30.IX.1981, leg. N - Zomeais (UD, 9745), 250 m, on *Radula complanata*, *Hypnum revolutum* (*Fraxinus*), 26.XII.1983, leg. N - Zovello (UD, 9443), 720 m, on F.d. (*Tilia*), 26.V.1988, leg. T.

**Unpublished localities in Italy**

Bosco di Campora (SA), 420 m, on *Quercus cerris*, 24.VII.1987, leg. Codogno & Puntillo - Grisolia (CS), 850 m, on *Quercus cerris*, 1.XI.1987, leg. Puntillo - Lago Trifoglietti (CS), 890 m, on *Salix caprea*, 20.XII.1985, leg. Puntillo - Magré Vicentino (VI), 190 m, on mosses (*Tilia*), 6.VII.1988, leg. Lazzarin - Monte Faeto (CS), 1140 m, on *Quercus cerris*, 24.X.1987, leg. Puntillo - Monte Luta (CS), 850 m, on mosses, on acid rocks, 1.XII.1988, leg. Puntillo - Monterotondo (GR), 580 m, on *Castanea sativa*, 22.XI.1987, leg. Puntillo - Orto Botanico Università di Cosenza (CS), 290 m, on *Quercus pubescens*, 5.XII.1985, leg. Puntillo - Poggio di Montieri (GR), 880 m, on *Castanea sativa*, 15.XI.1987, leg. Puntillo - Rocca Busambra (PA), 920 m, on F.d. (*Quercus*), VI.1988, leg. N - San Fili (CS), 650 m, on *Castanea sativa*, 9.XII.1986, leg. Puntillo - San Fili di Martirano L. (CZ), on *Castanea sativa*, 11.X.1987, leg. Puntillo - Selva dei Castagni (CS), 720 m, on *Castanea sativa*, 25.I.1987, leg. Puntillo - Schio (VI), 190 m, on mosses (*Tilia*), 6.VII.1988, leg. Lazzarin - Spedaletto (GR), 20 m, on *Quercus cerris*, 14.XI.1987, leg. Puntillo - Valle del Fiume Caronte (CS), 720 m, on *Castanea sativa*, 23.II.1986, leg. Puntillo - Val Secca di Roncobello (BG), 600 m, on *Quercus petraea*, 4.VII.1986, leg. Puntillo - Varconcello (CS), 580 m, on *Carpinus betulus*, 20.II.1987, leg. Puntillo.

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