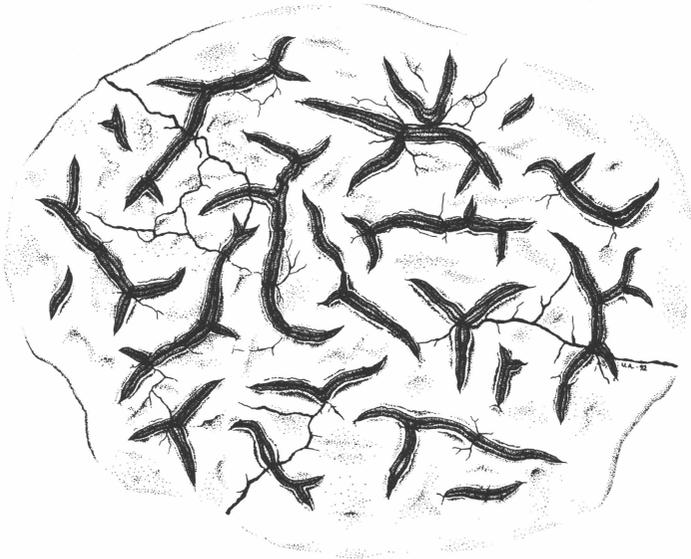


# GRAPHIS SCRIPTA

Volym 11, häfte 2, 2000



Nordisk Lichenologisk Förening

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Framsidas teckning *Frontpage*: Ulf Arup.

Stockholm, april 2000, ISSN 0901-7593.

# Calicium parvum (Caliciaceae) new to Poland

KATARZYNA JANDO

Jando, K. 2000: *Calicium parvum* (Caliciaceae) new to Poland. *Graphis Scripta* 11: 33 – 34. Stockholm. ISSN 0901-7593.

*Calicium parvum* is reported new to Poland. Ecological remarks are given. Its distribution based on literature records is presented.

Katarzyna Jando, Department of Plant Taxonomy and Nature Protection, Gdańsk University, Al. Legionów 9, PL-80-441 Gdańsk, Poland.

During field work in Puszcza Darżłubska forest (N. Poland) I found *Calicium parvum*. This species has not previously been recorded from Poland (see Fałtynowicz 1993).

## *Calicium parvum* Tibell

Thallus thin, grey to greenish grey, verrucose or ± immersed. Apothecia 0.5-0.8 mm, 6-8 times as high as width of stalk, black, shiny, head 0.12-0.4 mm in diameter, lens-shaped; stalk 0.08-0.12 mm in diameter. Asci clavate, 32-42 × 5-8 µm. Ascospores 7-12 × 3-5 µm, not uniseriate, incised at septum and with irregular cracks on the surface.

*Calicium parvum* grew on bark of trunks of *Pinus sylvestris* (ten specimens) up to c. 0.4 m from ground in a well-lit pine forest. The trunks of the trees were 25-50 cm in diameter. Associated lichen species included: *Bryoria fuscescens*, *Chaenotheca ferruginea*, *Cladonia cenotea*, *C. chlorophaea* s. l., *C. digitata* (very frequent), *C. glauca*, *C. macilenta* subsp. *bacillaris*, *C. macilenta* subsp. *macilenta*, *C. ochrochlora*, *Hypocenomyce caradocensis*, *H. scalaris* (very frequent), *Hypogymnia physodes* (very frequent), *Imshaugia aleuritica*, *Lecanora conizaeoides* with *Lichenocodium lecanorae*, *Lepraria* sp., *Parmeliopsis ambigua*, *Pseudevernia furfuracea* and *Usnea hirta*.

In Europe *Calicium parvum* has been recorded from Sweden, Norway (rare), South-

ern and Central Finland (Santesson 1993), British Isles (Purvis 1992), Estonia (Lõhmus 1998) and Lithuania (Motiejūnaitė et al. 1998). It is also known from Continental Europe and North America (Tibell 1999). According to Purvis (1992) the species has been also reported from former U.S.S.R. (for Ukraine see Kondratyuk et al. 1998).

*Specimens examined*: **N Poland**, Puszcza Darżłubska forest. Forest section 71, 54°41'N/18°12'E, ATPOL grid square Ac48, 25.VIII.1998, Jando (UGDA-L); forest section 95, 54°42'N, 18°07'E, ATPOL grid square Ac48, 16.VIII.1998, Jando (UGDA-L); forest section 152, 54°41'N, 18°10'E, ATPOL grid square Ac58, 20.VIII.1998, Jando (UGDA-L); forest section 157, 54°41'N, 18°10'E, ATPOL grid square Ac58, 22.VIII.1998, Jando (UGDA-L).

## Acknowledgements

I would like to thank Professor Leif Tibell, Uppsala, for the confirmation of *Calicium parvum* and Martin Kukwa, Gdańsk, for his help in elaboration of the article. Also, I am indebted to Dr Jurga Motiejūnaitė for her help with the literature.

## References

Fałtynowicz, W. 1993: A checklist of Polish lichens and lichenicolous fungi including

- parasitic and saprophytic fungi occurring on lichens. *Polish Bot. Stud.* 6:1-65.
- Kondratyuk, S. Ya., Khodosovtsev A. Ye. & Zelenko S. D. 1998: *The second checklist of lichens forming, lichenicolous and allied fungi of Ukraine*. Phytosociocentre Kiev.
- Lõhmus, P. 1998: List of Estonian calicioid lichens and fungi. *Folia Cryptog. Estonica* 32: 43-46.
- Motiejūnaitė, J., Nordin, A., Zalewska, A., Bjelland, T., Hedenås, H., Westberg, M., Heiðmarsson, S. & Prigodina, I. 1998: Materials on lichens and allied fungi of Neringa National Park (Lithuania). *Botanical Lithuanica*, 4.3: 285-305.
- Purvis, O. W. 1992: Calicium Pers. (1794). In: Purvis, O. W., Coppins, B. J., Hawksworth, D. L., James, P. W., & Moor, D. M. (eds), *The Lichen Flora of Great Britain and Ireland*. The Natural History Museum, London, pp. 475-476.
- Santesson, R. 1993: *The lichens and lichenicolous fungi of Sweden and Norway*. SBT-förlaget, Lund.
- Tibell, L. 1999: Calicioid lichens and fungi. *Nordic Lichen Flora 1*: 20-94.

# Buellia chloroleuca in the Nordic countries

ANDERS NORDIN

Nordin, A. 2000: *Buellia chloroleuca* in the Nordic countries. *Graphis Scripta* 11: 35-39. Stockholm. ISSN 0901-7593.

*Buellia chloroleuca* is reported from Finland, Iceland, Norway and Sweden. A description is given and the known Fennoscandian distribution is mapped. The taxon has previously been discussed by Malme, but because of an incorrect use of the name *B. zahlbruckneri* the identity has remained unclear.

Anders Nordin, Department of Systematic Botany, Evolutionary Biology Centre, Uppsala University, Norbyvägen 18D, SE-752 36 Uppsala, Sweden.

In April 1998 material of an unknown *Buellia* species containing xanthenes was sent to me by T. Tønsberg. It was collected in Nord-Trøndelag in 1981. The spores were 1-septate, and since I had to concentrate on species with pluriseptate spores at that moment, I did not give it much attention until recently. A closer examination made it clear that the material agreed well with original material (in UPS) of *Buellia chloroleuca* Körb., a misunderstood and rarely recorded species described from the Sudetes. Further investigation of herbarium material resulted in several additional localities in Finland, Iceland, Norway, and Sweden.

## Material and methods

Herbarium material of *Buellia disciformis*, *B. erubescens*, *B. insignis*, *B. zahlbruckneri* and undetermined *Buellia* spp. from AMNH, BG, O, S, TRH, and UPS was investigated in search for specimens of *B. chloroleuca*. Specimens found were more closely investigated morphologically, chemically and ultra-structurally in accordance with standard methods (see for instance Nordin 1996 & 1997). The description below is based on Fennoscandian material. Spore size values, statistically calculated from measurements of 10 spores each from 10 specimens, are given as (minimum value recorded -) the arithmetic

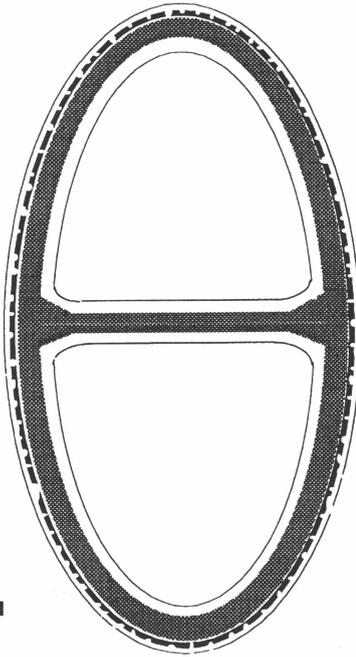
mean value minus standard deviation - [the arithmetic mean value] - the arithmetic mean value plus standard deviation (- maximum value recorded). Measurements of other details represent extreme or approximate values.

## *Buellia chloroleuca* Körb.

Körber, G. W. 1860: 191. Type: Sudeten, Körber (L, M, UPS! isotypes).

(*Buellia zahlbruckneri* sensu Schauer non Steiner, misapplied name, see below.)

*Thallus* whitish or greenish grey or with a slightly ochraceous tinge, rimose to usually verrucose or granulose, granules discrete or contiguous, c. 0.25 mm thick, in patches up to 10 × 5 cm. Prothallus not seen. Cortex with a c. 5-14 µm thick epinecral layer, not staining in LB, adjacent to the short-celled, thin-walled hyphae surrounding the algae of the algal layer. *Apothecia* soon sessile, 0.2-0.8 mm wide, often tightly crowded and sometimes coalescing; disc black, first flat, later often ±convex, epruinose; margin distinct on young apothecia, later often excluded. Proper exciple 30-70 µm thick, excipular cells with thickened, pigmented walls, lumina elongate in inner part, ±rounded in outer part; hymenium hyaline, 70-85 µm thick; epithecium brown;



**Figure 1.** Mature spore of *Buellia chloroleuca*. Spore wall layers from outside proceeding inwards: gelatinous sheath (white), perispore (black), intermediary layer (thin white line), proper wall (grey), endospore (white). Drawing based on TEM micrograph. Bar 2  $\mu\text{m}$ .

subhymenial layers brown, 70-120  $\mu\text{m}$  thick. Paraphyses simple or branched in uppermost part, apical cells widened and with pigmented caps; asci clavate, 55-66  $\times$  11-18  $\mu\text{m}$ . *Ascospores* brown, ellipsoid, 1-septate, ends rounded to slightly pointed, (14.5 -) 16.8 - [18.7]- 20.6 (- 23.5)  $\times$  (5.5 -) 7.1 - [8.1]- 9.1 (- 11.5)  $\mu\text{m}$ . Perispore rugulate, distinctly thinner than the proper wall (Figure 1). Spore wall sometimes slightly thickened subapically in young stages. *Pycnidia* not seen.

**Chemistry.** Thallus K+ yellow, C+ yellow-orange, P-. 6-O-methylarthothelin (granu-

losin) present above algal layer in thallus, sometimes also in the apothecia. Giralt et al. (2000) also reports  $\pm$  arthothelin (minor) and  $\pm$  atranorin (traces).

**Ecology.** *Buellia chloroleuca* is a corticolous species, in Scandinavia collected on trunks of *Alnus incana*, *Betula* spp., *Juniperus communis*, *Prunus padus*, *Salix phylicifolia* and *Sorbus aucuparia*, often close to the base. It mainly occurs in subalpine areas but in Nordland, Troms and Ostrobothnia borealis it has been found close to sea level. Associated species found in more than one collection are *Parmeliopsis hyperopta* (in 8 of 20 collections), *P. ambigua* (6), *Cladonia* spp. (5), *Pertusaria carneopallida* (5), *Biatora* spp. (4), *Lecanora* spp. (4), *Parmelia saxatilis* (4), *Rinodina* sp. (4), *Pyrrhospora cinnabarina* (3), *Stenocybe pullatula* (3), *Buellia disciformis* (2), *Caloplaca cerina* (2), *Candelariella cf. xanthostigma* (2), *Hypocenomyce leucococca* (2), *Lecidella* sp. (2), and *Physcia aipolia* (2). Extrascandinavian material investigated was collected on bark and wood of both coniferous and deciduous trees.

**Distribution.** In Sweden the present finds of *Buellia chloroleuca* are restricted to the western parts of Harjedalen and Jamtland. In Norway the distribution area is wider, ranging from Aust-Agder to Troms, but with the majority of localities situated in Troms. So far only one locality each is known from Finland and Iceland, see list of specimens examined. Outside the Nordic countries, the species seems to be widely distributed in South and Central Europe.

*Buellia chloroleuca* is closely related to *B. insignis*. The two species agree both in morphology and secondary chemistry. However, *B. insignis* has larger apothecia (often more than 1 mm wide at maturity), thicker hymenium (c. 100-130  $\mu\text{m}$ ), and larger spores (c. 24-28  $\times$  9-11  $\mu\text{m}$ ). The exciple also gives a K+ yellowish solution not seen in the investigated material of *B. chloroleuca*. There is also a difference in ecology: *B. insignis* is mainly a terricolous species. Occurrences on lignum or

bark are rare and restricted to fallen tree trunks or to the lowermost part of the trunks. Another similar species, *B. erubescens*, has somewhat smaller spores (c. 13-16 × 7-8.5 µm) and different secondary chemistry (norstictic acid, atranorin, and some minor substances).

In UPS there are two collections of *Buellia chloroleuca* from the area mentioned in the protologue (the Sudetes), one collected by Körber himself and another collected by B. Stein and determined by Körber. Both agree with the Fennoscandian material. Original material is also found in L and M. The name will be lectotypified by Giralt et al. (2000).

In a discussion of *Buellia zahlbruckneri* Steiner, Malme (1927) created some confusion by disregarding the fact that the description had appeared in a paper by Steiner himself (Steiner 1909) prior to the paper cited by Malme (Zahlbruckner 1909). In the former case the description is based on material from Asia Minor, in the latter there is no indication of material, and the description is very short. Malme discussed taxa and collections possibly corresponding to the short description, concluding that *B. parasema (disciformis) v. saphrophila* was the best candidate, that Hepp. exs. 150 and Arnold exs. 1589 were representative material of this taxon, and that the name *B. zahlbruckneri* could be used. At least some of the Swedish collections discussed by Malme are *B. chloroleuca*.

Schauer (1965) identified the material from Asia Minor cited by Steiner (1909) as *Buellia erubescens*, but realising that the material discussed by Malme (1927) was something else, he jumped to the conclusion that also Steiner had had the same taxon in mind and that he had made a mistake when determining the material from Asia Minor. So in spite of the presence of this material Schauer proposed a neotype for *B. zahlbruckneri*. This, however, is contrary to the principles and rules of The Code (of Botanical Nomenclature) and thus out of the question. *B. zahlbruckneri* is a taxonomic synonym of *B. erubescens* and can not be used in another

sense. Schauer could possibly have made a proposal to conserve the name with a new type, or he could simply have introduced a new name. Apparently unaware of the correct use of neotypification he tried this possibility instead. This has resulted in an uncertainty concerning the application of the name. Several authors have used the name in the sense of Schauer (e. g. Poelt 1969). Others have used it correctly as synonymous with *B. erubescens* (e. g. Wirth 1995). Santesson (1993), in his turn, added a question-mark, when synonymizing it with *B. erubescens*, thereby indicating the need of clarification. This need was satisfied by Giralt et al. (2000). In connection with a revision of some *Buellia* species from Spain they also revised material of *B. zahlbruckneri* sensu Schauer and found it identical with *B. chloroleuca*.

*Fennoscandian specimens examined:* **Finland.** *Ostrobotnia Borealis:* Simo, insula Tiuraskenkrunni, 1946, Räsänen (Räsänen et Hakulinen, Lichenoth. Fenn. 124, UPS); **Iceland.** Norður-Ísland: Suður-Þingeyjarsýsla, Aðaldalshraun, 1976, Kristinsson 15976 (AMNH); **Norway.** *Aust-Agder:* Setesdalen, Bykle, Jarekollen, nedersta branten, 650 m, 9.VI.1955, Degelius (UPS); Setesdalen, Valle, Berg, granskog S om bäcken, 500-550 m, 6.VII.1955, Degelius (UPS); *Nord-Trøndelag:* Leksvik, N of Björktjörnane, along the brook from Tinghaugen, 210-220 m, 1981, Tønsberg 5857 (BG, UPS); *Nordland:* Lödingen, close to sea, VII.1919, Vrang (S); *Oppland:* Fokstuen, 8.IX.1922, Høeg (TRH); *Troms:* Maalsnes, 28.V.1911, Lyng (O: 3 collections); Indset, 25.V.1910, Lyng (BG); Indsetvand, 8.VI.1911, Lyng (O: 2 collections); Gibostad, 17.V.1910, Lyng (BG); Gibostad, 25.IX.1911, Lyng (O); Indset i Bardo, 8.VI.1911, Lyng (O); Nor Maalselven kirke, 4.VI.1911, Lyng (O); Sappen, IX.1914, Lyng (O); **Sweden.** *Jämtland:* Undersåker, Ristafallet, c. 370 m, 1910, Malme (Malme, Lich. suec. exs. 431, S, UPS); Undersåker, Ristafallet, c. 370 m, VI.1914, Vrang (S); Åre, Handöl waterfalls, E side

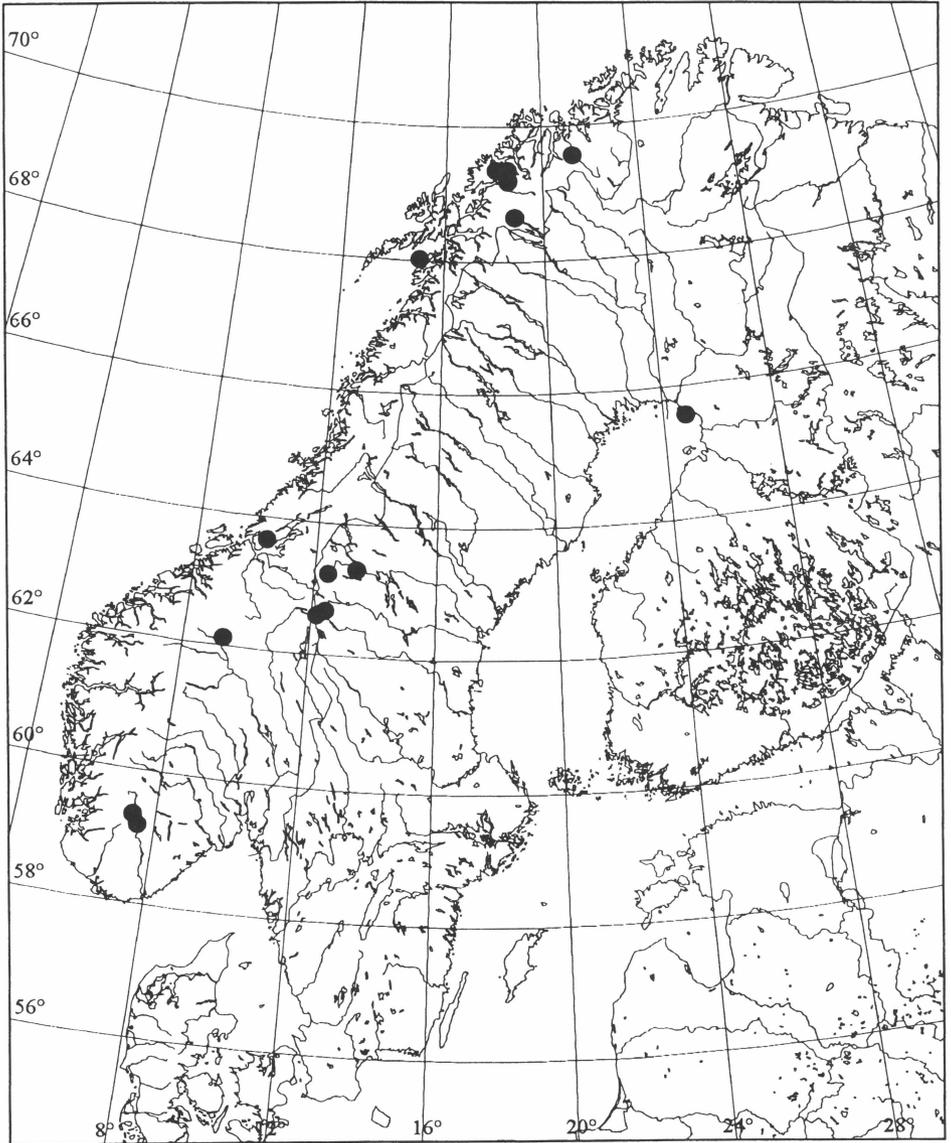


Figure 2. Known Fennoscandian distribution of *Buellia chloroleuca*.

between the middle and the upper falls, 600 m, 1948, Santesson 48.224b (UPS); *Härjedalen*: Fjällnäs, VII.1925, Vrang (UPS); Tännäs, the valley of the river Ljusnan c. 2 km SE of Ramundbergets Fjällgård, 700-800 m, 1979, Santesson 29701, 29705 (UPS).

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### References

- Giralt, M., Barbero, M. & Elix, J. 2000: Notes on some corticolous and lignicolous *Buellia* species from the Iberian peninsula. *Lichenologist* in press.
- Körber, G. W. 1860: *Parerga Lichenologica*. Breslau.
- Malme, G. O. 1927: Lichenologiska notiser 46. Två i Sverige förbisedda *Buellia*-arter. *Svensk Bot. Tidskr.* 21: 256-257.
- Nordin, A. 1996: *Buellia* species (Physciaceae) with pluriseptate spores in Norden. *Symb. Bot. Ups.* 31(3): 327-354.
- Nordin, A. 1997: Ascospore characters in Physciaceae: an ultrastructural study. *Symb. Bot. Ups.* 32(1): 195-208.
- Poelt, J. 1969: *Bestimmungsschlüssel europäischer Flechten*. J. Cramer, Lehre.
- Santesson, R. 1993: *The lichens and lichenicolous fungi of Sweden and Norway*. SBT-förlaget, Lund.
- Schauer, T. 1965: Die Holz- und Rindenbewohnenden Arten der flechtengattung *Buellia* s. str. im Nordalpenraum. *Mitt. Bot. München* 5: 609-626.
- Steiner, J. 1909: Lichenes. *Annal. Nat. Hofmus. Wien* 23: 107-123.
- Wirth, V. 1995: Die Flechten Baden-Württembergs, Teil 1. Ulmer, Stuttgart.
- Zahlbruckner, A. 1909: Ergebnisse der botanischen Expedition der Kaiserlichen Akademie der Wissenschaften nach Südbrasilien 1901. II. Lichenes (Flechten) bearbeitet von Dr. Alexander Zahlbruckner. *Denkschr. math.-naturw. Classe Kais. Akad. Wiss. Wien* 83: 87-211.

## Report from the 15th symposium of Baltic mycolgists and lichenologists in Järvelja, eastern Estonia, 3-8 September 1999

The village Järvelja, 40 km east of the university town Tartu, is embedded in an extensive woodland area which has been reserved for scientific forest cultivation and also include some patches protected from cutting activities the last 150 years. The forest belong to the Forestry Training and Experimental Centre of the Estonian Agricultural University. The territory was previously a swamp locality but as a result of draining towards the end of the last century, the forest area grew 3.5 times! Forest cultures were established and several foreign species were introduced. Deciduous trees are often mixed with pines and spruces in natural forests in this part of Estonia. The area around Järvelja is normally still very wet, an impression that had almost disappeared after the dry summer of 1999. At present time the territory of the

Forestry Centre covers an area of 18 by 11 kilometers.

More than 40 participants from the Estonia, Latvia, Lithuania and other countries around the Baltic Sea attended the symposium, which was successfully organized by the Institute of Zoology and Botany at the Estonian Agricultural University and the Institute of Botany and Ecology, University of Tartu. A symposium volume will be printed in the year 2000 - a special issue of *Folia Cryptogamica Estonica*. The papers will be based on the lectures and posters presented during the meeting. Biogeography, bioindication, molecular biology and pathology were some of the fields included among the oral presentations. Deadline for the contributors is December 1st. Next meeting will be organized (*continues on page 48*)



**Figure 1.** Estonian lichenologists eagerly collecting around the field station in Järvelja. From the left: Eva Nilsson (Tallinn), Tiina Randlane & Andres Saag (Tartu) and Ljudmilla and Jüri Martin (Tallinn). Photo: Piret Lõhmus.

# Notes on the lichen flora of southern Sweden III

STEFAN EKMAN and ULF ARUP

Ekman, S. & Arup, U. 2000: Notes on the lichen flora of southern Sweden III. *Graphis Scripta* 11: 41-47. Stockholm. ISSN 0901-7593.

The lichenicolous fungus *Arthrorhaphis aeruginosa* R. Sant. & Tønsb. and the lichens *Fellhanera viridisorediata* Aptroot, Brand & Spier, *Halecania viridescens* Coppins & P. James, and *Trapeliopsis aeneofusca* (Flörke ex Flotow) Coppins & P. James are reported as new to Sweden, all from the southernmost province, Skåne. Brief characterizations and notes on the ecology and distribution of these species are provided. 29 lichens and one calicioid fungus are reported as new to five of the southernmost provinces of Sweden, viz. Skåne, Halland, Blekinge, Småland, and Öland. In addition, recent Swedish finds of *Cyphelium trachylioides* (Branth & Rostr.) Erichsen, *Heppia lutos*a (Ach.) Nyl., *Leptogium corniculatum* (Hoffm.) Minks, *Rinodina pityrea* Ropin & H. Mayrhofer, *Schismatomma graphidioides* (Leight.) Zahlbr., and *Stigmidium microspilum* (Körb.) D. Hawksw. are reported, all from Skåne, Blekinge, or Öland.

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*Ulf Arup, Skogshusvägen 2072, SE-280 10 Sösdala, Sweden.*

In this paper, we report a number of lichens, one lichenicolous fungus and one calicioid fungus as new to Sweden or as new to the provinces of southernmost Sweden. We have reported such finds in earlier papers (Arup & Ekman 1989, 1991, 1992), and this is a continuation of this series. The finds reported here were made in Skåne, Halland, Blekinge, Småland, and Öland in 1988-1999.

## ***Arthrorhaphis aeruginosa* R. Sant. & Tønsb.**

This species is a parasite on various species of *Cladonia* (mainly the basal squamules), and was originally published from U.S.A. (Oregon and Washington), Norway, and Scotland (Santesson & Tønsberg 1994). It was subsequently reported from France and England (Etayo & Diederich 1998). It is readily identified as a blue discolouration of the basal

squamules and sometimes podetia of the *Cladonia* host.

*Arthrorhaphis aeruginosa* is reported here from three Swedish localities, all in Skåne, southernmost Sweden. At all localities, it has pycnidia but no apothecia. At the first locality, *A. aeruginosa* was observed on basal squamules of *Cladonia coniocraea* on the trunk of a *Betula pendula* in a pasture with scattered trees. At the second locality, it occurred on basal squamules and lower parts of the podetia of *C. pyxidata* overgrowing bryophytes and thin, fallen spruce twigs on the ground next to a small road through a mixed coniferous forest. At the third locality, it was found on the basal squamules of *C. coniocraea* overgrowing bryophytes on the trunk of a *Sorbus aucuparia* at the bottom of a deep ravine. *Arthrorhaphis aeruginosa* is almost certainly overlooked in southern Sweden.

**Collections:** Sweden. Skåne: N. Mellby par., Vätteryd, c. 900 m W of Snogerup, c. 850 m NW of Skoghush, on *Cladonia coniocraea* on *Betula pendula* in rather open situation in a pasture, 30.III.1997, Arup & Ekman (not collected due to sparsity of material, but a photograph is kept by UA); Hjårsås par., Döna-berga, 150 m ENE of Kyllingahemmanet, along forest road in coniferous forest, on *Cladonia pyxidata* on twigs and mosses on the ground, 31.VIII.1998, Ekman 3418 (BG); Konga par., 400 m NW of Skogvångshus, on S side of creek Kvärkabäcken, in deep ravine with deciduous forest, on *Cladonia coniocraea* on *Sorbus aucuparia*; 12.XII.1998, Ekman 3468 (BG). – Determinations of the last two collections were confirmed by T. Tønsberg.

**Fellhanera viridisoediata** Aptroot,  
Brand & Spier

This recently described species was reported to be rather common and rapidly spreading in the Netherlands, Belgium, and Germany (Aptroot et al. 1998). In addition, it is known from a single locality in Austria and another in Wales (Hitch 1999). It was observed on a wide variety of substrata, including bark of several deciduous tree, shrub, and shrublet species, *Juniperus*, wood, *Phragmites* roofs, granite boulders, and brick. Although thriving on many substrata, it seems to prefer sheltered habitats. *Fellhanera viridisoediata* is an inconspicuous species. It can be identified by its green to grey green soralia with a slight bluish tinge covering much of the concolourous thallus, brown apothecia with a paler margin (0.1–0.7 mm in diameter), 1-septate ascospores that are slightly constricted at the septum (10–17 × 3–5.5 µm), paraplectenchymatous excipular cell lumina, and the presence of roccellic acid in the thallus and apothecia. It is not unlike some morphs of *Cliostomum flavidulum*, which, however, contains fumarprotocetraric acid and reacts PD+ red.

*Fellhanera viridisoediata* is reported here as new to Sweden from a single locality in central Skåne, southernmost Sweden, namely the garden of the second author. It was discovered here already in 1996, but at that time only sterile thalli were observed. Recently, apothecia were found, and the identity could be clarified. In the Arup garden, it appears to be rather abundant on sheltered branches of *Picea abies* and *Ribes uva-crispa*, although most thalli are sterile.

**Collections:** Sweden. Skåne: N. Mellby par., Vätteryd, Skoghusvägen 2072, c. 850 m NW of Snogerup, on branches of *Picea abies* in garden, 15.IX.1999, Arup (LD). HPTLC (Arup et al. 1993): roccellic acid.

**Halecania viridescens** Coppins & P.  
James

*Halecania viridescens* is widely distributed in Europe (Aptroot et al. 1992, Berger & Türk 1993, Coppins 1992, Tønsberg 1992, Boom et al. 1995), and is known also from North America (Tønsberg 1994). It forms small patches which can be identified by the very fragile areoles, punctiform, pale green or pale bluish green soralia, and the presence of argopsin and norargopsin in the thallus and soralia (Coppins 1989, Tønsberg 1992).

*Halecania viridescens* is reported here as new to Sweden from a single locality in southern Skåne, southernmost Sweden, where it occurs on the branches of an old *Sambucus nigra* growing in the semi-shade of an east-facing forest edge in a landscape dominated by agricultural fields. The locality is probably a remnant of a former garden, and is surrounded by a deciduous forest dominated by *Ulmus glabra* and *Fagus sylvatica*.

**Collections:** Sweden. Skåne: Bjäresjö par., Bergsjöholm, eastern forest edge, on *Sambucus nigra*, 12.VI.1994, Arup & Ekman (LD). HPTLC (Arup et al 1993): argopsin, norargopsin.

**Trapeliopsis aeneofusca** (Flörke ex Flotow) Coppins & P. James

*Trapeliopsis aeneofusca* has been reported from the central and western parts of Europe (Coppins & James 1984, Aptroot et al. 1992) and from North America (Aptroot 1996). It is morphologically similar to *T. gelatinosa* (Flörke) Coppins & P. James but differs by having a more or less reddish brown epithecium (instead of green) which causes the brown or red-brown colour of the apothecia.

*Trapeliopsis aeneofusca* is reported here as new to Sweden from a single locality in northeastern Skåne, southernmost Sweden. It was found in abundance directly on the soil of a west-facing road-side cutting (inclination c. 40°) with sandy moraine and with mature coniferous forest on both sides of the small road. The competition from vascular plants was low. Other associated lichens were *Baeomyces rufus* (Huds.) Rebert and *Bryophagus gloeocapsa* Nitschke ex Arnold. At the present locality, *T. aeneofusca* possessed abundant apothecia but no soralia.

**Collections:** Sweden: Skåne: Hjårsås par., Dönaberga, c. 250 m ENE of Kyllingahemmanet, roadside cutting in coniferous forest, on soil, 3.IX.1998, Ekman 3420 (BG).

**New species to the Swedish provinces Skåne, Blekinge, Småland, and Öland**

*Absconditella sphagnorum*. Skåne: Svensköp par., Vrånge mosse, 1 km NW of Skåningsboda, 10.VI.1995, Ekman (LD).

*Acarospora nitrophila* var. *nitrophila*. Skåne: Benestad par., Benestads backar nature reserve, c. 500 m NW of the church, in the NW corner of the reserve, on lime-enriched siliceous boulder, 20.V.1995, Arup & Ekman (LD).

*Agonimia allobata*. Skåne: Riseberga par., Skärälid, c. 900 m SW of Kopparhatten, N-facing slope about 30 m above the trail, on *Fagus*, 29.V.1994, Arup, Ekman & Lindblom (LD)

*Arthonia cinereopruinosa*. Skåne: Kviinge par., Hanaskog, on S side of river Helgeå at Hanaholm, open *Quercus* forest, on old *Quercus*, 22.XII.1997, Ekman 3233, 3235 (BG).

*Bacidia laurocerasi*. Blekinge: Sölvesborg par., Ryssberget, c. 1 km S of Kopannan, old *Fagus* forest, on lower part of trunk of old *Fagus*, 28.VIII.1996, Ekman (LD). – This is the only recent Swedish find of this species. It was previously collected from a number of localities in east-central Sweden, but has not been observed for three decades. It was hence classified as extinct from Sweden in the most recent national Red List (Aronsson et al. 1995).

*Bacidia subincompta*. Skåne: Färlöv par., Torsebro bruk, c. 350 m NE of the manor, close to river Helgeå, on old *Quercus* in *Fagus* forest, 13.V.1994, Arup & Ekman (LD). Öved par., 370 m E of Djurgårdshuset, forest edge at pasture-land, on *Fraxinus*, 3.III.1996, Arup & Ekman (LD). – The former find was briefly mentioned by Arup et al (1997: 129).

*Bacidia trachona*. Blekinge: Sölvesborg par., c. 1 km S of Kopannan, old *Fagus* forest, on small siliceous boulder, 21.VII.1997, Ekman (BG).

*Bacidina egenula*. Skåne: Benestad par., Benestads backar nature reserve, c. 500 m NW of the church, in the NW corner of the reserve, on a brick on the ground, 20.V.1995, Arup & Ekman (LD).

*Bryophagus gloeocapsa*. Skåne: Kiaby par., Ivö, c. 300 m ENE of Ivö klack triangulation point, on soil of recent wheel tracks in *Fagus* forest, 21.VII.1993, Ekman (LD). Hjårsås par., Dönaberga, c. 250 m ENE of Kyllingahemmanet, roadside cutting in coniferous forest, on soil, 3.IX.1998, Ekman 3422 (BG).

*Bryoria subcana*. Blekinge: Kyrkhult par., Mulatorp, old-growth coniferous forest just E of the house, on branches of *Picea abies*, 29.VIII.1995, Ekman & members of course in cryptogam floristics (LD). – Determination confirmed by H. Holien.

- Caloplaca chrysodeta*. Öland: Resmo par., c. 2 km N of the church, near pt. 52.5, in the Litorina embankment, on W-facing, overhanging limestone rock shaded by trees, 15.VIII.1989, Ekman (LD).
- Catapyrenium squamulosum*. Skåne: Vallåkra par., Vallåkra borg nature reserve, on naked calcareous clay in fen just SE of the parking lot, 1.X.1995, Ekman (LD).
- Cladonia caespiticia*. Skåne: Äsphult par., on the W side of Vramsån about 800 m E of Råbockarp, on a mossy boulder near the creek, 16.X.1990, Arup & Ekman L581 (LD).
- Fuscidea arboricola*. Skåne: Höör par., Ullstorp, Silverdalen, on *Fagus* in NW-facing slope, 27.V.1999, Arup L99136 (herb. Arup)
- Hypocenomyce sorophora*. Skåne: Riseberga par., N of Herrevadskloster, just N of Brink and E of Korsör, dead giant *Quercus* on road-side, on lignum of the trunk, 1.V.1995, Arup & Ekman (LD).
- "*Lecidea*" *sanguineoatra* sensu Hawksworth & Coppins (1992). Skåne: Höör par., Ullstorp, Silverdalen, northern part, at base of one *Fagus* tree, just above the road, 27.V.1999, Arup L99141 (herb. Arup). Riseberga par., Skåralid, 100 m W of Lierna, on *Fraxinus* just N of the rivulet, 1993.10.24, Arup (LD).
- Leptogium intermedium*. Skåne: Åhus par., Östra Sandar, at the parking area in the military area c. 400 m NW of Övre Båkören, on calciferous gravel, 14.VII.1996, Arup (LD).
- Lobothallia radiosa*. Skåne: Benestad par., Benestads backar nature reserve, c. 500 m NW of the church, in the NW corner of the reserve, on lime-enriched siliceous boulder, 20.V.1995, Arup & Ekman (LD).
- Melaspilea granitophila*. Skåne: N. Rörum par., Knösen, N side of the peak, on basalt boulder in steep slope with *Fagus* forest, 23.VII.1999, Ekman 3574 (BG). N. Mellby par., Vätteryd, 850 m NNW of Skoghus, 750 m WNW of Snogerup, on vertical rocks of basalt in shady *Fagus* forest, 24.VII.1999, Arup & Ekman (LD).
- Multiclavula mucida*. Halland: Slättåkra par., Holkåsen, c. 250 m E of the S tip of lake Paddesjön, E-facing slope in *Fagus* forest, on decaying log of *Fagus*, 25.X.1994, Arup (LD).
- Polyblastia agraria*. Skåne: Ravlunda par., Haväng, 550 m NNE of Skepparpsgården, in sandy slope by the sea ("backafall"), on dead bryophytes on lime-rich soil, 14.VII.1997, Ekman 3112 (BG).
- Psilolechia clavulifera*. Skåne: Höör par., Ullstorp, 250 m NNW of Ullstorps kursgård, 850 m ESE of triangulation point 174.3, on shaded and moist root of *Alnus* in *Alnus* bog, 31.V.1999, Arup L99146 (LD).
- Ramonia interjecta* Coppins. Skåne: Bosjö-kloster par., Klinta, c. 150 m N of Ringsjön, on old *Sambucus nigra* in shady deciduous forest, 15.VI.1999 Arup (herb. Arup). N. Mellby par., Vätteryd, at the radio pylon 900 m NW of Skoghus, 1050 m W of Snogerup, on old, somewhat shaded *Sambucus* at forest edge, 4.IX.1999, Arup (LD).
- Scoliosporum curvatum*. Skåne: Hjårsås par., Dönaberga, along forest road 500 m ENE of Kyllingahemmanet, on needles of lower branches of *Picea*, 31.VIII.1998, Ekman 3425 (BG).
- Stenocybe pullatula*. Skåne: Glimåkra par., 1800 m E of Dalshult, swamp along brook at S end of lake Farlängen, on twigs of *Alnus glutinosa*, 22.VII.1997, Ekman 3129 (BG). Höör par., Ullstorp, southern part of Silverdalen, on twigs of *Alnus* by the brook, 1.VI.1999, Arup L99160 (herb. Arup).
- Thelocarpon impressellum*. Skåne: Åhus par., Östra Sandar, at the parking area in the military area c. 400 m NW of Övre Båkören, on soil on calciferous gravel, 14.VII.1996, Arup (LD).
- Thelomma ocellatum*. Skåne: Many finds, the following being a selection. Fulltofta par.,

1500 m SW of the church, on wooden fence pole at end of road, 26.VI.1994, Ekman (LD). Gustav Adolf par., Håslövs ängar nature reserve, 850 m N of the bird-watching tower, on wooden fence pole by the road, 13.V.1994, Arup & Ekman (LD). Ravlunda par., 2.5 km E of the church, on wooden fenceposts just E and S of Stigelund, 1995.06.11, Arup & Ekman (LD). Öved par., sparse on wooden fencepost in meadow just W of the road c. 500 m SE of Djurgårdshuset, 3.III.1996, Arup & Ekman (LD).

*Trapelia corticola*. Skåne: Glimåkra par., Dalshult, 150 m SSW of the southern end of lake Dalshultasjön, forest edge at small creek, on *Alnus glutinosa*, 28.III.1997, Ekman 3024 (BG). – Determination confirmed by T. Tønsberg.

*Trapeliopsis percrenata*. Schneid. Skåne: Riseberga par., N of Herrevadskloster, just N of Brink and E of Korsör, on lignum of the trunk of dead giant *Quercus* at roadside, 1.V.1995, Arup & Ekman (LD).

*Umbilicaria nylanderiana*. Skåne: Ivetofta par., coastal pasture-land S of Valje, just WSW of Tjappan, on siliceous boulders, 27.VIII.1995, Ekman & members of course in cryptogam floristics (LD). Ivetofta par., Bockaholm, coastal pasture-land, on siliceous boulder, 25.VIII.1996, Ekman (LD).

### Other interesting finds

*Cyphelium trachylioides*. Skåne: Köpinge par., 900 m NNW of Härnestadgård, W of Helge å, on wooden pole near old bridge, 18.VII.1993, Arup (LD). – Arup (1999) provided the first modern record of this species, made in 1998, from a closeby locality at Åhus par., Ripa. The find reported here was, however, made already in 1993. It is based on a collection of *Thelomma ocellatum*, in which *C. trachylioides* occurs as an immixture. The few apothecia of *C. trachylioides* present in this

collection were, until recently, overlooked.

*Heppia lutosa*. Öland: Vickleby par., on naked soil on the alvar 1.5 km ESE of Altarstenen, 25.VII.1988, Ekman L880 (LD). – The species occurs as an immixture in a collection that was originally intended for a *Catapyrenium* sp. It was overlooked until 1996, when it was discovered by the senior author during a revision of *Catapyrenium* specimens in LD.

*Leptogium corniculatum*. Skåne: Österslöv par., Lövhalla, eastern slope of the hill just NW of the farm, among bryophytes at edges of flat rocks, 25.VII.1996, Ekman (LD). – This is the first find of this species in Skåne since 1931 (Arup & Ekman 1997: 202–203).

*Rinodina pityrea* Ropin & H. Mayrhofer. Skåne: Äsphult par., 1 km SE of Rickarum, Ekevång, on bark of dead way-side *Fagus*, 24.VII.1999, Ekman 3577 & Arup (BG), Arup & Ekman (LD). – *Rinodina pityrea* is apparently a rare species in southern Sweden. It was reported for Skåne by Ropin & Mayrhofer (1995).

*Schismatomma graphidioides*. Blekinge: Elleholm par., Elleholm, on *Fagus* in open *Fagus* forest on E side of Brunnsviken, 7.IV.1996, Ekman (LD). – This species is exceptionally rare in Sweden. It is known from one additional recent locality in Blekinge (Arup & Ekman 1997: 244–245), which is situated less than two kilometers west of the new locality presented here.

*Stigmidium microspilum*. Skåne: Dalby par., Dalby Söderskog national park, deciduous forest, on *Graphis scripta* on *Corylus*, 31.XII.1997, Ekman 3237 (BG). – There are two previous Swedish finds of this species, one from Skåne: Riseberga par. (1947, distributed as Santesson, Fungi Lichenic. exs. 97) and one from Västergötland: Vänersnäs par. (1961, distributed as Santesson, Fungi lichenic. exs. 43).

**Corrections**

*Catapyrenium michelii* (A. Massal.) R. Sant. Reports of this species by Arup & Ekman (1989) refer to *C. squamulosum* (Ach.) Breuss.

*Sclerophora coniophaea* (Norman) J. Mattsson & Middelb. Reports of this species by Arup & Ekman (1989; as *Chaenotheca coniophaea*) refer to *Sclerophora amabilis* (Tibell) Tibell. This species was reported as new to Europe by Gustavsson (1995). See also Arup (1997: 103) and Aronsson et al. (1995).

**Acknowledgements**

Tor Tønberg and Håkon Holien are gratefully acknowledged for confirming the determinations of *Arthrorhaphis aeruginosa* and *Bryoria subcana*.

**References**

- Aptroot, A. 1996: New records of lichens and lichenicolous fungi from British Columbia. *Bryologist* 99: 196–198.
- Aptroot, A., Brand, M. & Spier, L. 1998: *Fellhanera viridisorediata*, a new sorediate species from sheltered trees and shrubs in western Europe. *Lichenologist* 30: 21–26.
- Aptroot, A., Knaap, W. O. van der & Jansen, J. 1992: Twelve new lichens for Portugal collected from the Serra da Estrela. *Cryptogamie Bryol.-Lichénol.* 13: 71–73.
- Aronsson, M., Hallingbäck, T. & Mattsson, J.-E. 1995: *Rödlistade växter i Sverige 1995*. ArtDatabanken, Uppsala.
- Arup, U. 1997: Indikatorarter och viktiga miljöer. In: Arup, U., Ekman, S., Kärnefelt, I. & Mattsson, J.-E. (eds), *Skyddsvärda lavar i sydvästra Sverige*. SBF-förlaget, Lund.
- Arup, U. 1999: *Cyphelium trachylioides*, found on a new locality in southern Sweden. *Graphis Scripta* 11: 29–31.
- Arup, U. & Ekman, S. 1989: Notes on the lichen flora of southern Sweden. *Graphis Scripta* 2: 104–106.
- Arup, U. & Ekman, S. 1991: *Caloplaca ulcerosa* new to Sweden. *Graphis Scripta* 3: 46–48.
- Arup, U. & Ekman, S. 1992: Nyheter i södra Sveriges lavflora. *Graphis Scripta* 4: 81–86.
- Arup, U. & Ekman, S. 1997: Presentation av arterna. In: Arup, U., Ekman, S., Kärnefelt, I. & Mattsson, J.-E. (eds), *Skyddsvärda lavar i sydvästra Sverige*. SBF-förlaget, Lund.
- Arup, U., Ekman, S., Lindblom, L. & Mattsson, J.-E. 1993: High performance thin layer chromatography (HPTLC), an improved technique for screening lichen substances. *Lichenologist* 25: 61–71.
- Arup, U., Fritz, Ö. & Gustavsson, H.-E. 1997: Skyddsvärda områden. In: Arup, U., Ekman, S., Kärnefelt, I. & Mattsson, J.-E. (eds), *Skyddsvärda lavar i sydvästra Sverige*. SBF-förlaget, Lund.
- Berger, F. & Türk, R. 1993: Neue und seltene Flechten und lichenicole Pilze aus Ober Österreich, Österreich. *Linzer Biol. Beitr.* 25: 167–204.
- Boom, P. P. G. van den, Etayo, J. & Breuss, O. 1995: Interesting records of lichens and allied fungi from the Western Pyrenees (France and Spain). *Cryptogamie Bryol.-Lichenol.* 16: 263–283.
- Coppins, B. J. 1989: On some species of *Catillaria* s. lat. and *Halecania* in the British Isles. *Lichenologist* 21: 217–227.
- Coppins, B. J. 1992: *Halecania* M. Mayrh. (1987). In: Purvis, O. W., Coppins, B. J., Hawksworth, D. L., James, P. W. & Moore, D. M. (eds), *The lichen flora of Great Britain and Ireland*. Natural History Museum Publications, London.
- Coppins, B. J. & James, P. W. 1984: New or interesting British lichens V. *Lichenologist* 16: 241–264.
- Etayo, J. & Diederich, P. 1998: Lichenicolous fungi from the western Pyrenees, France and Spain. IV. Ascomycetes. *Lichenologist* 30: 103–120.

- Gustavsson, H.-E. 1995: Lavfloran på bok i Ödegärdet i västra Småland. *Svensk Bot. Tidskr.* 89: 65–82.
- Hawksworth, D. L. & Coppins, B. J. 1992: Lecidea Ach. (1803). In: Purvis, O. W., Coppins, B. J., Hawksworth, D. L., James, P. W. & Moore, D. M. (eds), *The lichen flora of Great Britain and Ireland*. Natural History Museum Publications, London.
- Hitch, C. J. B. 1999: New, rare and interesting British lichen and lichenicolous fungus records. *Brit. Lich. Soc. Bull.* 84: 46–54.
- Ropin, K. & Mayrhofer, H. 1995: Über corticole Arten der Gattung Rinodina (Physcia-ceae) mit grauem Epihymenium. *Bibl. Lichenologica* 58: 361–382.
- Santesson, R. & Tønsberg, T. 1994: Arthro-rhaphis aeruginosa and A. olivaceae, two new lichenicolous fungi. *Lichenologist* 26: 295–299.
- Tønsberg, T. 1992: The sorediate and isidiate, corticolous, crustose lichens in Norway. *Sommerfeltia* 14: 1–331.
- Tønsberg, T. 1994: Additions to the lichen flora of North America III. Halecania viridescens and Opegrapha soreidiifera. *Evansia* 11: 100–101.



**Figure 2.** Some of the participants in front of the sand stone cliffs at Taevaskoja Nature Reserve: Sitting from the left: Olga Treikale, Ilze Irbe and Lelde Galovecka (Latvia), Arne Thell (Sweden), Jurga Motejūnaite (Lithuania), Laila Sica (Latvia), Gražina Adamonytė (Lithuania), Andres Saag (Estonia), Inguna Krastina and Ligita Liepina (Latvia), Lauri Saag and Tiina Randlane (Estonia), Nomedra Jucevičiene and Ernestas Kutorga (Lithuania), Pekka Halonen (Finland) and Martin Kukwa (Poland). Standing: Kuulo Kalames (Estonia) who was the only remaining participant from the very first meeting in 1959. Photo: Piret Lõhmus.

(from page 40)

by the Lithuainians in the year of 2002. Biodiversity of fungi and lichens around the Baltic Sea and the forest ecosystems were the main topics of the present meeting. Oral presentations and poster sessions were mixed with field trips and laboratory activities.

Some of the excursions took place in the vicinity where several rare fungi and lichens, some of them new for Estonia or new for Tartumaa County were identified. There will be a separate paper in the symposium volume on this subject, according to Tiina Randlane. However, some of us were happy to recognize some typical old-growth forest lichens, such as *Cetrelia olivetorum* and *Evernia divaricata*. *Lobaria pulmonaria* was frequent on the old aspen trunks.

The trip to Taevaskoja Nature Reserve was of special interest for the foreigners. The area is split by a big river with steep, soft,

light red sand stone walls close to it. These cliffs are well known among Estonians and has been used in film projects because of their beauty. Two bigger and seven smaller springs flow out from caves at the base of the cliffs. The whole area is a popular place for festivals, tourist trips or walks. The lichen flora has been documented in a diploma work supervised by prof. Hans Trass after a risky field work.

The bus went back to Tartu - my fourth visit since 1994. It was pleasant to see how fast the old town recovers after the Sovjet time. The department buildings of the university are one after the other being repaired to western standard. The beautiful Janus church in the town centre, which had been left as ruins since the second world war, has a new tower and roof. There will be a ceremony this Christmas.

*Arne Thell*

# A blue-green *Psoroma hypnorum* found in Trøndelag, Central Norway

HÅKON HOLIEN and PER M. JØRGENSEN

Holien, H. & Jørgensen, P.M. 2000: A blue-green *Psoroma hypnorum* found in Trøndelag, Central Norway. *Graphis Scripta* 11: 49-52. Stockholm. ISSN 0901-7593.

This paper reports on a curious specimen in the Pannariaceae which proved to be *Psoroma hypnorum* with a blue-green thallus quite different from its normal cephalodia.

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It has been known for some time (see James & Henssen 1976) that the same mycobiont may take different photosynthetic partners, and that this may result in totally different looking specimens.

The implications of this has recently been discussed by Jørgensen (1999). Below we report on a curious specimen of the Pannariaceae which morphologically does not agree with any described taxon, but which we interpret as a blue-green expression of a normally green species.

## The specimen

This specimen, collected in Nord-Trøndelag, Norway (see below), exhibits the following characters (Figure 1a):

*Thallus* granular-crustose, bluish, spreading to several centimetres over the substrate. Granules to 0.5 mm long, corticate, containing *Nostoc* in clusters.

*Apothecia* numerous, red-brown, flat, disciform, to 5 mm with distinct, undulating, white proper exciple, occasionally with blue-green thalline granules, often surrounded by a

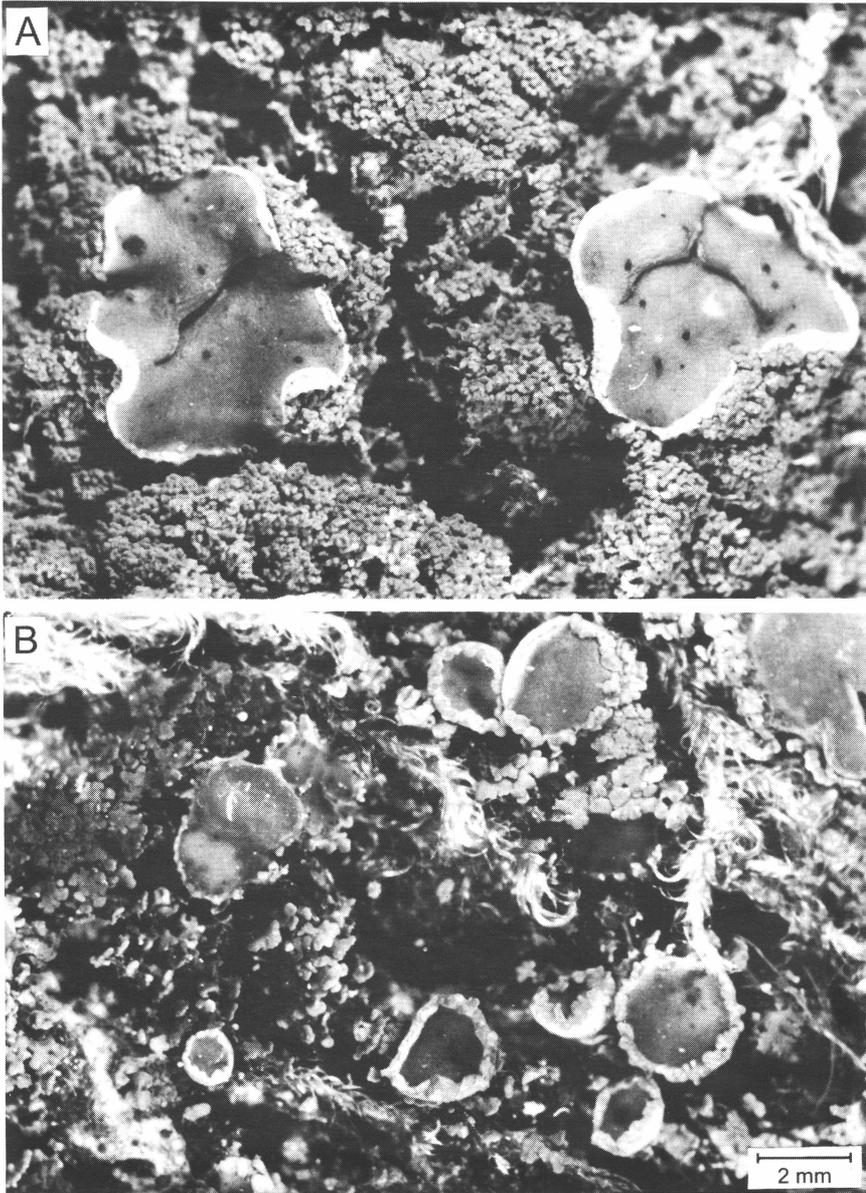
weft of hyaline hyphae. Hymenium about 100 µm high, I+ dark blue, with simple paraphyses. Asci clavate with I+ blue amyloid ring-structure, 8-spored. Spores colourless, ellipsoid, 18-20 × 7-8 µm with a prominent warted perispore.

*Pycnidia* numerous, globular, about 0.1 mm in diameter, pinkish brown with dark brown ostiolar region. Pycnoconidia formed terminally and laterally on articulate, short-celled conidiophores, bacillariform, 5-6 × 1-2 µm.

*Specimen examined: Norway. Nord-Trøndelag:* Snåsa, Grønningen, W of Eggjasetra, on base of large *Betula pubescens*, 17 August 1999, H. Holien 7730 (TRH).

## Discussion

This puzzling specimen differs from any other collection of the Pannariaceae which we have seen in Scandinavia. We have wondered if it could be an unusual form of *Pannaria pezizoides*, a species with blue-green thallus and large warted spores, growing nearby. However, the thallus is quite different from the



**Figure 1.** *Psoroma hypnorum* from humid forests in Central Norway  
**a.** The totally blue-green one from Snåsa, H. Holien 7730 (TRH).  
**b.** A corticolous specimen dominated by "cephalodia", best seen in the upper left part, from Grane, Majavatn, T. Tønsberg 23873 (BG).

normal form of that species, and it has asci with internal amyloid structures, not observed in *P. pezizoides*. Actually the internal characters of the apothecia are those of *Psoroma hypnorum*, which by James & Henssen (1976) was believed possibly to be the green counterpart of *P. pezizoides*. This theory was rejected by Jørgensen (1978) on the basis of differences in the apical structures of the asci. In fact this newly discovered specimen, which is morphologically quite different from *P. pezizoides*, appears to be the counterpart anticipated by James & Henssen. The mycological characters all fall within the variation of *Ps. hypnorum*, though the spores are on the small side, but otherwise typical. The most surprising fact is that the blue-green thallus is so granular, rather like that of certain forms of the green photobiont, and not at all similar to the cephalodia of *Ps. hypnorum* (see figure 1b). We clearly do not have a situation of "free-living cephalodia" as has been reported in some *Psoroma* species from the Southern Hemisphere (Jørgensen & Wedin 1999), where the species primarily disperse by vegetative cephalodial propagules. It is rather a case of spores having found a bluegreen partner and resynthesized. This assumption finds support in that this blue-green thallus is fruiting, unlike those of the vegetatively produced ones, and that no green squamules are present.

In the damp forests of Trøndelag (Holien & Tønsberg 1996) *Ps. hypnorum* is frequently found on trees rather than on the ground, often with dominant cephalodia (Figure 1b). In this environment several photobiont pairs have been discovered previously, i.e. *Lobaria amplissima*, *Nephroma arcticum*, *Peltigera aptosa* and *P. britannica* (Tønsberg & Holtan-Hartwig 1983). The blue-green expression of *N. arcticum* is as yet not known from outside this region.

The particular locality in Snåsa where this peculiar specimen was collected differs from localities of such pairs as it is situated in an open montane birch forest with scattered *Picea abies*, *Salix caprea* and *Sorbus aucuparia*. The forest is situated close to a moun-

tain farm and is heavily grazed. Also the choice of substrate is unusual. In most cases of occurrence of cyanolichens on *Betula* and other species with acidic bark (pH less than 4.0), there is an association with specific soil conditions or nutrient enrichment, for example from soil or spray of waterfalls (Gauslaa & Holien 1998). In this locality the bedrock is dominated by calcium-rich schist which is expressed in a rich herb vegetation at the locality where also a number of other cyanolichens are found, mostly on trunks of *Salix* and *Sorbus*: *Lobaria scrobiculata*, *Nephroma bellum*, *N. parile*, *Pannaria pezizoides* and *Parmeliella triptophylla*.

### Conclusion

We accordingly conclude that we have at hand the first known and rare case of a totally blue-green *Psoroma hypnorum*, which is clearly different from *Pannaria pezizoides*. This is not a "free-living cephalodium", and is also unusual for its choice of habitat, which indicates that this may be a rare phenomenon.

### References

- Gauslaa, Y. & Holien, H. 1998: Acidity of boreal *Picea abies*-canopy lichens and their substratum, modified by local soils and airborne acidic depositions. *Flora* 193: 249-257.
- Holien, H. & Tønsberg, T. 1996: Boreal regnskog i Norge - habitatet for Trøndelags-elementets lavarter. *Blyttia* 54: 157-177.
- James, P. W. & Henssen, A. 1976: The morphological and taxonomic significance of cephalodia. In: D. H. Brown, D. L. Hawksworth & R. H. Bailey (eds): *Lichenology, Progress and Problems*: 27-77.
- Jørgensen, P. M. 1978: The lichen family Pannariaceae in Europe. *Opera Botanica* 45: 1-124.
- Jørgensen, P. M. 1998: What shall we do with the blue-green counterparts? *Lichenologist* 30: 351-356.
- Jørgensen, P. M. & Wedin, M. 1999: On *Psoroma* species from the Southern Hemi-

sphere with cephalodia producing vegetative dispersal units. *Lichenologist* 31: 341-347.

Tønsberg, T. & Holtan-Hartwig, J. 1983. Phycotype pairs in *Nephroma*, *Peltigera* and *Lobaria* in Norway. *Nord. Journ. Bot.* 3: 681-688.

# **Lepraria elobata found in Hungary, Poland and Slovakia**

MARTIN KUKWA and BJÖRN OWE-LARSSON

Kukwa, M. & Owe-Larsson, B. 2000: *Lepraria elobata* found in Hungary, Poland and Slovakia. *Graphis Scripta 11*: 53–55. Stockholm. ISSN 0901-7593.

*Lepraria elobata* is reported for the first time from Hungary, Poland and Slovakia. Notes on the ecology are given, and the known distribution based on literature is presented.

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During field work and revision of Polish lichens deposited in the herbarium at University of Gdańsk, *Lepraria elobata* was identified. According to Fałtynowicz (1993) the species has not been previously found in Poland. In 1999 it was also collected in Hungary and Slovakia, and the species has not been reported from either Hungary (Edit Farkas, in letter) or Slovakia before. The new localities of *Lepraria elobata* are presented in this paper.

## **The species**

*Lepraria elobata* was described by Tønsberg (1992), and is characterised by its bluish grey or greenish grey, leprose thallus without lobes, forming usually a thin, sometimes thicker, cover. The soredia, which are discrete to more or less contiguous, are fine, up to 30(–45) µm, and without projecting hyphae (Tønsberg 1992). The chemistry is characterised by atranorin, stictic acid and zeorin (major substances), cryptostictic acid, norstictic acid and constictic acid (minor substances), i.e. almost identical to *Lepraria lobificans*. However, *L. lobificans* differs in having a lobate and distinctly stratified thallus and

filamentous soredia, and seems to prefer richer bark of broad-leaved trees (Tønsberg 1992). *Lepraria elobata* shows resemblance to *Lepraria incana*, which also seems to prefer acidic bark, but the latter species contains zeorin and divaricatic acid, giving the thallus an UV+ bluish reaction.

## **Distribution and ecology**

In Norway, from where the species is described, *Lepraria elobata* occurs in inland, coastal, low-land and alpine regions (Tønsberg 1992). Subsequently, *Lepraria elobata* has also been found in Sweden (Moberg & Thor 1993, Muhr 1993, Santesson 1993, Lindblom 1995), and is, for example, quite common in mixed, deciduous forests along the River Klarälven in the province Värmland (Jansson et al. 1998). Lohtander (1994) reported *Lepraria elobata* from Finland (more than 20 localities mapped) and Russia (one specimen from the Leningrad Region). The same year the species was also listed from Germany (Wirth 1994). Orange (1995) reported *Lepraria elobata* as new to the British Isles, and it was stated that the species is apparently widespread in Wales in a variety of

habitats. In 1996, Dietrich & Scheidegger reported the species from Switzerland, where it is probably widely distributed and relatively common.

*Lepraria elobata* has further been found in Lithuania (Motiejūnaitė et al. 1998). Recently it has also been reported from Estonia (Saag & Saag 1999, Randle & Saag 1999), from Faeroe Islands (Alstrup & Christensen 1999) and from Iceland (Kristinsson 1999). Thus, *Lepraria elobata* seems to be a widespread and rather common lichen in central and northern parts of Europe.

The first report of *Lepraria elobata* from North America was given by Tønberg (1997; Vancouver, British Columbia, Canada).

*Lepraria elobata* is found in deciduous, coniferous and mixed forests, occasionally as well on more or less solitary trees. The species usually grows on acid-bark trees or intermediates (see Tønberg 1992), especially *Alnus glutinosa* and *A. incana*, *Betula pubescens/pendula* and *Picea abies*, but also, to summarise the literature cited, on *Crataegus* sp., *Fagus sylvatica*, *Juniperus communis*, *Malus domestica*, *Pinus contorta*, *Pinus sylvestris*, *Prunus padus*, *Pyrus*, *Quercus*, *Rhododendron* cf. *oreodoxa*, *Salix caprea*, *Salix* sp. and *Sorbus aucuparia*. It is seldom found on eutrophic bark, but is known from *Acer*, *Fraxinus* and *Populus tremula*. Mostly, *Lepraria elobata* grows on the base of the trees. The species is more rarely saxicolous, and has also been found on mosses and on soil.

In Poland, *Lepraria elobata* was first determined from Tatra Mountains in the southern part of the country 1996, where it was growing on the base of *Picea abies* in wet spruce forest. Studies of collected material (herbarium UGDA-L in Gdańsk) from northern Poland has hitherto revealed the species from three localities, growing on well-lit bark of *Betula pendula* and on bark on the base of *Carpinus betulus* and *Fagus sylvatica* in humid places. *Lepraria elobata* is probably not uncommon in Poland.

The specimen from Hungary was growing on *Alnus glutinosa* in shaded and humid situation by a small lake, while the finding in Slovakia was made on the bark of a dead trunk, probably *Picea*, in open terrain by a lake.

*Specimens examined:* **Hungary.** NE Hungary, Miskolc city, on bark of *Alnus glutinosa* in park by small lake in Miskolc Tapolca, 48°05'N, 22°75'E, 12.VIII.1999, leg. & det. M. Kukwa (UGDA-L), TLC: atranorin, stictic acid complex and zeorin. **Poland.** Tatry Polskie, Dolina Roztoki, c. 8 km SE Zakopane, along Potok (=River) Roztoka, c. 800 m ENE Dziadula, alt. c. 1300 m, 49°13'N, 20°04'E, ATPOL grid square Ge60, at the base of *Picea abies* in spruce forest 2 m from the river, 4.VII.1996, leg. & det. Björn Owe-Larsson (no 7757; UPS), TLC: atranorin, stictic acid complex and zeorin; Żuławki Wiślane, Frombork city, 54°21'N, 19°40'E, ATPOL grid square Ad57, on bark at the base of *Fagus sylvatica*, 31.VIII.1997, leg. A. Kotarska (UGDA-L), det. M. Kukwa, TLC: atranorin, stictic acid complex and zeorin; Mierzeja Wiślana sandbar, village Piaski, 54°25'N, 19°25'E, ATPOL grid square Ad76, on bark of *Betula pendula*, 23.VII.1981, leg. E. Budzbon (no 2179; UGDA-L), det. M. Kukwa, TLC: atranorin, stictic acid complex and zeorin; Pojezierze Iławskie lakeland, Lisewo forestry, forest section No 201, 53°52'N, 18°58'E, ATPOL grid square Bd42, on bark of *Carpinus betulus*, 8.VIII.1996, leg. & det. M. Kukwa (UGDA-L), TLC: atranorin, stictic acid complex and zeorin. **Slovakia.** High Tatra Mts., Tatra National Park, Lake Štrbské Pleso, alt. c. 1355 m, 49°07'N, 20°02'E, on bark of dead trunk (probably *Picea*) by the lake, 16.VIII.1999, leg. & det. M. Kukwa (UGDA-L). TLC: atranorin, stictic acid complex and zeorin.

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### References

- Alstrup, V. & Christensen, S. N. 1999: The NLF-excursion to the Faeroe Islands 1995. *Graphis Scripta* 10: 21-28.
- Dietrich, M. & Scheidegger, C. 1996: The importance of sorediate crustose lichens in the epiphytic lichen flora of the Swiss Plateau and the Pre-Alps. *Lichenologist* 28: 245-256.
- Faltynowicz, W. 1993: A checklist of Polish lichen forming and lichenicolous fungi including parasitic and saprophytic fungi occurring on lichens. *Polish Bot. Stud.* 6: 1-65.
- Jansson, B., Owe-Larsson, B. & Stålberg, J. 1998: *Lav, svamp och kärlväxtfloran i Klarälvdalens strandnära lövskogar vid Knappnäs, Långavängen och Vingäng-deltat. Länsstyrelsen i Värmlands län, Miljöenheten, Rapport 1998:7.* Karlstad.
- Kristinsson, H. 1999: The 12<sup>th</sup> meeting of the Nordic Lichen Society in Eidar, Iceland 1997. *Graphis Scripta* 11: 13-21.
- Lindblom, L. 1995: Släktet *Lepraria* i Skåne. *Graphis Scripta* 7: 49-60.
- Lohtander, K. 1994: The genus *Lepraria* in Finland. *Ann. Bot. Fennici* 31: 223-231.
- Moberg, R. & Thor, G. 1993: Additions to the lichen flora of Ångermanland, Central Sweden. *Graphis Scripta* 5: 39-44.
- Motiejūnaitė, J., Nordin, A., Zalewska, A., Bjelland, T., Hedenås, H., Westberg, M., Heidmarsson, S. & Prigodina, I. 1998: Materials on lichens and allied fungi of Neringa National Park (Lithuania). *Botanica Lithuanica* 4: 285-305.
- Muhr, L.-E. 1993: Floristic notes on some Swedish *Lepraria* and *Leproloma* species. *Graphis Scripta* 5: 51-52.
- Orange, A. 1995: New, rare and interesting British lichen records. *British Lichen Society Bulletin* 76: 47-59.
- Randlane, T. & Saag, A. (eds) 1999: Second checklist of lichenized, lichenicolous and allied fungi of Estonia. *Folia Cryptog. Estonica* 35: 1-132.
- Saag, L. & Saag, A. 1999: The genus *Lepraria* (Lichenes imperfecti) in Estonia. *Folia Crypt. Estonica* 34: 55-63.
- Santesson, R. 1993: *The lichens and lichenicolous fungi of Sweden and Norway.* SBT-förlaget, Lund.
- Tønsberg, T. 1992: The sorediate and isidiate, corticolous, crustose lichens in Norway. *Sommerfeltia* 14: 1-331.
- Tønsberg, T. 1998 [1997]: Additions to the lichen flora of North America VI. *Bryologist* 100: 522-524.
- Wirth, V. 1994: Checkliste der Flechten und flechtenbewohnenden Pilze Deutschlands – eine Arbeitshilfe. *Stuttgarter Beiträge zur Naturkunde, Serie A (Biologie)* 517: 1-63.

# A new species of *Agonimia* and some interesting lichens from Gorce Mts (Western Beskidy Mts) new to Poland

PAWEŁ CZARNOTA and BRIAN J. COPPINS

Czarnota, P. & Coppins, B. J. 2000: A new species of *Agonimia* and some interesting lichens from Gorce Mts (Western Beskidy Mts) new to Poland. *Graphis Scripta* 11: 56-60. Stockholm. ISSN 0901-7593.

*Agonimia repleta* discovered in the Gorce Mts (Western Beskidy Mts, Southern Poland) is described as a new, 8-spored taxon. *Micarea myriocarpa*, *M. nigella*, also from the Gorce Mts, are recorded for the first time in Poland. *Biatora ocelliformis*, *Fuscidea pusilla* and *Ropalospora viridis* are reported from the same area.

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During a study of the lichen flora of the Gorce National Park (Western Carpathians, Southern Poland) some 8-spored specimens of *Agonimia tristicula* were discovered, along with several other interesting species previously not or little known from Poland.

The localities are marked on the map of the Gorce National Park and Poland, based on the ATPOL 10 km grid square (Figure 2). The specimens are deposited in the lichen herbarium of the Gorce National Park (GPN), Poręba Wielka. The nomenclature follows Purvis et al. (1994) and Printzen (1995).

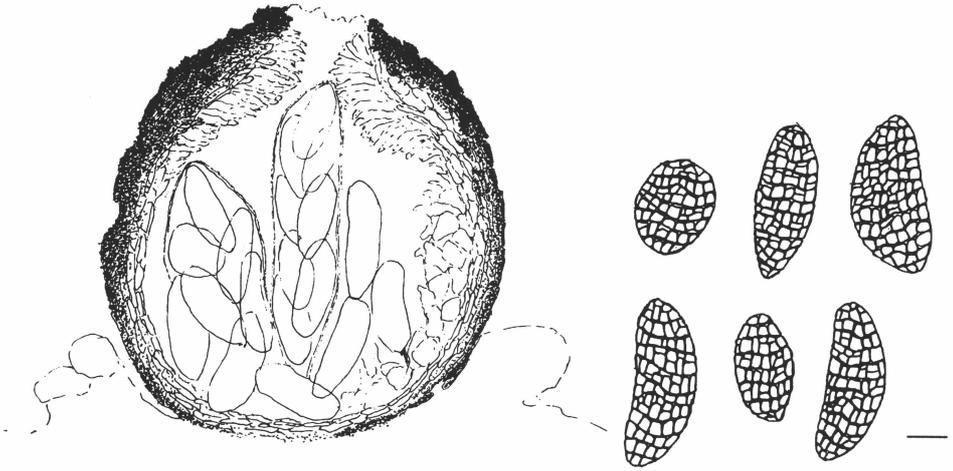
## *Agonimia repleta* Czarnota & Coppins *sp. nova*

*Agonimia tristicula* (Nyl.) Zahlbr. affinis sed peritheciis parvioribus (0.18–0.2 vs. 0.4–0.5 mm diam.), ascis 8-sporis, ascosporis parvioribus, granulibus et squamulis thalli parvioribus plus adpressis differt.

Typus: Poland, Western Beskidy, Gorce National Park, "Turbacz" nature reserve, Olszowy Potok valley, on bark of base of

*Fagus sylvatica*, in humidity, shady Carpathian beech forest (*Dentario glandulosae-Fagetum*), alt. 780 m, 49°33'N, 20°05'E, ATPOL EG 20, 21 July 1996, leg. P. Czarnota 1340/94 (GPN).

**Thallus** dull green, or rarely brown tinged, granular to granular verrucose or minutely squamulose; granules (30–)40–120 µm in diameter, often coalescing to form a granular-verrucose crust; squamules sometimes present, elongate, to 240 × 100 µm; cortex of rounded to angular cells, 4–7 µm in diameter, a few often bearing a small papilla to 1.7 µm tall. Photobiont cells 5–10 µm in diameter, dividing by binary fission to produce 2–4 daughter cells. **Perithecia** black, mostly half- to three-quarters immersed amongst the thalline granules, 0.18–0.2 mm in diameter, globose when young but soon becoming pyriform, with a neck that is roughened by vertical channels. **Asci** 8-spored. **Ascospores** 20–40 × 12–20 µm, mainly ellipsoid, sometimes globose, colourless (Figure 1).



**Figure 1.** *Agonimia repleta*: section of a perithecium (schematic), and some ascospores. Scale – 10µm.

Of the three hitherto described European species of *Agonimia*, *A. tristricula* is the most similar to *A. repleta*, especially by having pyriform perithecia with a longitudinally furrowed (plicate) neck. It differs, however, in having larger squamules (c. 0.1–1.0 × 0.1–0.3 mm) and in having 2-spored asci and very large ascospores, (60–)80–120(–150) × 26–50 µm (Purvis et al. 1992). Eight-spored asci are characteristic of *A. allobata* (Stizenb.) P. James in Coppins, P. James & D. Hawksw. and *A. octospora* Coppins & P. James, but the perithecia of both these species are smooth and without a well-defined neck. Also, the ostiolar region in these species is pale or pinkish – a feature not noted in either *A. repleta* or *A. tristricula*. *Agonimia octospora* further differs from *A. repleta* in having much larger ascospores, 60–75(–85) × 20–26 (–30) µm (Purvis et al. 1992).

*Agonimia repleta* is living on the often mossy bark of trees, and also on mossy rock near the streams, in very shaded conditions. At its localities in the Gorce National Park it is accompanied by *Dimerella diluta*, *Leptogium lichenoides*, *Peltigera praetextata*,

*Polyblastia gelatinosa*, *Vezdea aestivalis* and *V. stipitata*.

The species has also been recently discovered in the Ukrainian part of the "East Carpathians" Trilateral Biosphere reserve, and one of the specimens is cited below.

*Additional specimens examined:* **Ukraine.** *Zakarpatska oblast:* Velyky Berezny district, Uzhansky National Nature Park, Mt. Cheremkha, alt. 1060 m, on *Fagus*, 27 July 1998, leg. S. Kondratyuk et al. (E, KW).

### ***Biatora ocelliformis* (Nyl.) Arnold**

This species is quite rare in Europe, connected to old, natural forests. It occurs especially in Scandinavia. In the central part of the continent it grows mainly in mountains (Alps, Carpathian, Pyrenees), indicating its boreal-mountain character (Printzen 1995, Printzen & Palice 1999). The majority of known localities date from the last century and have historical importance to-day. *Biatora ocelliformis* has been hitherto reported on the bark of *Abies alba*, *Acer* sp., *Alnus* sp., *Coryllus avellana*, *Fagus sylvatica*, *Juniperus communis*, *Picea abies*, *Quercus* sp., *Salix* sp., *Sor-*

*bus aucuparia* and *Tilia cordata* (Printzen 1995).

By the general appearance of its apothecia *B. ocelliformis* can be confused with young forms of *Lecania globulosa* or a few *Micarea* species, e.g. *M. synotheoides* - recently recorded in Gorce Mts too (Czarnota 1997). It is distinguished from these taxa by blue-olive (turquoise) hymenium, by different shape, septation and dimensions of ascospores and by the Pd+ red colour reaction of its thallus.

*Additional locality in Poland* (in addition to that from Białowieża; Printzen & Palice 1999: 323): *Western Beskidy*: Gorce Mts, Gorce National Park, Roztoka valley, on bark of *Acer pseudoplatanus* in shady Carpathian beech forest (*Dentario glandulosae-Fagetum*), alt. 840 m, 49°33'N, 20°08'E, ATPOL EG 21, 9 August 1994, leg. Czarnota 584/94 (GPN).

### *Micarea myriocarpa* Wirth & Vězda ex Coppins

This species has most frequently been reported on a rocks or on exposed roots of trees in forest environments, often together with *Micarea sylvicola* and *M. botryoides*. It is quite widespread, especially in Western Europe – in Britain, Scandinavia, Germany, though the number of known localities is not impressive (Coppins 1983, Wirth 1995, Santesson 1993).

*Micarea myriocarpa* is very similar to *Psilolechia clavulifera* and some other *Micarea* species with a thin mealy-granular, thin and light-green thallus. Diagnostic characters are its pale to dark-brown apothecia, brownish colours in section, but never brown-black or olive, and small, 0–1-septate ascospores.

*Specimens examined: Poland. Western Beskidy*: Gorce Mts, Gorce National Park, ATPOL EG 21: southern slope of Jaworzyna Kamienicka Mt in Jaszczce Duże valley, on clayey soil in upper spruce forest (*Plagiothe-*

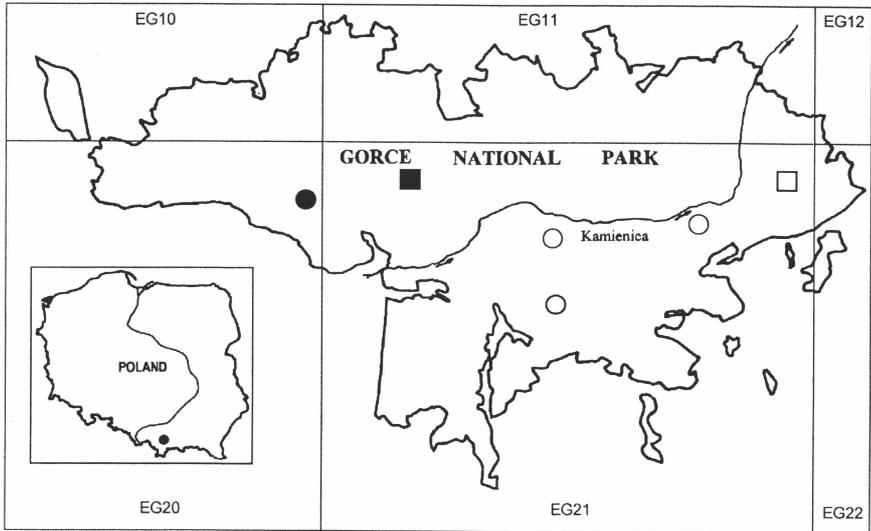
*cio-Piceetum*), alt. 1140 m, 49°33'N, 20°10'E, 5 November 1997, leg. Czarnota 1766/94 (GPN); Kamienica valley below Bieniowe glad, on shaded sandstones, alt. 820 m, 49°34'N, 20°13'E, 1 July, 1999, leg. Czarnota 1966/94 (GPN); Pod Jaworzyną range in Kamienica valley, on shaded sandstones, alt. 1060 m, 49°34'N, 20°10'E, 19 July 1999, leg. P. Czarnota 2022/94 (GPN).

### *Micarea nigella* Coppins.

Specimens have been reported in Europe mainly on soft wood of stumps in shaded woodlands. The previously known distribution of *Micarea nigella* is very limited, it being reported only in Great Britain, Denmark and Sweden suggesting a eu-atlantic character (Coppins 1983, Santesson 1993). However, its recent discovery in the Gorce Mts (and in the Ukrainian East Carpathians) alters this picture. It seems to us that *Micarea nigella* is more common than records suggest, and has probably been overlooked or confused with other *Micarea* species.

*Micarea nigella* is morphologically similar to *M. misella* (a much more frequent species in Poland) or to specimens of *M. botryoides* rarely growing on wood. These species all have black, globose apothecia and black stalked pycnidia, and an endoxylic or thin, grey-green thallus. The colour reaction of apothecial sections and the pycnidial wall provide the most important diagnostic characters of *Micarea nigella*. The purple-brown pigmentation of the apothecia and pycnidia reacts K+ dull-green, while *M. misella* has a dark-olive pigment reacting K+ violet. *Micarea botryoides* has green or brown pigments (without a purple tinge) that are little changed by K; furthermore, it usually grows in different habitats than the other two species, preferring shaded sandstones and other acidic rocks.

*Specimens examined: Poland. Western Beskidy*: Gorce Mts, Gorce National Park, Ustępný Potok valley, on wood of conifer



**Figure 2.** Localities of *Agonimia reptata* (●), *Biatora ocelliformis* (■), *Micarea myriocarpa* (○), *M. nigella* (□) in the Gorce National Park and in Poland (filled circle in insert).

stump in clear Carpathian beech forest (*Dentario glandulosae-Fagetum*), alt. 800 m, 49°35'N, 20°14'E, ATPOL EG 21, 20 February 1996, leg. Czarnota 297/94 (GPN).

### **Ropalospora viridis and Fuscidea pusilla**

The identity of two macroscopically very similar, sterile species: *Ropalospora viridis* (Tønsberg) Tønsberg and *Fuscidea pusilla* Tønsberg has been confirmed by thin-layer chromatography (TLC). The first species was hitherto published in Poland as *Fuscidea viridis* Tønsberg (Alstrup & Olech 1992). *Fuscidea pusilla* has recently been recorded in the nearby Beskid Sądecki Mts (Śliwa & Tønsberg 1995). Both species grew quite frequently in Gorce Mts on ± smooth bark of deciduous trees, and they are probably more common in Poland than it appears from their not numerous reports.

*Specimens examined: Poland.* Western Beskidy: Gorce Mts, Gorce National Park: ***Ropalospora viridis***: "Turbacz" nature reserve in Potok Turbacz valley, on bark of *Fagus sylvatica* in the Carpathian beech forest (*Dentario glandulosae-Fagetum*), alt. 830 m, ATPOL EG 21, 23 May 1996, leg. Czarnota 1326/94 (GPN); Czerwony Groń range near Mały Borek in Kamienica vally, on bark of *Fagus sylvatica*, alt. 1020 m, ATPOL EG 21, 19 July 1999, leg. Czarnota 2013/94 (GPN). ***Fuscidea pusilla***: Obidowiec Mt, in mixed forest *Picea abies* and *Fagus sylvatica*, on bark of *Fagus sylvatica*, alt. 1010 m, ATPOL EG 20, 10 August 1995, leg. Czarnota 451/94 (GPN); Znaki range near Bieniowe gład in Kamienica vally, on bark of *Fagus sylvatica* in the Carpathian beech forest (*Dentario glandulosae-Fagetum*), alt. 1020 m, ATPOL EG 21, 26 May 1997, leg. Czarnota 1581/94 (GPN).

**References**

- Alstrup, V. & Olech, M. 1992: Checklist of the lichens of the Tatra National Park, Poland. *Zesz. Nauk. Univ. Jagiell., Prace Bot.*, 24: 185–206.
- Coppins, B. J. 1983: A taxonomic study of the genus *Micarea* in Europe. *Bull. of the British Museum (Natural History), Bot.* 11(2): 18–214.
- Czarnota, P. 1997: *Micarea synotheoides*, *M. hedlundii* (Micareaceae) and *Leptogium intermedium* (Collemataceae), three lichens new to Poland. *Fragm. Flor. Geobot.* 42(2): 489–494.
- Poelt, J. & Vězda, A. 1981: Bestimmungsschlüssel europäischer Flechten. Ergänzungsheft II. *Bibliotheca Lich.* 16.
- Printzen, C. 1995: Die Flechtengattung *Biatora* in Europa. *Bibliotheca Lich.* 60.
- Printzen, C. & Palice, Z. 1999: The distribution, ecology and conservational status of the lichen genus *Biatora* in central Europe. *Lichenologist* 31: 319–335.
- Purvis, O. W., Coppins, B. J., Hawksworth, D. L., James, P. W. & Moore, D. M. (eds) 1992: *The lichen flora of Great Britain and Ireland*. Natural History Museum Publications, London, 710 pp.
- Purvis, O. W., Coppins, B. J. & James, P. W. 1994: *Checklist of Lichens of Great Britain and Ireland*. British Lichen Society, London.
- Santesson, R. 1993: *The lichens and lichenicolous fungi of Sweden and Norway*. SBT-förlaget, Lund.
- Śliwa, L. & Tønsberg, T. 1995: The first record of *Fuscidea pusilla* (Lichenes, Fuscideaceae) for Poland. *Fragm. Flor. Geobot.* 40(2): 781–784.
- Wirth, V. 1995: *Die Flechten Baden-Württembergs*. Verlag Eugen Ulmer, Stuttgart.

# **Byssoloma marginatum new to Norway and the status of the species in Scandinavia**

HÅKON HOLIEN

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*Byssoloma marginatum* is reported from Norway for the first time. Notes on its morphology, ecology and distribution status in Scandinavia are provided. The known European distribution is mapped.

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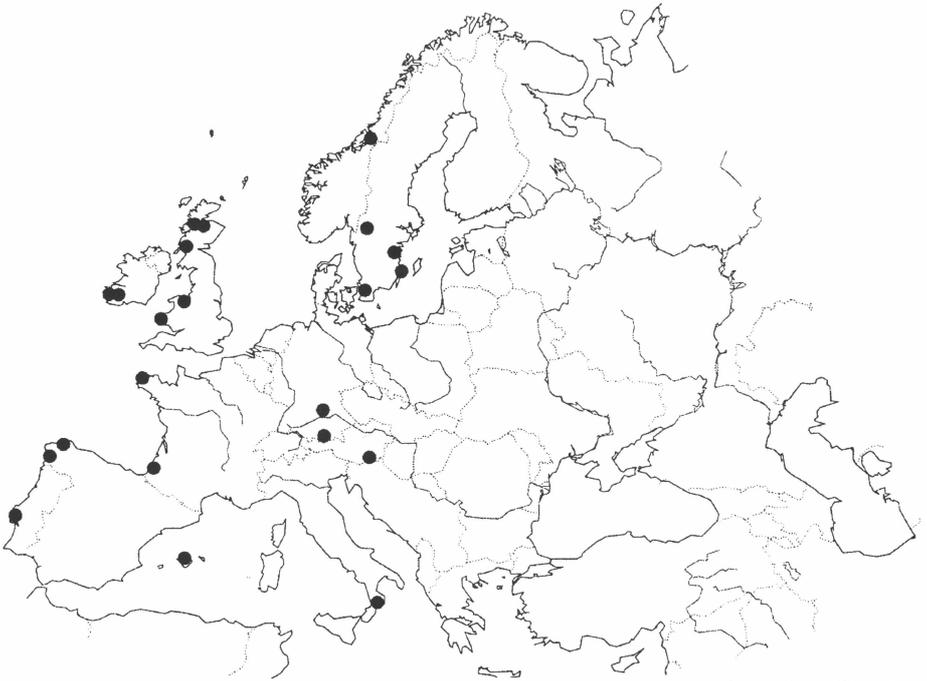
During field work in the humid spruce forests (boreal rain forests) of Nord-Trøndelag, central Norway I recently collected a small crustose lichen with bluish black apothecia and conspicuous sessile pycnidia on thin twigs of *Picea abies*. Closer examination showed that it is *Byssoloma marginatum* (Arnold) Sérusiaux, a species not previously known from Norway (Santesson 1993, Jørgensen 1996).

The genus *Byssoloma* is characterized by the byssoid excipulum, *Byssoloma*-type of ascus structure and pyriform conidia (Sérusiaux 1992) with most species being foliicolous in tropical rainforests (Farkas & Sipman 1993). Within the genus *B. marginatum* is characterized by the blackish apothecia with a bluish tinge containing hyaline, 3-septate spores. The apothecia are often confluent, forming lobate aggregates. Pycnidia are conspicuous, subglobose to ovoid, often also with a bluish pigment, with pyriform conidia which are slightly constricted at the middle.

According to Sérusiaux (1998) *Byssoloma marginatum* is an oceanic species which in Europe is known from the British Isles, southwestern parts of Sweden, the Alps, the western parts of France and the Iberian peninsula and from the Mediterranean area (Malorca and Calabria). It is listed by Jørgensen

(1996) among oceanic species which could be expected to be found in Norway. The present distribution in Europe (Figure 1) is similar to that of *Lobaria amplissima* and *Nephroma laevigatum* (Degelius 1935). Outside Europe *B. marginatum* is known from Tenerife and Madeira, where it is both corticolous and foliicolous (Sérusiaux 1996), as well as from the Pacific coast of North America (Brodo 1995). According to Lücking (in litt.) *B. marginatum* is also known from cloud forests at high altitude in Costa Rica where it grows on leaves.

All Norwegian localities are humid spruce forests situated within the southern boreal, strongly oceanic (O2) region according to Moen (1998). *Byssoloma marginatum* is a further addition to the rain forest element occurring in these forests (Holien & Tønberg 1996). Among accompanying lichen species were e.g. *Biatora rufidula*, *Fellhanera subtilis*, *Fuscopannaria ahlneri*, *Gyalideopsis piceicola*, *Lichinodium ahlneri*, *Micarea cinerea*, *Parmeliella parvula* and *Pseudocyphellaria crocata*. At one of the localities (Overhalla, Foss) *B. marginatum* was found on 8 of 36 sampled branches of *Picea abies* which was collected for a pilot study on vertical distribution of lichens in boreal rain forests.



**Figure 1.** The known distribution of *Byssoloma marginatum* in Europe (updated from Sérusiaux 1998).

The results from this study will be presented elsewhere. Most occurrences were from the lowest level (less than 3 m above the ground), but it was also found at a level of 12 m above the ground.

In the Swedish localities *Byssoloma marginatum* has been found on mature trunks of *Quercus* sp. and *Sorbus aucuparia* as well as on trunks of *Picea abies*. The appearance in Öland seems surprising, but according to Tommy Knutsson (in litt.) the locality in the northern part of this island is rather humid, strongly influenced by the maritime climate of the Baltic Sea. Several other oceanic lichens are also known from this region, i.e. *Lobaria amplissima*, *L. virens* and *Nephroma laevigatum* (Arup et al. 1999, Thor & Arvidsson 1999). For the other localities no detailed information on habitat was found on the labels.

*Byssoloma marginatum* is obviously a rare species in Scandinavia, but like several other inconspicuous species it is probably overlooked to some extent. Surprisingly it has not been included in the Swedish list of threatened lichens (Thor & Arvidsson 1999) and it is a strong candidate for the Norwegian Red List of crustose lichens. According to Sérusiaux (1992) the species is probably extinct from Central Europe.

*Byssoloma marginatum* should be searched for on suitable substrates at old Swedish localities as well as along the west coast of Norway, preferably in old forests with long canopy continuity where it seems to be a pioneer in species rich lichen communities.

*Specimens examined:* **Norway.** Nord-Trøndelag: Grong, along river Gartlandselva,

64°32'N, 12°23'E, 1995, Holien 6891 (TRH); Namsos, S of the outlet of river Duna in Vetrhusbotn, 64°35'N, 11°47'E, 1981, Tønsberg 5545 (BG) (mixed in collection of *Fuscopannaria ahlneri*); Overhalla, W of Foss, 64°28'N, 12°00'E, 1997, Holien 7095 (TRH); Snåsa, N of Hammer along river Breiåa, 64°13'N, 12°03'E, 1991, Holien 4497b (TRH). **Sweden.** *Skåne*: Örkened, Nyteboda, 1890, Malme (S). *Östergötland*: Kvarsebo, 1898, Hulting (S). *Öland*: Böda, Norrböda, strax N. Gjutängskärr, skifte Kyrkotorp 6:1/6, 1994, Knutsson 94-235 (herb. Knutsson), det. S. Ekman. *Värmland*: Blomskog par., Uddarna, 1969, Sundell 7177 (UPS).

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### References

- Arup, U., Ekman, S., Fritz, Ö., Fröden, P., Johansson, T., Knutsson, T., Lindblom, L., Lundkvist, H. & Westberg, M. 1999: Bark- och vedlevande lavar i ädellövskog på ön Jungfrun. *Svensk Bot. Tidskr.* 93: 73-93.
- Brodo, I. M. 1995: Lichens and lichenicolous fungi of the Queen Charlotte Islands, British Columbia, Canada. 1. Introduction and new records for B.C., Canada and North America. *Mycotaxon* 56: 135-173.
- Holien, H. & Tønsberg, T. 1996: Boreal regnskog i Norge - habitatet for trøndelags-elementets lavararter. (Boreal rain forest in Norway - the habitat for lichen species belonging to the Trøndelag phytogeographical element). *Blyttia* 54: 157-177.
- Degelius, G. 1935: Das ozeanische Element der Strauch- und Laubflechtenflora von Skandinavien. *Acta Phytogeographica Suecica* 7: 1-411.
- Farkas, E. & Sipman, H. J. M. 1993: Bibliography and checklist of foliicolous lichenized fungi up to 1992. *Tropical Bryology* 7: 93-148.
- Jørgensen, P. M. 1996: The oceanic element in the Scandinavian lichen flora revisited. *Symb. Bot. Ups.* 31 (3): 297-317.
- Moen, A. 1998: *Nasjonalatlas for Norge: Vegetasjon*. Statens kartverk, Hønefoss.
- Santesson, R. 1993: *The lichens and lichenicolous fungi of Sweden and Norway*. SBT-förlaget, Lund.
- Sérusiaux, E. 1992: *Byssoloma Trevisan* (1853) In: Purvis, O. W., Coppins, B. J., Hawksworth, D. L., James, P. W. & Moore, D. M. (eds), *The lichen flora of Great Britain and Ireland*. Natural History Museum Publications, London.
- Sérusiaux, E. 1996: Folliicolous lichens from Madeira, with the description of a new genus and two new species and a worldwide key of folliicolous Fellhanera. *Lichenologist* 28: 197-227.
- Sérusiaux, E. 1998: Deux nouvelles espèces de *Byssoloma* Trev. (Lichens, Pilocarpaceae) d'Europe occidentale et de Macaronésie. *Cryptogamie, Bryol. Lichénol.* 1998, 19 (2-3): 197-209.
- Thor, G. & Arvidsson, L. (eds) 1999: *Rödlistade lavar i Sverige - Artfakta*. [Swedish Red Data Book of Lichens]. ArtDatabanken, SLU, Uppsala.

## A new long-desired lichen flora: Nordic Lichen Flora, Volume 1

Ahti, T., Jørgensen, P. M., Kristinsson, H., Moberg, R., Söchting, U. & Thor, G. (editorial board). 1999: *Nordic Lichen Flora, Vol. 1. Introductory parts. Calicioid lichens and fungi*. 94 pp. ISBN 91-972863-3-8. Bohuslän '5, Uddevalla.

At the first sight of *Nordic Lichen Flora, Volume 1*, with the front cover illustrated by Eric Acharius' drawing of *Cetraria islandica* in Westring, Svenska lufarnas färghistoria, I was very pleased. Acharius is our original source of inspiration for lichenogy in the Nordic countries, and I started my studies with this particular lichen and its variation.

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*E. I. Kärnefelt*

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- Hansen, E. S., Poelt, J. & Söchting, U. 1987: Die Flechtengattung *Caloplaca* in Grönland. *Meddel. Grönland, Biosci.* 25: 1-52.
- Kirk, P. M. & Ansell, A. E. 1992: *Authors of fungal names: A list of authors of scientific names of fungi, with recommended standard forms of their names, including abbreviations.* C.A.B. International, Wallingford.
- Krog, H. 1991: Lichenological observations in low montane rainforests of eastern Tanzania. In: Galloway, D. J. (ed.), *Tropical Lichens: Their systematics, conservation and ecology. The Systematics Association Special Volume 43:* 85-94.
- Santesson, R. 1993: *The lichens and lichenicolous fungi of Sweden and Norway.* SBT-förlaget, Lund.

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