

## Species of lichenized and allied fungi new to Białowieża Large Forest (NE Poland)

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The paper presents 38 species of lichenized and allied fungi new to Białowieża Large Forest. 24 taxa of lichenized *Ascomycota* and 14 taxa of lichenicolous and saprobic fungi are the result of the analysis of collected materials as well as additional field studies.

**Key words:** lichenized fungi (lichens); lichenicolous fungi; saprobic fungi; Białowieża Large Forest; Poland.

The present paper supplements the knowledge on the taxonomic diversity of Białowieża Large Forest, including Białowieża National Park (cf. Cieśliński and Tobolewski 1988; Cieśliński et al. 1992; Cieśliński and Czyżewska 1997) by 38 species of lichens, lichenicolous and saprobic fungi which where not reported from this area before.

Lichenological material comes from two sources: 1) special excursions organised by the authors of the present study in June, 1999; 2) data collected in the years 1981–1983, 1987–1990, 1993, 1996, 1998, 2000 and 2001. Distribution of the species examined is given in the 10 × 10 km ATPOL grid square system (after Cieśliński and Fałtynowicz 1993).

The collections are deposited in the lichen herbaria BILAS (Institute of Botany, Vilnius, Lithuania), KTC (Świętokrzyska Academy, Kielce), LOD (University of Łódź).

The nomenclature follows Scholz (2000), Diederich (1996), Czarnota and Coppins (2000), and Sérusiaux et al. (2001). Abbreviations: BNP – Białowieża National Park; c. ap. – cum apotheciae; \* – lichenicolous fungi; + – saprobic fungi.

## LICHENIZED FUNGI

*Absoconditella lignicola* Vězda et Pišút (1984) – on decaying log (introduced tree species).

Specimen examined: grid square Cg64: Hajnówka Forest District, Michnówka Nature Reserve, forest unit No. 572A, 93 site. 1983. KTC (det. P. Czarnota, 2001). Rare species in the Polish Lowland: NE Poland – Kny-szyńska Forest, Budzisk Nature Reserve. 1999. LOD (Czyżewska et al. 2001), N Poland – Borecka Forest (Zalewska and Rutkowska 2001).

*Agonimia repleta* Czarnota et Coppins (2000) – on the bark on the base of *Alnus glutinosa* in black alder bog forest *Ribo nigri-Alnetum*.

Specimen examined: Cg55: BNP, forest unit No. 285A. 1999. LOD. Very rare species in Poland: Gorce Mts., Beskidy Zachodnie Range, Turbacz Nature Reserve (Czarnota and Coppins 2000).

*Bacidia fraxinea* Lönnr. (1858) – on a trunk of *Populus tremula* in fresh (spruce)-pine forest *Peucedano-Pinetum*.

Specimen examined: Cg55: BNP, forest unit No. 256, permanent plot V-100 14. 1989. KTC.

*Biatora ocelliformis* (Nyl.) Arnold (1870) – on trunks of *Carpinus betulus* and *Fraxinus excelsior* in fertile oak-linden-hornbeam forest *Tilio-Carpinetum* and *Ribo nigri-Alnetum*.

Specimens examined: Cg45: Białowieża Forest, forest unit No. 130, near Narewka river. 1998. KTC; Cg55: BNP, forest unit No. 256, permanent plot V-100 E9, N5. 1999. KTC.

*Cetrelia cetrarioides* (Delise ex Duby) W.L. Culb. et C.F. Culb. (1968) – on the bark of *Carpinus betulus* and *Quercus robur* in *Tilio-Carpinetum*, *Fraxinus excelsior* in *Ribo nigri-Alnetum* and moist oak-spruce forest *Quercu-Piceetum*.

Specimens examined: Cg54: Hajnówka Forest District, forest unit No. 386B, 141 site. 1983. KTC (Cieśliński, Tobolewski 1988) as *C. olivetorum* (Nyl.) W.L. Culb. et C.F. Culb. (1968); Białowieża Forest District, forest unit No. 392, near Budy village. 1999. LOD; Cg55: BNP, forest unit No. 256, permanent plot V-100 B10. 1981. LOD, KTC (Cieśliński, Czyżewska and Glanc 1992; Cieśliński and Czyżewska 1997) as *C. olivetorum*, forest unit No. 342D. 1982. KTC; Cg56: BNP, Dziedzinka, forest unit No. 373B, 23 site. 1981. KTC; Cg64: Hajnówka Forest District, forest unit No. 488C, Nieznany Bór Nature Reserve, 68 site. 1982. KTC; Cg65: Białowieża Forest District, forest units Nos 474B, 2 site and 606A, B, 229 site. 1983. KTC (Cieśliński and Tobolewski 1988) all sites as *C. olivetorum*.

- Cladonia caespiticia* (Pers.) Flörke (1828) – on the bark on the base of *Alnus glutinosa* in *Ribo nigri-Alnetum*.  
Specimen examined: Cg55: BNP, forest unit No. 256, permanent plot V-100 E6. 1996. KTC.
- C. squamosa* (Scop.) Hoffm. var. *subsquamosa* (Nyl. ex Leight.) Vain. (1881) – on decaying log in *Peucedano-Pinetum*.  
Specimen examined: Cg55: BNP, forest unit No. 256, permanent plot V-100 I2. 1999. KTC.
- Cyphelium inquinans* (Sm.) Trevis. (1862) – on a trunk of *Betula pendula* in *Peucedano-Pinetum*.  
Specimen examined: Cg55: BNP, forest unit No. 256. 1993. KTC.
- Fellhanera gyrophorica* Sérus., Coppins, Diederich et Scheidegger (2001) – on trunks of *Fraxinus excelsior* and *Alnus glutinosa* in *Tilio-Carpinetum stachyetosum sylvaticae*.  
Specimens examined: Cg54: Białowieża Forest District, forest unit No. 392, near Budy village. 1999. LOD. Cg55: BPN, forest unit No. 314 near Orłówka stream 1999. BILAS; Cg56: BNP, Dziedzinka, the border between forest units Nos 373 and 374. 1999. BILAS.  
Thallus leprose, greyish green, C+ red. Photobiont chlorococcoid, 5–7 µm in diam. Pycnidia abundant ± cylindrical, ostioles widely gaping, with white protruding conidial mass. Pycnidial wall light brown, P+ red. Conidia colourless, bacilliform, bound in gelatinous matrix, 3–5.5 × 1–2 µm. Confined to old hardwood trees in old hardwood or hardwood-spruce forests.  
In Central Eastern and Northern Europe known from Poland (Sérusiaux et al. 2001) – Suwalki District, Borecka Forest, „Lipowy Jar reserve” leg. A. Zalewska, OLS), Lithuania (Motiejūnaitė 2000 – as *Fellhanera* sp. and Sérusiaux et al. 2001), and Estonia (Motiejūnaitė, personal collections).
- F. subtilis* (Vězda) Diederich et Sérus. (1991) – on twigs of *Vaccinium myrtillus* in *Quercu-Piceetum*.  
Specimen examined: Cg55: BNP, forest unit No. 256, permanent plot V-100 I2. 1999. LOD.
- Lecania cyrtellina* (Nyl.) Sandst. (1912) – on submerged roots of *Fraxinus excelsior*.  
Specimen examined: Cg55: BNP, forest unit No. 314, near Orłówka stream. 1999. BILAS, KTC.
- Lepraria lobificans* Nyl. (1873) – on mossy bark and wood of *Alnus glutinosa* in *Ribo nigri-Alnetum*, *Fraxinus excelsior* and *Quercus robur* in *Tilio-Carpinetum*.  
Specimens examined: Cg54: BPN forest unit No. 285A. 1999. LOD; Białowieża Forest District, forest unit No. 392. 1999. BILAS, LOD; Cg56: BNP, Dziedzinka, forest unit No. 374. 1999. BILAS, LOD; 1996. KTC (det. M. Kukwa, 2000, TLC: stictic acid complex, zeorin, atranorin).

- Leproloma vouauxii* (Hue) Laundon (1989) – on a trunk of very old *Fraxinus excelsior*.  
Specimen examined: Cg65: Białowieża-Grudki by road. 1999. KTC (det. M. Kukwa, 2000; TLC: atranorin + zeorin (probably from *Lepraria lobificans*), rocellic acid, pannaric acid-6-methylester.
- Micarea misella* (Nyl.) Hedl. (1892) – on decaying wood.  
Specimen examined: Cg65: Białowieża Forest, forest unit No. 498, near Grudki railway station. 1988. KTC (leg. et det. H. Sipman).
- Mycoblastus fucatus* (Stirt.) Zahlbr. (1926) – on trunks of *Fraxinus excelsior*, *Alnus glutinosa* and *Tilia cordata*.  
Specimens examined: Cg55: BPN, forest unit 256, permanent plot V-100 A2. 1987. KTC, forest unit No. 314, near Orłówka stream. 2001. KTC; Cg66: Białowieża Forest District, forest unit No. 429A. 1981. KTC.
- Ochrolechia turneri* (Sm.) Hasselrot (1945) – on an old *Acer platanoides* at a road in the park.  
Specimen examined: Cg65: Białowieża, Palace Park. 1999, 2000. BILAS, LOD.
- Pertusaria pupillaris* (Nyl.) Th. Fr. (1871) – on trunks of *Fraxinus excelsior* and *Alnus glutinosa*.  
Specimens examined: Cg49: Browsk Forest District, forest unit No. 82C. 1982. KTC; Cg55: Browsk Forest District, forest unit No. 259A. 1982. KTC.
- Placynthiella dasaea* (Stirt.) Tønsberg (1992) – on wood of fallen tree and on *Pinus sylvestris* in *Peucedano-Pinetum*, on decaying very old *Quercus robur* in *Tilio-Carpinetum*.  
Specimens examined: Cg45: Browsk Forest District, forest unit No. 153, c. ap. 1999. LOD; Cg55: BNP, forest unit No. 256, permanent plot V-100 I2. 1999. LOD; Cg56: BNP, Dziedzinka, forest unit No. 374. 1999. LOD.
- P. icmalea* (Ach.) Coppins et P. James (1984) – on decaying logs in streamside alder-ash forest *Circaeo-Alnetum*, on the root system of fallen spruce and roots of *Picea abies*, on decaying roots of *Picea abies*, on fence wood.  
Specimens examined: Cg55: BNP, forest unit No. 314 near Orłówka stream. 1999. LOD; forest unit No. 256, permanent plot V-100 B1 and 17. 1990. LOD; Cg56: BNP, Dziedzinka, forest unit No. 374. 1999. LOD; Cg65: Białowieża, Olga Gabiec St. 10. 1999. LOD.
- Psilolechia clavulifera* (Nyl.) Coppins (1983) – on roots of an uprooted *Picea abies*.  
Specimen examined: Cg55: BNP, forest unit No. 256, permanent plot V-100. 1988. KTC; Cg56: BNP, Dziedzinka, forest unit No. 373. 1999. BILAS, LOD.
- Trapeliopsis pseudogranulosa* Coppins et P. James (1984) – on the bark of *Betula pendula* in *Peucedano-Pinetum*.  
Specimen examined: Cg55: BNP, forest unit No. 256, permanent plot V-100 I2. 1999. BILAS, LOD.
- Verrucaria hydrela* Ach. (1814) – on bricks in stream and on submerged roots of *Alnus glutinosa*.

Specimen examined: Cg55: BNP, Orłówka stream, forest unit No. 314. 1999. BILAS.

V. *praetermissa* (Trevis.) Anzi (1864) – on an inundated concrete block in forest stream.

Specimen examined: Cg55: BNP, Orłówka stream, forest unit No. 314. 1999. BILAS.

V. *xyloxena* Norman (1867) – on the ground in overgrowing gravel pit. Specimen examined: Cg54: Białowieża Forest, forest unit No. 301A. 1981. KTC.

#### LICHENICOLOUS AND SAPROBIC FUNGI

\* *Athelia arachnoidea* (Berk.) Jülich (1972) – on thalli of *Physcia adscendens* and *Ph. tenella* growing on *Salix fragilis*, and *Pertusaria amara* growing on old *Carpinus betulus*.

Specimens examined: Cg65: Białowieża, near Żubrówka Restaurant. 1999. LOD; Palace Park. 2000. LOD.

\* *Clypeococcum hypocenomyces* D. Hawksw. (1977) – on a thallus of *Hypocenomyce scalaris* (c. sp.) growing on trunks of old *Quercus robur*, *Betula pendula*, *Pinus sylvestris*, *P. nigra* and decaying log.

Specimens examined: Cg45: Świnoroje near Narewka, forest parking place. 1999. BILAS, LOD; Cg55: BNP, forest unit No. 256, permanent plot V-100 I2. 1999. LOD; Cg65: Białowieża, Palace Park. 1999. BILAS, LOD.

\* *Lichenocodium erodens* M.S. Christ. et D. Hawksw. (1977) – on thalli of *Lecanora conizaeoides* and *Hypocenomyce scalaris* growing on old *Larix*, *Fraxinus* and *Quercus robur*, and on wood.

Specimens examined: Cg45: Świnoroje, forest parking place. 1999. LOD; Cg55: BNP, forest unit No. 256, permanent plot V-100 I2. 1999. LOD; Cg65: Białowieża, Palace Park. 1999, 2000. BILAS, LOD.

+ *Mycocalicium subtile* (Pers.) Szatala (1927) – on wood of a very old *Quercus robur*.

Specimens examined: Cg45: Świnoroje near Narewka, forest parking place; Cg55: BNP, forest unit No. 314, near Orłówka stream. 1999. LOD.

\* *Phaeopyxis punctum* (A. Massal.) Rambold, Triebel et Coppins (1990) – on primary squamules of *Cladonia macilenta* growing on decaying log.

Specimen examined: Cg55: BNP, forest unit No. 256, permanent plot V-100 I2. 1999. BILAS, LOD.

\* *Phoma cytospora* (Vouaux) D. Hawksw. (1981) – on a thallus of *Hypogymnia physodes* growing on a trunk of *Alnus glutinosa*.

Specimen examined: Cg65: Białowieża, Palace Park. 1999. BILAS.

+ *Stenocybe pullatula* (Ach.) Stein (1879) – on dead twigs of *Alnus glutinosa*.

Specimen examined: Cg55: BNP, forest unit No. 285A. 1999. LOD.

\* *Szygospora bachmanii* Diederich et M.S. Christ. (1996) – on primary squamules of *Cladonia coniocraea* growing on roots of an uprooted deciduous tree.

Specimen examined: Cg56: BNP, Dziedzinka, forest unit No. 374. 1999. LOD.

- \* *S. physciacearum* Diederich (1996) – on a thallus of *Physcia tenella* growing on *Populus tremula* near a bridge.  
Specimen examined: Cg54: Białowieża Forest District, forest unit No. 307, near Budy village. 1999. LOD.
- \* *Tremella cladoniae* Diederich et M.S. Christ. (1996) – on primary squamules and podetia of *Cladonia coniocraea* and *C. ochrochlora* growing on *Picea abies* and *Abies glutinosa*.  
Specimen examined: Cg55: BNP, forest unit No. 256, permanent plot V-100 E5. 1988. KTC.
- \* *T. hypogymniae* Diederich et M.S. Christ. (1996) – on thalli of *Hypogymnia physodes* growing on *Betula pendula* in *Peucedano-Pinetum*.  
Specimen examined: Cg55: BNP, forest unit No. 256, permanent plot V-100, 12. 1999. LOD.
- \* *T. lichenicola* Diederich (1996) – on a thallus of *Mycoblastus fucatus* growing on *Fraxinus excelsior* in *Tilio-Carpinetum*.  
Specimen examined: Cg55: BNP, forest unit No. 256, permanent plot V-100 A2. 1987. LOD.
- \* *Xanthoriicola physciae* (Kalchbr.) D. Hawksw. in D. Hawksw. et Punith (1973) – on apothecia of *Xanthoria parietina* growing on trunk of a deciduous tree (introduced species).  
Specimen examined: Cg65: Białowieża, Palace Park. 1999. BILAS, LOD.
- "*Phlyctis erythrosora* Erichsen" – on *Fraxinus excelsior* and *Populus tremula*.  
Specimens examined: Cg55: BNP, forest unit No. 256, permanent plot V-100 C6. 1998. LOD; Cg65: Białowieża, Palace Park. 1999. LOD.  
"The name *Phlyctis erythrosora* is based on the lichen *Phlyctis argena* with galls due to a parasite belonging perhaps to the basidiomycetes." (Hawksworth and Diederich 1991).

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## Grzyby zlichenizowane i inne grzyby nowe dla Puszczy Białowieskiej (Polska Północno-Wschodnia)

### Streszczenie

W pracy przedstawiono 38 gatunków porostów (grzybów zlichenizowanych), grzybów naporostowych i saprobiontów, które dotąd nie były podawane z Puszczy Białowieskiej, w tym z Białowieskiego Parku Narodowego (por. Cieśliński i Tobolewski 1988; Cieśliński et al. 1992; Cieśliński i Czyżewska 1997). Na szczególną uwagę zasługuje *Fellhanera gyrophorica*, opublikowana kilka miesięcy wcześniej jako nowy dla nauki gatunek rodzaju *Fellhanera* występujący tylko z pyknidiami (Sérusiaux et al. 2001), a kolekcjonowany lub publikowany jako *Fellhanera* sp.

Materiały lichenologiczne pochodzą z dwóch źródeł 1) ze specjalnie zaplanowanych przez autorów badań zorganizowanych w roku 1999; 2) z danych z lat 1981–1983, 1987–1990, 1993, 1996, 1998, 2000 i 2001. Stanowiska gatunków i ich rozmieszczenie podano w systemie siatki kwadratów ATPOL zmodyfikowanej przez Cieślińskiego i Faltynowicza (1993).