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## Supplement to the checklist of Macromycetes (Fungi) from the village of Wyskok in the Masurian Lakeland, NE Poland

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**Abstract:** In 2017-2021, a further 22 new species of Macromycetes were recorded in the village of Wyskok in the Masurian Lakeland and its surroundings additional, including Polish red-listed *Fistulina hepatica* (rare) and *Stropharia albonitens* (vulnerable). The updated checklist of macromycetes from Wyskok now contains 347 species. The increasing abundance of the thermophilic species *Amanita strobiliformis* is supposed to be attributed to climate warming.

**Key words:** Oświn Lake, biodiversity, climate warming.

### INTRODUCTION

The diversity of fungi in the vicinity of the village of Wyskok by Lake Oświn was earlier documented with 325 species (HOFFEINS *et al.* 2017). Here we add 22 new species identified from this area. Making a total 347 species of macrofungi from there.

The Material and Methods are described in HOFFEINS *et al.* (2017). The current names and classification were checked with the Mycobank database. All species listed below were collected on 1-15 September 2018-2021, except for *Entoloma clypeatum* collected on 15 June 2019.

The abbreviations for Polish red list of fungi (WOJEWODA & ŁAWRYNOWICZ 2006) are as follows: **Ex** – extinct or lost, **E** – endangered, **V** – vulnerable, **R** – rare, **I** – indetermined threat.

### RESULTS

New records of macromycetes from Wyskok

**Ascomycota**  
**Pezizomycetes**  
**Pezizales**  
**Helotiales**  
**Helotiaceae**

*Phaeohelotium monticola* (BERK) DENNIS (Fig. 1).



Fig. 1. *Phaeohelotium monticola* (BERK) DENNIS, mixed forest, 2018.  
Ryc. 1. *Phaeohelotium monticola* (BERK) DENNIS, las mieszany, 2018.

**Agaricales**  
**Agaricaceae**

*Cystoderma jasonis* (COOKE & MASSEE) HARMAJA

*Macrolepiota rhacodes* (VITTAD.) SINGER (Fig. 2)

*Lepiota cristata* (BOLTON) P. KUMM.

**Cortinariaceae**

*Cortinarius salor* FR. (Fig. 3)

**Entolomataceae**

*Clitopilus prunulus* (SCOP.) P. KUMM.

*Entoloma clypeatum* (L.) P. KUMM. (Fig. 4)



Fig. 2. *Macrolepiota rhacodes* (VITTAD.) SINGER, spruce forest, 2021.

Ryc. 2. *Macrolepiota rhacodes* (VITTAD.) SINGER, las świerkowy, 2021.



Fig. 3. *Cortinarius salor* Fr., conifer forest, 2021.

Ryc. 3. *Cortinarius salor* Fr., las iglasty, 2021.





Fig. 4. *Entoloma clypeatum* (L.) P. KUMM., orchard, June 2019.

Ryc. 4. *Entoloma clypeatum* (L.) P. KUMM., sad, czerwiec 2019.



Fig. 5. *Fistulina hepatica* (SCHAEFF.) WITH., on oak, 2021.

Ryc. 5. *Fistulina hepatica* (SCHAEFF.) WITH., na dębie, 2021.

### **Fistulinaceae**

*Fistulina hepatica* (SCHAEFF.) WITH. (R) (Fig. 5)

### **Inocybaceae**

*Inocybe cincinnata* (FR.) QUÉL. (Fig. 6)



Fig. 6. *Inocybe cincinnata* (FR.) QUÉL, mixed forest, 2021.

Ryc. 6. *Inocybe cincinnata* (FR.) QUÉL, las mieszany, 2021.

### **Mycenaceae**

*Panellus mitis* (PERS.) SINGER

### **Physalacriaceae**

*Armillaria ostoyae* (ROMAGN.) HERINK

*Coprinellus truncorum* (SCOP.) REDHEAD, VILGALYS & MONCALVO

*Flammulina velutipes* (CURTIS) SINGER (Fig. 7)

*Psathyrella marcescibilis* (BRITZELM.) SINGER

### **Strophariaceae**

*Galerina marginata* (BATSCH) KÜHNER

*Stropharia albonitens* (FR.) (V)

### **Tricholomataceae**

*Lepista irina* (FR.) H.E. BIGELOW





Fig. 7. *Flammulina velutipes* (CURTIS) SINGER, on oak, 2018.  
Ryc. 7. *Flammulina velutipes* (CURTIS) SINGER, na dębie, 2018.

**Auriculariales**  
**Auriculariaceae**

*Auricularia auricula-judae* (BULL.) QUÉL (Fig. 8)



Fig. 8. *Auricularia auricula-judae* (BULL.) QUÉL, on *Sambucus*, 2021.  
Ryc. 8. *Auricularia auricula-judae* (BULL.) QUÉL, na *Sambucus*, 2021.

**Gomphales**  
**Gomphaceae**

*Ramaria flaccida* (FR.) BOURDO

**Hymenochaetales**  
**Hymenochaetaceae**

*Phellinidium ferrugineofuscum* (P. KARST.) FIASSON & NIEMELÄ (Fig. 9)



Fig. 9. *Phellinidium ferrugineofuscum* (P. KARST.) FIASSON & NIEMELÄ, on birch, 2021.

Ryc. 9. *Phellinidium ferrugineofuscum* (P. KARST.) FIASSON & NIEMELÄ, na brzozie, 2021.

**Polyporales**  
**Dacryobolaceae**

*Amaropostia stiptica* (PERS.) B.K. CUI, L.L. SHEN & Y.C. DAI

**Russulales**  
**Russulaceae**

*Lactarius pubescens* FR.



## REMARKS

Within the enclosed yard of our cottage two species – *Lepiota cristata* and *Clitopilus prunulus* have been present over a great many years. They were recorded in a separate (unpublished) list of „yard“ species, among others, but we overlooked them in our previous checklist (HOFFEINS *et al.* 2017).

We would like to add some comments of general interest regarding the increasing abundance of two species – *Amanita strobiliformis* and *Macrolepiota procera* in the vicinity of Wyskok. *A. strobiliformis* first appeared in mid-September 2006 (Fig. 10), when we found a single specimen growing outside our cottage under a lime tree (*Tilia*). In subsequent years, the mycelium spread into the orchard and along the wayside up into a grove with *Betula*; by 2021 had expanded to cover an area of around 500 m<sup>2</sup>. The numbers of *A. strobiliformis* are increasing yearly, reaching a peak mainly in July and August. The second species, *Macrolepiota procera*, is a common fungus in the Masurian Lakeland that has been collected at several localities in the vicinity of Wyskok (Figs. 11, 12). With each year in the period under consideration, *Macrolepiota procera* has been appearing in ever larger clusters, even when the soil humidity has been quite low.

*Amanita strobiliformis* prefers warm temperatures for initiating fructification. Such thermal conditions currently appear to be more and more stable in early autumn, even in the north-eastern region of Poland (personal observation). We expect additional thermophilic species in the near future as a result of climate warming.



Figs. 10–11. Thermophilic *Amanita strobiliformis* (PAULET ex VITTAD.) BERTILL, near a lime tree, 2006 (Fig. 10) and *Macrolepiota procera* (SCOP.) SINGER, in a meadow near a copse with aspen *Populus tremula* trees, 2020 (Fig. 11). oak, 2018.

Ryc. 10–11. Ciepłolubna *Amanita strobiliformis* (PAULET ex VITTAD.) BERTILL, koło lipy, 2006 (Ryc. 10) oraz *Macrolepiota procera* (SCOP.) SINGER, łąka przy zagajniku z osikami, 2020 (Ryc. 11).





Fig. 12. *Macrolepiota procera* (SCOP.) SINGER, the first author with a giant specimen, 2020.

Ryc. 12. *Macrolepiota procera* (SCOP.) SINGER, gigantyczny okaz z pierwszym autorem, 2020.

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## STRESZCZENIE

### Uzupełnienie wykazu grzybów wielkoowocnikowych (Fungi: Macromycetes) wsi Wyskok na Pojezierzu Mazurskim

W latach 2017-2021 w najbliższej okolicy wsi Wyskok na Pojezierzu Mazurskim stwierdzono kolejne 22 gatunki, których nie było w poprzednim wykazie grzybów wielkoowocnikowych z tej miejscowości (HOFFEINS *et al.* 2017). Wśród nich, dwa są umieszczone na polskiej czerwonej liście – *Fistulina hepatica* (rzadki) i *Stropharia albonitens* (narażony na wyginięcie). Uzupełniona lista macromycetes wykazanych z Wysokoku obejmuje zatem 347 gatunków. Rosnąca z roku na rok liczebność ciepłolubnego *Amanita strobiliformis* na Pojezierzu Mazurskim świadczy o ocieplaniu się klimatu także w tej części Polski.

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