

PRELIMINARY RED LIST OF BASIDIOMYCETES IN THE GÓRY ŚWIĘTOKRZYSKIE MTS (POLAND)

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Abstract: This article presents a preliminary red list of Basidiomycetes for the Góry Świętokrzyskie Mts (Poland). Categories of threat are given in accordance with the accepted rules presented in the Polish 'Red List'. The list includes 313 species, with proposals of species not on the national list, and refers to species believed to be under threat or extinct in the Góry Świętokrzyskie Mts.

Key words: threatened fungi, threat categories, regional red list of Basidiomycetes, Poland

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INTRODUCTION

The disappearance of stations of fungi in Poland has been caused by degradation of the natural environment associated with industrialization, especially in the 1960s and 1970s, occurring at different intensities in various regions. The main factor responsible for the disappearance of fungi is pollution of the air with SO₂ and NO_x; this is combined with negative changes in the local natural environment. The most significant effects, apart from acid rain, are these: microclimatic changes caused by draining of wet boggy forests and peat bogs, clearance of large areas of old forest stands, and substitution for greenwood; conversion of multispecies forest stands to monospecific forests, mostly pinewood; and removal of dead tree debris, trunks, logs and thicker branches, causing the impoverishment of nutrient resources, especially for xylobionts. The popular practice of mushrooming has also exerted a considerable effect: the forest floor is trampled and litter with mycelia is damaged. Also significant are natural factors such as insect and frost damage, which have seriously affected the composition of specific stands (Jędrzejczyk 1998). Chemical spraying and mineral fertilization of forests have also exerted an effect. All these factors impact fungi populations,

and the duration of their influence is difficult to determine. The tolerance and sensitivity of particular species of fungi vary widely.

In the Góry Świętokrzyskie Mts, of the more than 1000 species of fungi¹, over 220 are recognized as threatened according to the second national red list (Wojewoda & Ławrynowicz 1992). It appears, however, that the real number of threatened species is much greater. In the course of the last 100 years over 50 species previously described have not been found again.

Environmental monitoring based on repeated observation is the basis of the regional red list. Regional lists of threatened species can serve as resource material for the development of more general lists. So far two Polish lists of threatened fungi (Wojewoda & Ławrynowicz 1986, 1992) and two regional lists for the Polish Carpathians and Upper Silesia (Wojewoda 1991, 1999) have been published. Here I submit the first red list of threatened fungi in the Góry Świętokrzyskie Mts.

¹ The term fungi refers here to macroscopic ascomycetous and basidiomycetous fungi usually called macromycetes, if not stated otherwise.

Unlike the above mentioned lists, it concerns only Basidiomycetes sensu Hawksworth *et al.* (1995).

SCOPE OF THE INVESTIGATION

The study area is the Góry Świętokrzyskie Mts, and the mezoregion limits are as designated by Kondracki (2001). The area of this physiographic unit is 1680 km² and includes 12 microregions. In its central part, which includes all the Łysogóry range and part of the Pasma Klonowskie and Pokrzywianka ranges, is Święty Krzyż National Park, surrounded by five landscape parks, several areas of protected landscape and dozens of nature reserves (Sidło *et al.* 2000). The protected areas occupy over 1000 km² of the territory under discussion, that is, over 60% of the mezoregion area.

STATE OF RESEARCH

The oldest data about fungi of the Góry Świętokrzyskie Mts come from Rzączyński (1721) in the pre-Linnean period. He lists a dozen or so species, including '*Agaricum officinale*' [= *Fomitopsis officinalis* (Vill.: Fr.) Bondartsev & Singer].

Subsequent information about fungi is given by Jastrzębowski (1829). A more comprehensive picture of fungus populations is given by Berdau (1876) and Błoński (1890, 1896) at the end of the 19th century. In the past century, investigations by Moesz (1920), Orłoś (1935), Pachlewski (1953, 1955), Domański (1962), Anonymous (1968), Lisiewska (1978, 1979), Hjortstam and Larsson (1982), Niemelä and Ryvarden (1983) and Łuszczynski (1993, 1997, 1998a, b, 1999a, b, 2000a, b, c) have supplemented our knowledge of fungi in the Góry Świętokrzyskie Mts. Altogether over 1000 species from the investigated area have been described. The majority of former stations 50 years old and older were verified again, but the number of species not found again was high as well. Other fungi have had a decrease in the number of their stations. The disappearance of fungi is a deepening process whose rate is influenced by the numerous factors mentioned above.

MATERIALS AND METHODS

For this first preliminary red list of Basidiomycetes of the Góry Świętokrzyskie Mts, species not recorded for at least 100 years were selected first, followed by those not recorded for 50 years and more, and then species whose number of stations is decreasing due to the disappearance of their natural habitats. These are above all highly specialized organisms closely connected with particular types of habitats including peat bogs, forest bogs and swamps, xerothermic or psammophilic grasses, and old tree stands. They are unable to live outside these ecosystems, and for this reason they are recognized as threatened species. Special attention was paid to estimation of edible fungi, which are particularly affected by extensive mushrooming. A considerable number of these fungi were on the national red list.

The list also includes species under strict legal protection, rare or in the process of extinction in the Góry Świętokrzyskie Mts. In the case of some species such as *Phallus impudicus* L.: Pers. and *Mutinus caninus* (Huds.: Pers.) Fr., the disappearance of their stations has not been observed; on the contrary, these fungi are spreading and entering synanthropic habitats such as cemeteries and parks. These species are not placed on the list because of their expansive character.

Nomenclature was adopted mostly after Hansen and Knudsen (1992, 1997), supplemented by more recent studies including Stangl (1989) and Ryvarden and Gilbertson (1993, 1994).

RESULTS

The preliminary red list of basidiomycetes for the Góry Świętokrzyskie Mts recapitulates a stage of an investigation which is not completed and requires continuation. The list includes 313 species, over 30% of all fungi in the region (Table 1). These proportions can vary in the course of further investigation. The list includes new species determined to be threatened or extinct in the Góry Świętokrzyskie Mts. The categories of threat assigned to definite species refer only to the investigated area, and can differ in other regions of Poland because regional conditions and threats vary. The general fungal stock in the Góry Świętokrzyskie Mts is estimated at over 1500 species. The present study is only a working list, to be corrected during further investigations. It will be

Table 1. Preliminary red list of Basidiomycetes of the Góry Świętokrzyskie Mts. Categories of threatened fungi: Ex – extinct, E – endangered, V – vulnerable, R – rare, I – indeterminate; Św. Mts – Góry Świętokrzyskie Mts; 1992 – *Red list of threatened macrofungi in Poland* (Wojewoda & Ławrynówicz 1992); < 1900 – last time recorded before 1900; Prot. – fungi protected by law.

Species	Św. Mts	1992	Remarks
<i>Agaricus augustus</i> Fr.	R	R	
<i>Agaricus xanthoderma</i> Genev.	R	R	
<i>Albatrellus confluens</i> (Alb. & Schwein.: Fr.) Kotl. & Pouzar	E	V	
<i>Albatrellus cristatus</i> (Pers.: Fr.) Kotl. & Pouzar	E	E	
<i>Albatrellus ovinus</i> (Schaeff.: Fr.) Kotl. & Pouzar	E	V	
<i>Aleurodiscus amorphus</i> (Pers.: Fr.) J. Schroet.	I		
<i>Amanita aspera</i> (Fr.) Gray	E	R	< 1900
<i>Amanita strobiliformis</i> (Paulet) Bertillon [= <i>A. solitaria</i> (Bull.: Fr.) Mérat]	Ex		< 1900
<i>Amanita virosa</i> (Fr.) Bertillon	R	V	
<i>Amylostereum chailletii</i> (Pers.: Fr.) Boidin	R		
<i>Antrodia crassa</i> (P. Karst.) Ryvarden	V	V	
<i>Antrodia sinuosa</i> (Fr.) P. Karst.	R	R	
<i>Antrodiella citrinella</i> Niemelä & Ryvarden	R	R	
<i>Antrodiella hoehnelii</i> (Bres.) Niemelä	R	R	
<i>Armillaria tabescens</i> (Scop.: Fr.) Emel	E	R	
<i>Arrhenia glauca</i> (Batsch) Høil.	V		
<i>Arrhenia spathulata</i> (Fr.) Redhead	V	I	
<i>Athelia decipiens</i> (Höhn. & Litsch.) J. Erikss.	I		
<i>Auriculariopsis ampla</i> (Lév.) Maire	R		
<i>Bankera fuligineoalba</i> (Schmidt: Fr.) Pouzar	E	E	
<i>Bankera violascens</i> (Alb. & Schwein.: Fr.) Pouzar	Ex?		< 1900
<i>Bjerkandera fumosa</i> (Pers.: Fr.) P. Karst.	R		
<i>Boletinus cavipes</i> (Klotzsch) Kalchbr.	R	E	
<i>Boletus calopus</i> Pers.: Fr.	E	I	< 1900
<i>Boletus luridiformis</i> Rostk.	R		
<i>Boletus luridus</i> Schaeff.: Fr.	R		
<i>Boletus parasiticus</i> Bull.: Fr.	R	R	Prot.
<i>Boletus pinophilus</i> Pilát & Dermek	R	I	
<i>Boletus pulverulentus</i> Opat.	R		
<i>Boletus queletii</i> Schulzer	E	E	
<i>Boletus reticulatus</i> Schaeff.	R	V	
<i>Bondarzewia mesenterica</i> (Schaeff.) Kreisel	E	V	
<i>Botryobasidium laeve</i> (J. Erikss.) Parmasto	R	R	
<i>Botryobasidium obtusisporum</i> J. Erikss.	R	R	
<i>Botryobasidium vagum</i> (Berk. & M. A. Curtis) D. P. Rogers [= <i>B. botryosum</i> (Bres.) J. Erikss.]	R	R	
<i>Botryohypochnus isabellinus</i> (Fr.) J. Erikss.	R		
<i>Bovista aestivalis</i> (Bonord.) Demoulin	R		
<i>Bovista tomentosa</i> (Vittad.) Quél.	R	R	
<i>Calvatia utriformis</i> (Bull.: Pers.) Jaap	R		
<i>Camarophyllus pratensis</i> (Pers.: Fr.) P. Kumm.	R	I	
<i>Camarophyllus virgineus</i> (Wulfen: Fr.) P. Kumm.	E	I	< 1900

(cont.)

Table 1. Continued.

Species	Św. Mts	1992	Remarks
<i>Cantharellus aurora</i> (Batsch) Kuyper	R		
<i>Cantharellus cinereus</i> Pers.: Fr.	R		
<i>Ceratobasidium cornigerum</i> (Bourdot) D. P. Rogers	R		
<i>Ceriporiopsis mucida</i> (Pers.: Fr.) Gilb. & Ryvarden	R	R	
<i>Clavaria fragilis</i> Holmsk.: Fr.	R		
<i>Clavaria fumosa</i> Pers.: Fr.	R		
<i>Clavariadelphus junceus</i> (Alb. & Schwein.: Fr.) Corner	R	R	
<i>Clavariadelphus pistillaris</i> (L.: Fr.) Donk	E	V	
<i>Clavicornia pyxidata</i> (Pers.: Fr.) Doty	R	I	
<i>Clavulicium vinososcabens</i> (Burt) Pouzar [= <i>C. macounii</i> (Burt) J. Erikss. & Boidin ex Parmasto]	E	E	
<i>Clavulina rugosa</i> (Bull.: Fr.) J. Schroet.	R	R	
<i>Clitocybe amarescens</i> Harmaja	R		
<i>Clitocybe candicans</i> (Pers.: Fr.) P. Kumm.	R	I	
<i>Clitocybe ericetorum</i> (Bull.) Quél.	R		
<i>Clitocybe hydrogramma</i> (Bull.: Fr.) P. Kumm.	R		
<i>Clitocybe inornata</i> (Sowerby: Fr.) Gillet	R		
<i>Clitocybe lignatilis</i> (Pers.: Fr.) P. Karst.	E	V	< 1900
<i>Clitocybe pruinosa</i> P. Kumm. (= <i>C. radicellata</i> Gillet)	R	R	
<i>Clitocybe vermicularis</i> (Fr.) Quél.	R		
<i>Clitocybe vernicosa</i> (Fr.) sensu Ricken	R		
<i>Coprinus digitalis</i> (Batsch) Fr.	E		< 1900
<i>Cortinarius acutus</i> (Pers.: Fr.) Fr.	R	R	
<i>Cortinarius armeniacus</i> (Schaeff.: Fr.) Fr.	E	I	< 1900
<i>Cortinarius armillatus</i> (Fr.: Fr.) Fr.	R		
<i>Cortinarius balaustinus</i> Fr.	R	R	
<i>Cortinarius bivelus</i> (Fr.: Fr.) Fr.	E	V	< 1900
<i>Cortinarius bulliardii</i> (Pers.: Fr.) Fr.	V		< 1900
<i>Cortinarius elatior</i> Fr.	R		
<i>Cortinarius elegantior</i> (Fr.) Fr.	R		
<i>Cortinarius malachus</i> (Fr.: Fr.) Fr.	R	R	
<i>Cortinarius mucosus</i> (Bull.: Fr.) J. J. Kickx	R		
<i>Cortinarius muscigenus</i> Peck	V		< 1900
<i>Cortinarius nemorensis</i> (Fr.) J. E. Lange	R		
<i>Cortinarius parevernus</i> Rob. Henry	R		
<i>Cortinarius sanguineus</i> (Wulfen: Fr.) Fr.	R		
<i>Cortinarius spadiceus</i> (Batsch) Fr.	E	I	< 1900
<i>Cortinarius venetus</i> (Fr.: Fr.) Fr.	R		
<i>Cortinarius violaceocinereus</i> (Pers.: Fr.) Fr.	E		< 1900
<i>Cortinarius violaceus</i> (L.) Gray emend. M. M. Moser	E	E	
<i>Craterellus cornucopioides</i> (L.: Fr.) Pers.	R		
<i>Creolophus cirrhatus</i> (Pers.: Fr.) P. Karst.	E	V	
<i>Crepidotus applanatus</i> (Pers.) P. Kumm.	E	I	< 1900
<i>Cystoderma granulatum</i> (Batsch: Fr.) Fayod	R	R	

Table 1. Continued.

Species	Św. Mts	1992	Remarks
<i>Cystoderma terrei</i> (Berk. & Broome) Harmaja	R	R	
<i>Cystostereum murrayi</i> (Berk. & M. A. Curtis) Pouzar	V	V	
<i>Dacryomyces ovisporus</i> Bref.	E	R	
<i>Datronia mollis</i> (Sommerf.: Fr.) Donk	R	I	
<i>Dichomitus campestris</i> (Quél.) Domański & Orlicz	V	V	
<i>Dichomitus squalens</i> (P. Karst.) D. A. Reid	V	V	
<i>Diplomitoporus flavescens</i> (Bres.) Domański	V	R	
<i>Entoloma asprellum</i> (Fr.) Fayod	R	I	
<i>Entoloma atromarginatum</i> (Romagn. & J. Favre) Zschiesch.	V	I	
<i>Entoloma byssisedum</i> (Pers.: Fr.) Donk	R	I	
<i>Entoloma euchroum</i> (Pers.: Fr.) Donk	E	I	
<i>Entoloma griseorubidum</i> Kühner ex Noordel.	R		
<i>Entoloma incanum</i> (Fr.: Fr.) Hesler	V		
<i>Entoloma minutum</i> (P. Karst.) Noordel.	R	I	
<i>Entoloma nefrens</i> (Fr.) Quél.	E		
<i>Entoloma percandidum</i> Noordel.	R		
<i>Entoloma rhodocylix</i> (Lasch: Fr.) M. M. Moser	R	I	
<i>Entoloma rusticoides</i> (Gillet) Noordel.	R	I	
<i>Entoloma speculum</i> (Fr.) Quél.	R	I	
<i>Entoloma turci</i> (Bres.) M. M. Moser	R		
<i>Exidia saccharina</i> (Alb. & Schwein.: Fr.) Fr.	R		
<i>Exidia villosa</i> Neuhoff	E	E	
<i>Exidiopsis grisea</i> (Pers.) Bourdot & Galzin	R		
<i>Fistulina hepatica</i> (Schaeff): Fr.	R	V	
<i>Flammulaster carpophilus</i> (Fr.) Earle	R	I	
<i>Fomitopsis officinalis</i> (Vill.: Fr.) Bondartsev & Singer	E	E	Prot.
<i>Galerina nana</i> (Petri) Kühner	R	I	
<i>Galerina paludosa</i> (Fr.) Kühner	R	I	
<i>Galerina sphagnorum</i> (Pers.: Fr.) Kühner	R	I	
<i>Galerina triscopa</i> (Fr.) Kühner	R	I	
<i>Ganoderma carnosum</i> Pat.	E	R	
<i>Ganoderma lucidum</i> (M. A. Curtis: Fr.) P. Karst.	E	R	
<i>Geastrum coronatum</i> Pers.	E	V	< 1900
<i>Geastrum fimbriatum</i> Fr.	R	R	
<i>Geastrum minimum</i> Schwein.	R	V	
<i>Geastrum pectinatum</i> Pers.	V	V	
<i>Geastrum quadrifidum</i> Pers.: Pers.	V	R	
<i>Geastrum rufescens</i> Pers.: Pers.	E	E	
<i>Gloeoporus taxicola</i> (Pers.: Fr.) Gilb. & Ryvarde	R	R	
<i>Gomphidius glutinosus</i> (Schaeff.: Fr.) Fr.	R	R	
<i>Gomphidius roseus</i> (Fr.) Fr.	R	R	
<i>Gomphus clavatus</i> (Pers.: Fr.) Gray	E	E	< 1900
<i>Grifola frondosa</i> (Dicks.: Fr.) Gray	V	V	Prot.
<i>Gymnopilus picreus</i> (Pers.: Fr.) P. Karst.	R	I	

(cont.)

Table 1. Continued.

Species	Św. Mts	1992	Remarks
<i>Gymnopus fusipes</i> (Bull.: Fr.) Gray [= <i>Collybia fusipes</i> (Bull.: Fr.) Quél.]	I		
<i>Gymnopus ocior</i> (Pers.) Antonín & Noordel. [= <i>Collybia ocior</i> (Pers.) Vilgalys & O. K. Mill.]	R		
<i>Gyroporus castaneus</i> (Bull.: Fr.) Quél.	R	I	
<i>Hapalopilus salmonicolor</i> (Berk. & M. A. Curtis) Pouzar	E	E	
<i>Hebeloma claviceps</i> (Fr.) P. Kumm.	R	R	
<i>Hebeloma pumilum</i> J. E. Lange	V	V	
<i>Hebeloma pusillum</i> J. E. Lange	V	V	
<i>Hebeloma radicosum</i> (Bull.: Fr.) Ricken	V	R	
<i>Hebeloma vaccinum</i> Romagn.	R		
<i>Hemimycena crispata</i> (Kühner) Singer	R	R	
<i>Hemimycena delectabilis</i> (Peck) Kühner	R	R	
<i>Hericium coralloides</i> (Scop.: Fr.) Gray	V	V	Prot.
<i>Hericium flagellum</i> (Scop.) Pers.	V	V	Prot.
<i>Hydnellum aurantiacum</i> (Batsch: Fr.) P. Karst.	E	V	< 1900
<i>Hydnum rufescens</i> Schaeff.: Fr.	R		
<i>Hydropus atramentosus</i> (Kalchbr.) Kotl. & Pouzar	E	E	
<i>Hydropus marginellus</i> (Pers.: Fr.) Singer	E	E	
<i>Hygrocybe ceracea</i> (Wulfen: Fr.) P. Karst.	Ex	Ex	< 1900
<i>Hygrocybe coccinea</i> (Schaeff.: Fr.) P. Kumm.	V	I	< 1900
<i>Hygrocybe konradii</i> R. Haller Aar.	V		
<i>Hygrocybe lepida</i> Arnolds	V	V	
<i>Hygrocybe ovina</i> (Bull.: Fr.) Kühner	E	R	< 1900
<i>Hygrocybe persistens</i> (Britzelm.) Singer	E	E	
<i>Hygrocybe psittacina</i> (Schaeff.: Fr.) P. Kumm.	V	I	< 1900
<i>Hygrophorus eburneus</i> (Bull.: Fr.) Fr.	R		
<i>Hygrophorus erubescens</i> (Pers.: Fr.) Fr.	E		< 1900
<i>Hygrophorus gliocyclus</i> Fr.	E	E	
<i>Hygrophorus hyacinthinus</i> Quél.	E	E	
<i>Hygrophorus lucorum</i> Kalchbr.	E		
<i>Hygrophorus olivaceoalbus</i> (Fr.: Fr.) Fr.	R		
<i>Hygrophorus pudorinus</i> (Fr.) Fr. <i>sensu</i> Quél., Kühner & Romagn., M. M. Moser	V	V	
<i>Hygrophorus unicolor</i> Gröger	R		
<i>Hymenochaete cruenta</i> (Pers.: Fr.) Donk	R	R	
<i>Hyphodontia alienata</i> (S. Lundell) J. Erikss.	R		
<i>Hypsizygus ulmarius</i> (Bull.: Fr.) Redhead	E	R	< 1900
<i>Hysterangium hessei</i> Soehner	Ex	Ex	
<i>Inocybe abjecta</i> (P. Karst.) Sacc.	R	R	
<i>Inocybe griseoililacina</i> J. E. Lange	R	R	
<i>Inocybe inconcinna</i> P. Karst.	R		
<i>Inocybe pusio</i> P. Karst.	R		
<i>Inonotus cuticularis</i> (Bull.: Fr.) P. Karst.	R	I	
<i>Inonotus hispidus</i> (Bull.: Fr.) P. Karst.	E	R	< 1900

Table 1. Continued.

Species	Św. Mts	1992	Remarks
<i>Inonotus obliquus</i> (Pers.: Fr.) Pilát	R	R	
<i>Ischnoderma benzoinum</i> (Wahlenb.: Fr.) P. Karst.	E	R	< 1900
<i>Ischnoderma resinosum</i> (Fr.) P. Karst.	E	V	
<i>Junghuhnia nitida</i> (Pers.: Fr.) Ryvarden	R	R	
<i>Lactarius acris</i> (Bolton:Fr.) Gray	R	I	
<i>Lactarius chrysorrheus</i> Fr.	R	R	
<i>Lactarius deterrimus</i> Gröger	R		
<i>Lactarius lacunarum</i> Romagn. ex Hora	R	I	
<i>Lactarius lilacinus</i> (Lasch: Fr.) Fr.	R	I	
<i>Lactarius porninsis</i> Rolland	R		
<i>Lactarius salmonicolor</i> R. Heim & Leclair	R	V	
<i>Lactarius scrobiculatus</i> (Scop.: Fr.) Fr.	E		< 1900
<i>Lactarius semisangifluus</i> R. Heim & Leclair	R	V	
<i>Lactarius serifluus</i> (DC.: Fr.) Fr.	R		
<i>Lactarius sphagnetii</i> (Fr.) Neuhoff ex Gröger	R	I	
<i>Lactarius trivialis</i> (Fr.: Fr.) Fr.	R	I	
<i>Lactarius zonarius</i> (Bull.) Fr. <i>sensu</i> Neuhoff	R		
<i>Langermannia gigantea</i> (Batsch: Pers.) Rostk.	R		Prot.
<i>Leccinum niveum</i> (Fr.) Rauschert	V	V	
<i>Leccinum roseofractum</i> Watling [= <i>L. melaneum</i> (Smotl.) Pilát & Dermek]	V	V	
<i>Leccinum variicolor</i> Watling	R		
<i>Leccinum vulpinum</i> Watling	R	I	
<i>Lentinellus ursinus</i> (Fr.) Kühner	V	V	
<i>Lentinus adhaerens</i> (Alb. & Schwein.: Fr.) Fr.	R		
<i>Lentinus tigrinus</i> (Bull.: Fr.) Fr.	R	I	
<i>Lentinus torulosus</i> (Pers.: Fr.) Lloyd	R	R	
<i>Lepiota alba</i> (Bres.) Sacc.	E	V	
<i>Lepiota ochraceofulva</i> P. D. Orton	R		
<i>Leucocortinarius bulbiger</i> (Alb. & Schwein.: Fr.) Singer	R	R	
<i>Leucopaxillus compactus</i> (Fr.) Neuhoff	R		
<i>Litschauerella abietis</i> (Bourdot & Galzin) Oberw.	R		
<i>Lobulicium occultum</i> K. H. Larss. & Hjortstam	R	E	
<i>Lycoperdon echinatum</i> Pers.: Pers.	R	I	
<i>Lycoperdon mammiforme</i> Pers.	E	E	
<i>Lyophyllum palustre</i> (Peck) Singer	V	I	
<i>Macrolepiota nymphoides</i> (Kalchbr.) Wasser	R		
<i>Marasmius prasiosmus</i> (Fr.: Fr.) Fr.	R		
<i>Marasmius tremulae</i> Velen.	R		
<i>Marasmius undatus</i> (Berk.) Fr.	R		
<i>Marasmius wynnei</i> Berk. & Broome	R		
<i>Melanoleuca graminicola</i> (Velen.) Kühner & Maire	R		
<i>Melanophyllum hematospermum</i> (Bull.: Fr.) Kreisel	R	R	
<i>Mycena abramsi</i> Murrill	R	R	

(cont.)

Table 1. Continued.

Species	Św. Mts	1992	Remarks
<i>Mycena atroalba</i> (Bolton: Fr.) Gray	R	R	
<i>Mycena aurantiomarginata</i> (Fr.) Quél.	R	R	
<i>Mycena citrinomarginata</i> Gillet	R		
<i>Mycena crocata</i> (Schrad.: Fr.) P. Kumm.	R	R	
<i>Mycena flavescens</i> Velen.	R	R	
<i>Mycena megaspora</i> Kauffman	E	V	
<i>Mycena pelianthina</i> (Fr.) Quél.	R	I	
<i>Mycena pterigena</i> (Fr.: Fr.) P. Kumm.	R	I	
<i>Mycena renati</i> Quél.	E	V	
<i>Mycena rorida</i> (Fr.: Fr.) Quél.	R		
<i>Mycena tintinabulum</i> (Fr.) Quél.	R		
<i>Mycena vitrea</i> (Fr.) Quél.	R	R	
<i>Oligoporus ptychogaster</i> (F. Ludw.) Donk	E	R	
<i>Omphalina epichysium</i> (Pers.: Fr.) Quél.	R	R	
<i>Omphalina griseopallida</i> (Desm.) Quél.	R		
<i>Omphalina rustica</i> (Fr.) Quél.	R		
<i>Omphalina sphagnicola</i> (Berk.) M. M. Moser	V	V	
<i>Omphalina umbellifera</i> (L.: Fr.) Quél.	R	I	
<i>Oudemansiella mucida</i> (Schrad.: Fr.) Höhn.	R	V	
<i>Panaeolus papilionaceus</i> (Bull.: Fr.) Quél.	R	I	< 1900
<i>Perennioporia medullapanis</i> (Jacq.) Donk	R	R	
<i>Phaeolus schweinizii</i> (Fr.) Pat.	R	R	
<i>Phaeomarasmium erinaceus</i> (Fr.) Kühner	R	R	
<i>Phanerochaete ravenelii</i> (Cooke) Burds.	R	R	
<i>Phellinus nigrolimitatus</i> (Romell) Bourdot & Galzin	R	R	
<i>Phellinus pini</i> (Brot.: Fr.) A. Ames	V	R	
<i>Phellinus tremulae</i> (Bondartsev) Bondartsev & Borissov	R	I	
<i>Phellodon tomentosus</i> (L.: Fr.) Banker	E		< 1900
<i>Phlebia lilascens</i> (Bourdot) J. Erikss. & Hjortstam	R	I	
<i>Pholiota adiposa</i> (Batsch: Fr.) P. Kumm.	V	I	< 1900
<i>Pholiota flavida</i> (Schaeff.: Fr.) Singer	E	E	
<i>Phylloporia ribis</i> (Schumach.: Fr.) Ryvarden	R	I	
<i>Phyllotopsis nidulans</i> (Pers.: Fr.) Singer	E	E	
<i>Physisporinus vitreus</i> (Pers.: Fr.) P. Karst.	V	V	
<i>Pleurotus calypttratus</i> (Lindblad) Sacc.	E	V	
<i>Pleurotus cornucopiae</i> (Paulet ex Pers.) Rolland	V	V	
<i>Pleurotus pulmonarius</i> (Fr.) Quél.	V	V	
<i>Pluteus chrysophaeus</i> (Schaeff.: Fr.) Quél.	R	I	
<i>Pluteus ephebeus</i> (Fr.: Fr.) Gillet	R		
<i>Pluteus exiguus</i> (Pat.) Sacc.	R		
<i>Pluteus godeyi</i> Gillet	R	I	
<i>Pluteus pseudorobertii</i> M. M. Moser & Stangl	R		
<i>Pluteus umbrosus</i> (Pers.: Fr.) P. Kumm.	R		
<i>Polyporus arcularius</i> (Batsch): Fr.	R		

Table 1. Continued.

Species	Św. Mts	1992	Remarks
<i>Polyporus umbellatus</i> (Pers.): Fr.	V	V	Prot.
<i>Porphyrellus porphyrosporus</i> (Fr.) J.-E. Gilbert	R	R	
<i>Protomerulius caryae</i> (Schwein.) Ryvarden	V	V	
<i>Pseudocraterellus undulatus</i> (Pers.: Fr.) Rauschert	R		
<i>Psilocybe albonitens</i> (Fr.) Noordel. [= <i>Stropharia albonitens</i> (Fr.) P. Karst.]	R	I	
<i>Psilocybe ericaea</i> (Pers.: Fr.) Quél. [= <i>Hypholoma ericaeum</i> (Pers.: Fr.) Kühner]	E	E	< 1900
<i>Psilocybe inuncta</i> (Fr.: Fr.) Noordel. [= <i>Stropharia inuncta</i> (Fr.) Quél.]	R		
<i>Psilocybe merdaria</i> (Fr.: Fr.) Ricken	R	I	
<i>Psilocybe montana</i> (Pers.: Fr.) P. Kumm.	R	I	
<i>Psilocybe phyllogena</i> (Peck) Peck	R	I	
<i>Psilocybe polytrichi</i> (Fr.: Fr.) A. Pearson & Dennis [= <i>Hypholoma polytrichi</i> (Fr.) Ricken]	R	R	
<i>Psilocybe subericaea</i> (Fr.) Sacc. [= <i>Hypholoma subericaeum</i> (Fr.) Kühner]	R	I	
<i>Psilocybe uda</i> (Pers.: Fr.) Gillet [= <i>Hypholoma udum</i> (Pers.: Fr.) Kühner]	R	R	
<i>Pycnoporellus fulgens</i> (Fr.) Donk	R	R	
<i>Radulomyces molaris</i> (Chaillet: Fr.) M. P. Christ.	R	R	
<i>Ramaria botrytis</i> (Pers.: Fr.) Ricken	E	R	< 1900
<i>Ramaria corrugata</i> (P. Karst.) Schild	E		
<i>Resupinatus unguicularis</i> (Fr.) Singer	R		
<i>Rigidoporus crocatus</i> (Pat.) Ryvarden	V	V	
<i>Ripartites tricholoma</i> (Alb. & Schwein.: Fr.) P. Karst.	R		
<i>Russula alutacea</i> (Pers.: Fr.) Fr. s. lato	R	I	
<i>Russula amoena</i> Quél. s. lato	R	I	
<i>Russula aurea</i> Pers.	R		
<i>Russula livescens</i> (Batsch) Quél.	R	I	
<i>Russula mustelina</i> Fr.	E		< 1900
<i>Russula olivacea</i> (Schaeff.) Fr.	E	R	< 1900
<i>Russula pungens</i> Beardslee	R	R	
<i>Russula violacea</i> Quél. sensu Romagn.	R		
<i>Russula zonatula</i> Ebbesen & Jul. Schäff.	R		
<i>Sarcodon imbricatus</i> (L.: Fr.) P. Karst.	E	V	< 1900
<i>Skeletocutis lenis</i> (P. Karst.) Niemelä	E	V	
<i>Skeletocutis nivea</i> (Jungh.) Jean Keller	V		
<i>Skeletocutis odora</i> (Sacc.) Ginns	V	V	
<i>Skeletocutis stellae</i> (Pilát ex Pilát) Jean Keller	V	V	
<i>Sparassis brevipes</i> Krombh.	E	V	< 1900 Prot.
<i>Sparassis crispa</i> (Wulfen): Fr.	R	R	Prot.
<i>Steccherinum rhois</i> (Schwein.) Banker	R		
<i>Stereum subtomentosum</i> Pouzar	R	R	
<i>Strobilomyces strobilaceus</i> (Scop.: Fr.) Berk.	E	I	Prot.

(cont.)

Table 1. Continued.

Species	Św. Mts	1992	Remarks
<i>Suillus flavidus</i> (Fr.: Fr.) Singer	V	R	
<i>Thelephora caryophyllea</i> (Schaeff.): Fr.	R	R	
<i>Trametes pubescens</i> (Schumach.: Fr.) Pilát	V	V	< 1900
<i>Trechispora mollusca</i> (Pers.: Fr.) Liberta	R	R	
<i>Tricholoma atosquamosum</i> (Chevall.) Sacc.	R		
<i>Tricholoma flavovirens</i> (Pers.: Fr.) S. Lundell	I	I	
<i>Tricholoma pessundatum</i> (Fr.) Quél.	R	I	
<i>Tricholoma vaccinum</i> (Schaeff.: Fr.) P. Kumm.	E		< 1900
<i>Tricholoma virgatum</i> (Fr.: Fr.) P. Kumm.	R		
<i>Tricholomopsis decora</i> (Fr.) Singer	R	R	
<i>Tulostoma brumale</i> Pers.: Pers.	E	R	
<i>Tyromyces chioneus</i> (Fr.: Fr.) P. Karst.	V	V	
<i>Volvariella bombycina</i> (Schaeff.: Fr.) Singer	R	I	
<i>Volvariella gloiocephala</i> (DC.: Fr.) Singer	R		
<i>Volvariella pusilla</i> (Pers.: Fr.) Singer	R	I	
<i>Xerula melanotricha</i> Dörfelt	E	E	
<i>Xerula pudens</i> (Pers.) Singer	R	V	

possible to tracing future changes thanks to the establishment of a great number of permanent observation points, which are marked on site.

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