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Macromycetes of the Janów Forests reserve

Macromycetes (grzyby wielkoowocnikowe) rezerwatu Lasy Janowskie

The natural-historical reserve of Janów Forests has existed since 1984. It is situated in the northern part of the Biłgoraj Plain – a unit lying at the foot of Western Roztocze region, which constitutes the north-eastern part of the Sandomierz Basin, within the borders of the Lublin district. While establishing it, the historical reasons were taken into consideration (the Porytowe Hill – a place of the greatest partisan battles with the German invader during World War II) as well as landscape and florist ones. The landscape valours are emphasized by the picturesque Branew river and its natural basin together with a complex of ponds.

The vast forest complex and numerous moors hide a lot of peculiar plants (1). Besides interesting flora one finds a considerable variety of plant communities (71 associations). The dominant are woods, peat – bogs and alder, while mixed woods with the dominating fir tree (*Abies*) are an extraordinarily valuable element of the reserve.

The Janów Lubelski Reserve is the most spacious (2672.82 ha) of the six reserves lying within the Janów Forests Landscape Park.

The Janów Forests reserve has not been studied in respect of its mycology so far. The mycological studies conducted between 1994 and 1997 made it possible then to get to know the so far unknown fungous flora of the reserve. Some of the interesting species found there were published earlier (2, 3).

CHARACTERISTICS OF FUNGOUS FLORA

The observations performed in the Janów Forests reserve found out 177 species of macromycetes belonging to 11 orders, 32 families and 91 genera (Tab. 1). The most numerous flora of macromycetes found in the reserve is

presented by the families of *Tricholomataceae*, *Russulaceae*, *Boletaceae* and *Polyporaceae* (Fig. 1).

Table 1. Number of macromycetes taxons found in the Janów Forests reserve

Order	Family	Genus	Species
<i>Hypocreales</i>	1	1	1
<i>Perizales</i>	1	1	1
<i>Tremellales</i>	1	3	6
<i>Dacrymycetales</i>	1	2	3
<i>Aphylllophorales</i>	11	27	34
<i>Boletales</i>	2	7	18
<i>Agaricales</i>	10	43	81
<i>Russulales</i>	1	2	25
<i>Sclerodermatales</i>	1	1	2
<i>Niduriales</i>	2	2	2
<i>Lycoperdales</i>	1	2	4
Totally	32	91	177

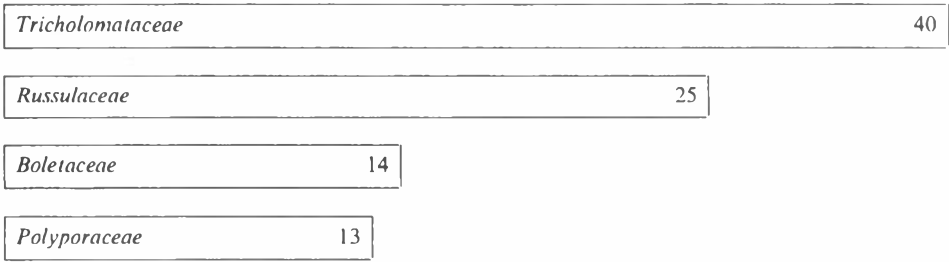


Fig. 1. The richest in species macromycetes families in the Janów Forests reserve



Fig. 2. The richest in species macromycetes genera found in the Janów Forests reserve

Among the 91 genera under observation the ones which were most numerous in their species turned out to be the following: *Lactarius*, *Russula*, *Amanita*, *Collybia*, *Mycena* and *Suillus* (Fig. 2).

Among the species of special importance there are 16 which are included in the red list (6). They belong to three categories of danger: **V** (vulnerable) – *Boletus edulis*, *Hericium flagellum*, *Lactarius deliciosus*, *Leptopodia atra*, *Omphalina sphagnicola*, *Rhodocybe popinalis*; **R** (rare) – *Cystoderma granulorum*, *Hebeloma radicosum*, *Hymenochaete tabacina*, *Lasiochlaena benzoina*, *Neolentinus adhaerens*; **I** (indeterminate) – *Arrhenia spathulata*, *Cantharellus cibarius*, *Macrolepiota rhacodes*, *Phellinus hartigii*, *Tremella foliacea*.

Also, the habitats of 2 species (*Hericium flagellum*, *Meripilus giganteus*) under legal protection were found.

ECOLOGICAL GROUPS

Terrestrial fungi. In the Janów Forests reserve these are the most numerous group, since they constitute about 60%, i.e. 107 species (Fig. 31, Tab. 2). The majority of them (69 species) are symbionts from the orders of *Russulales*, *Agaricales*, *Boletales* and *Aphyllphorales*. It should be emphasized that in the Janów Forests reserve the genera most abundant in species (Fig. 2) are mostly symbionts (*Lactarius*, *Russula*-*Russulales*; *Amanita*-*Agaricales*; *Suillus*-*Boletales*).

Table 2. A list of species from particular ecological groups and orders in numbers

Order	Ecological group				Other substrates	Totally
	terrestrial		lignicolous			
	symbionts	saprotrophs	saprotrophs	parasites		
<i>Hypocreales</i>	—	—	—	—	1	1
<i>Pezizales</i>	—	1	—	—	—	1
<i>Tremellales</i>	—	—	5	—	1	6
<i>Dacrymycetales</i>	—	—	3	—	—	3
<i>Aphyllophorales</i>	6	1	21	5	1	34
Boletales	15	1	2	—	—	18
<i>Agaricales</i>	23	30	26	2	—	81
Russulales	25	—	—	—	—	25
<i>Gasteromycetes*</i>	—	5	3	—	—	8
	69	38	60	7	3	177
Totally	107		67		3	177

* The orders of *Sclerodermatales*, *Nidulariales*, *Lycoperdales* are included.

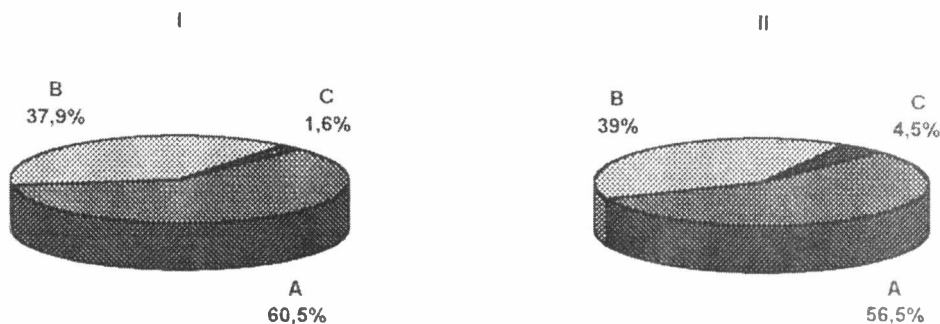


Fig. 3. Per cent share of ecological groups of macromycetes in the Janów Forests reserve; I – as regards the substrate: A – terrestrial, B – lignicolous, C – other substrates, II – as regards the form of living: A – saprotrophs, B – symbionts, C – parasites

Most of the species accompanied coniferous trees, and the greatest numbers were observed near *Pinus* (21). Pine was accompanied by the following from the order *Agaricales* (9 species): *Amanita porphyria*, *Dermocybe cinnamomea*, *D. semisanquinea*, *Hygrophorus hypothejus*, *Inocybe geophylla*, *Rozites caparata*, *Tricholoma portentosum*, *T. terreum* and *T. virgatum*. 6 species from the order *Boletales* were also observed in the vicinity of *Pinus* (*Suillus bovinus*, *S. granulatus*, *S. luteus*, *S. variegatus*, *Tylopilus felleus*, *Xerocomus badius*), as well as 5 species from the order *Russulales* (*Lactarius camphoratus*, *L. deliciosus*, *L. mitissimus*, *L. rufus*, *Russula decolorans*) and 1 species from the order *Aphyllorales* (*Cantharellus tubaeformis*).

Fructifications of *Boletus erythropus*, *Lactarius mitissimus* and *Russula badia* were collected in the vicinity of *Abies*, and *Suillus grevillei* in the vicinity of *Larix*.

Fewer species were observed near deciduous trees. However, most of them were found in the vicinity of *Betula* (10). Those were the species from the orders of *Russulales* (*Lactarius glycosmus*, *L. helvus*, *L. necator*, *L. pubescens*, *L. rufus*, *L. torminosus*, *Russula aeruginea*), *Boletales* (*Leccinum scabrum*, *L. testaceoscabrum*) and *Agaricales* (*Cortinarius armillatus*).

Fructifications of *Amanita phalloides*, *Lactarius piperatus*, *L. quietus*, *L. serifflius* and *Russula atropurpurea* were found under *Quercus*, fructifications of *Cortinarius bolaris*, *Lactarius piperatus* and *Russula fellea* were observed near *Fagus*, and of *Lactarius aurantiacus* – near *Populus*.

This considerable proportion of symbionts clearly testifies to a good condition of the forest associations of the Janów Forests reserve.

Much fewer (38 species) saprotrophs were found out. Their great majority (30 species) belong to the order *Agaricales*. The species from the genera of *Collybia* and *Mycena* were most frequently observed. The majority of the saprotrophs prefer coniferous or mixed litter, while deciduous litter is preferred to a much lesser degree. This is certainly related to the character of the forest associations (pine woods are the dominating ones).

Lignicolous fungi. A group of fungi inhabiting wood (xylobionts) in the Janów Forests reserve is smaller than the former one. 67 species were found out, which makes about 38% (Fig. 3 I, Tab. 2). The majority of them (60 species) are saprotrophs from the orders *Agaricales*, *Aphyllorphorales*, *Tremellales*, *Dacrymycetales*, *Boletales* and *Gasteromycetes*. The numbers of fungi inhabiting the deciduous and coniferous substrates are similar. However, the most species of fungi were observed on the wood of *Pinus*.

4 species were clearly noted on the wood of *Abies* (*Aleurodiscus amorphus*, *Dacrymyces stillatus*, *Hericium flagellum*, *Neolentinus adhaerens*), 3 species on the wood of *Betula* (*Pholiota aurivella*, *Piptoporus betulinus*, *Tremella foliacea*), and 2 species on the wood of *Salix* (*Hymenochaete tabacina*, *Lentinus suavis-simus*).

Among the saprotrophic xylobionts occurring in the Janów Forests reserve there is a slight proportion of species forming perennial, hard, ungulate fructifications (so-called polypores). Parasitic xylobionts (7 species) also make up a small proportion in the flora of macromycetes. They belong to 2 orders: *Aphyllorphorales* (*Hericium flagellum*, *Heterobasidion annosus*, *Meripilus giganteus*, *Phellinus hartigii*, *Piptoporus betulinus*) and *Agaricales* (*Armillariella mellea*, *Pholiota aurivella*). All the species enumerated here were sporadically noted as parasites, more frequently they showed a saprotrophic form of life.

Fungi of other substrates. This group makes a small proportion in the fungous flora of the reserve (about 1.5%). On the fallen cones of *Pinus* 2 saprotrophic species were found (*Hypocrea citrina*, *Auriscalpium vulgare*), while on the mycelium of *Stereum* growing in the wood of *Pinus*, the parasitic fructifications of *Tremella encephala* were observed. The majority of macromycetes species of the Janów Forests reserve present a saprotrophic form of life (100 species, i.e. 56.5%) and one observed a clearly big proportion of symbionts (69 species, i.e. 39%) and a slight proportion (8 species, i.e. 4.5%) of the species representing a parasitic form of life (Fig. 3 II).

LIST OF SPECIES

The nomenclature for the majority of the species is after Jülich (4) and Moser (5).

Pyrenomycetes
Hypocreales
Hypocreaceae

Hypocrea citrina (Pers.: Fr.) Fr. – on a *Pinus* cone lying in the litter, in *Abietetum polonicum*; IX.

*Ascomycetes**Pezizales**Helvellaceae*

Leptopodia atra (König: Fr.) Boud. – on bare earth, at a midforest road (3); IX.

*Basidiomycetes**Tremellales**Tremeliaceae*

Exidia glandulosa Fr. – on a dead deciduous tree, in alder; IX-X.

E. saccharina (Alb. et Schw.) Fr. – on a dead coniferous tree (*Pinus*), in pine wood; VIII-X.

Pseudohydnum gelatinosum (Scop.: Fr.) Karst. – on stumps of coniferous trees (*Pinus*), in pine woods; VIII-X.

Tremella encephala Pers.: Pers. – on fallen branches of *Pinus*, in pine wood with *Abies*; VIII-IX.

T. foliacea (Pers. ex S. F. Gray) Pers. – on a stump of a deciduous tree (*Betula*), in mixed wood (3); VIII.

T. mesenterica Retz. in Hook. – on fallen twigs of deciduous trees, in pine wood with *Abies*; VIII.

*Dacrymycetales**Dacrymycetaceae*

Calocera cornea (Batsch: Fr.) Fr. – on stumps and fallen twigs of deciduous trees, in mixed wood; IX.

C. viscosa (Pers.: Fr.) Fr. – on a dead coniferous tree, in pine wood with *Abies*; IX.

Dacrymyces stillatus Nees: Fr. – on fallen twigs of *Abies*, in *Abietetum polonicum*; IX-X.

*Aphylllophorales**Corticaceae*

Aleurodiscus amorphus (Pers.: Fr.) Schroet. – on dried twigs of *Abies*, in *Abietetum polonicum* (3); IX.

Chondrostereum purpureum (Pers.: Fr.) Pouz. – on stumps and fallen branches of deciduous trees, in mixed wood and *Abietetum polonicum*; VIII-XI.

Merulius tremellosus Schrad.: Fr. – on logs and stumps of deciduous and coniferous trees, in pine woods; VIII-X.

Phlebiopsis gigantea (Fr.) Jülich – on stumps of *Pinus*, in pine woods; VIII-X.

Stereum hirsutum (Willd.: Fr.) S. F. Gray – on stumps, logs and fallen branches of deciduous trees, in mixed wood; V-XI.

S. rugosum (Pers.: Fr.) Fr. – on dried branches of deciduous trees, in mixed wood; VIII-X.

S. sanguinolentum (Alb. et Schw.: Fr.) Fr. – on stumps and fallen branches of *Pinus*, in pine woods; VII-XI.

Clavulinaceae

Clavulina cinerea (Fr.) Schroet. – among deciduous litter, in mixed wood and in alder; VIII-IX.

C. cristata (Fr.) Schroet. – among coniferous litter, in pine woods; VIII-X.

Thelephoraceae

Thelephora palmata (Scop.): Fr. – among coniferous litter, in pine wood with *Abies*; X.

T. terrestris Pers.: Fr. – on fallen twigs, musty stumps, plant remnants and among litter on sandy soil, in alder and pine woods; VI-XI.

Hydnaceae

Hydnum repandum L.: Fr. – among deciduous litter, in mixed wood; IX.

Hericiaceae

Hericum flagellum (Scop.) Pers. – on trunks and logs of fir, in pine wood with *Abies* (2, 3); X.

Auriscalpiaceae

Auriscalpium vulgare S. F. Gray – on fallen *Pinus* cones, in pine woods; VII-X.

Cantharellaceae

Cantharellus cibarius Fr. – on sandy soil, in pine woods; VI-X.

C. tubaeformis Fr. – in tufts of mosses and among litter, in mixed wood; VII-X.

Ganodermataceae

Ganoderma lipsiense (Batsch) Atk. – on stumps and logs of deciduous trees, in alder and mixed wood;

Hymenochaetaceae

Coltricia perennis (L.: Fr.) Murr. – on sandy soil, in pine woods; VI-X.

Hymenochaete tabacina (Sow.: Fr.) Lév. – on a dried branch of willow (*Salix*), in wet underwood (2, 3); X.

Phellinus hartigii (Alb. et Schw.) Bond. – on trunks of fir, in pine wood with *Abies* (3); VII-X.

Schizophyllaceae

Schizophyllum commune Fr.: Fr. – on fallen branches of deciduous trees and bushes, in underwood, alder and in mixed wood; VI-X.

Polyporaceae

Bjerkandera adusta (Willd.: Fr.) Karst. – on stumps and branches of deciduous trees, in alder and mixed wood; VII-X.

Daedaleopsis confragosa (Bolt.: Fr.) Schroet. – on logs and stumps of deciduous trees, in mixed woods.

Fomitopsis pinicola (Sw.: Fr.) Karst. – on logs of *Pinus*, in pine woods.

Gloeophyllum sepiarium (Wulf.: Fr.) Karst. – on fallen branches of coniferous trees (*Pinus*), in pine woods; IX-X.

Heterobasidion annosus (Fr.) Bref. – at the base of trunks and stumps of *Pinus*, in pine woods.

Lasiochlaena benzoina (Wahlenb.: Fr.) Pouz. – on a log of *Pinus*, in pine wood with *Abies* (2); IX.

Meripilus giganteus (Pers.: Fr.) Karst. – on an injured trunk of *Quercus*, in *Abietetum polonicum*; IX.

Piptoporus betulinus (Bull.: Fr.) Karst. – on dying and dead trunks and on branches of *Betula*, in alder and mixed wood; V-XI.

Postia caesia (Schrad.: Fr.) Karst. – on stumps, logs and dried branches of *Pinus*, in pine woods; VII-X.

P. stiptica (Pers.: Fr.) Jülich – on stumps and branches of deciduous and coniferous trees, in mixed wood; VIII-XI.

Trametes versicolor (L.: Fr.) Pil. – on stumps, logs and branches of deciduous trees lying in litter, in mixed wood; VII-XI.

Trichaptum abietinum (Pers.: Fr.) Ryv. – on fallen branches of *Pinus*, in pine wood with *Abies*; V-X.

T. fuscoviolaceum (Ehrenb.: Fr.) Ryv. – on fallen branches, logs and stumps of *Pinus*, in pine woods; VI-X.

Boletales
Boletaceae

Boletus edulis Bull.: Fr. – among litter, in pine wood with *Abies* (2); VI, IX.

B. erythropus Fr. – on bare soil near *Abies*, in pine wood with *Abies*; IX.

Leccinum aurantiacum (Bull.) S. F. Gray – among litter near *Populus tremula*, in mixed wood; VIII-IX.

L. scabrum (Bull.: Fr.) S. F. Gray – among litter near *Betula*, in alder and in mixed wood; VIII-X.

L. testaceoscabrum (Secr.) Sing. – among litter near *Betula*, in pine wood with *Abies*; X.

Suillus bovinus (L.: Fr.) O. Kuntze – on sandy soil near *Pinus*, in pine woods; VIII-IX.

S. granulatus (L.: Fr.) O. Kuntze – on sandy soil under *Pinus*, in mixed woods; IX-X.

S. grevillei (Klotzsch) Sing. – among litter near *Larix*, in pine wood with *Abies* (2, 3); IX.

S. luteus (L.: Fr.) S. F. Gray – on sandy soil near *Pinus*, in pine woods; IX-X.

S. variegatus (Swartz.: Fr.) Kuntze – among litter near *Pinus*, in pine woods; VIII-X.

Tylopilus felleus (Bull.: Fr.) Karst. – among litter, in pine woods; VII-X.

Xerocomus badius (Fr.) Kühn. ex Gilb. – among coniferous litter and in tufts of mosses, in pine woods; VIII-X.

X. chrysenteron (Bull. ex St.-Am.) Quél. – among deciduous and coniferous litter, in pine woods; VIII-X.

X. subtomentosus (L.: Fr.) Quél. – among deciduous and coniferous litter, in pine woods; VIII-X.

Paxillaceae

Hygrophoropsis aurantiaca (Wulf.: Fr.) R. Mre. – on coniferous litter, in pine woods; VIII-XI.

Paxillus atrotomentosus (Batsch) Fr. – on rotten stumps of *Pinus*, in pine woods, IX-X.

P. involutus (Batsch) Fr. – among deciduous and coniferous litter, in alder and pine woods; VI-XI.

P. panuoides Fr. – on a log of *Pinus*, in mixed wood (2); IX.

Agaricales
Pleurotaceae

Lentinus suavisissimus Fr. – on twigs of *Salix aurita*, in underwood on the edge of a wet midforest meadow (2, 3); VIII.

Neolentinus adhaerens (Alb. et Schw.: Fr.) Redh. et Ginns = (*Lentinus adhaerens* (Alb. et Schw.: Fr.) Fr.) – on a log of a fir, in *Abietetum polonicum* (2, 3); X.

Pleurotus ostreatus (Jacq.: Fr.) Kumm. – on stumps, logs and branches of deciduous trees, in mixed wood; IX.

Hygrophoraceae

Hygrophorus hypothejus (Fr.: Fr.) Fr. – among coniferous litter and in tufts of mosses, near *Pinus*, in pine woods (2); X-XI.

Tricholomataceae

Armillariella mellea (Vahl. in Fl. Dan.: Fr.) Karst. – on stumps of deciduous and coniferous (*Pinus*) trees, in alder and in pine woods; IX-XI.

Arrhenia spathulata (Fr.) Redh. (= *Leptoglossum muscigenum* Bull.) – caespitose, on sprouts of mosses, on a lawn near the monument (2, 3); IX-XI.

Calocybe gambosa (Fr.) Donk – on the ground at a midforest road, in mixed wood (2); V.

Clitocybe clavipes (Pers.: Fr.) Kumm. – among coniferous litter, in pine woods; VIII-IX.

C. flaccida (Sow.: Fr.) Kumm. – among deciduous litter, in mixed wood (2); VII.

C. inornata (Sow.: Fr.) Gill. – among deciduous and coniferous litter, in mixed wood; IX-X.

Collybia asema (Fr.: Fr.) Kumm. – among deciduous and coniferous litter, in mixed wood; X.

C. butyracea (Bull.: Fr.) Quél. – among deciduous and coniferous litter, in alder and mixed wood; VIII-X.

C. cookei (Bres.) J. D. Arnold – in a tuft of moss, in *Abietetum polonicum* (2, 3); IX.

C. distorta (Fr.) Quél. – among coniferous litter, in pine woods; IX-X.

C. dryophila (Bull.: Fr.) Kumm. – among deciduous and coniferous litter, in pine woods; VI-XI.

C. maculata (Alb. et Schw.: Fr.) Quél. – on stumps of deciduous and coniferous trees, in mixed wood; VII-X.

C. peronata (Bolt.: Fr.) Sing. – among litter, in alder and mixed wood; IX-X.

Crinipellis stipitaria (Fr.) Pat. – on dried twigs of deciduous trees, in alder (2); VII.

Laccaria amethystina (Bolt.: Fr.) Berk. et Br. – among litter, in alder and pine woods; VII-X.

L. laccata (Scop.: Fr.) Bk. et Br. – among litter, in underwood, alder and in pine woods; VI-X.

Lepista nuda (Bull.: Fr.) Cke. – among deciduous litter, in mixed wood; VIII-X.

Lyophyllum connatum (Schum.: Fr.) Sing. – among litter, in mixed wood (2); IX.

Macrocyttidia cucumis (Pers.: Fr.) Heim – among litter at midforest road, in mixed wood; X.

Marasmiellus ramealis (Bull.: Fr.) Sing. – on fallen twigs of deciduous trees, in alder and mixed wood; IX-X.

Marasmius androsaceus (L.: Fr.) Fr. – on fallen needles of *Pinus*, in pine woods; VII-X.

M. oreades (Bolt.: Fr.) Fr. – on grassy clearings and sideways, in pine woods; VI-X.

M. scorodonius (Fr.) Fr. – on coniferous litter, in pine woods; VIII-X.

Micromphale perforans (Hoffm. et Fr.) Sing. – on fallen needles of *Abies* and *Pinus*, in pine wood and *Abietetum polonicum*; VI-X.

Mycena aetites (Fr.) Quél. – among litter, in *Abietetum polonicum* (2); IX.

M. alcalina (Fr.) Kumm. – on rotten stumps and logs of coniferous trees, in pine woods; VI-IX.

M. epipterygia (Scop.) S. F. Gray – among tufts of mosses, in pine wood with *Abies*; IX-X.

M. galopoda (Pers.: Fr.) Kumm. – on litter and in tufts of mosses, in pine wood with *Abies*; VII-X.

M. pura (Pers.: Fr.) Quél. – among litter, in mixed wood; VII-IX.

M. viscosa (Secr.) R. Mre. – on downy stumps and *Pinus* twigs lying in litter, in pine woods; VIII-X.

Omphalina sphagnicola (Berk.) Mos. – among sprouts of *Sphagnum* on a midforest wet meadow, in *Abietetum polonicum*; VII-IX.

Oudemansiella platyphylla (Pers.: Fr.) Mos. – among litter at rotten stumps, in pine woods; VI-VIII.

Panellus mitis (Pers.: Fr.) Sing. – on dried branches of *Pinus*, in pine woods; VIII-X.

Pseudoclitocybe cyathiformis (Bull.: Fr.) Sing. – among litter at a stump of *Pinus*, in pine wood with *Abies*; X.

Rickenella fibula (Bull.: Fr.) Raith. – in tufts of mosses, in pine woods; VI-IX.

Tricholoma portentosum (Fr.) Quél. – on sandy soil near *Pinus*, in pine wood; IX.

T. terreum (Schaeff.: Fr.) Kumm. – on sandy soil near *Pinus*, in pine wood; IX-X.

T. virgatum (Fr.) Kumm. – among litter near *Pinus*, in pine wood with *Abies* (2); IX.

Tricholomopsis rutilans (Schaeff.: Fr.) Sing. – on stumps of coniferous trees, in pine woods; VIII-X.

Xeromphalina campanella (Batsch: Fr.) R. Mre. – on stumps of coniferous trees, in pine woods; VI-X.

Entolomataceae

Rhodocybe parilis (Fr.) Sing. – among grasses, on a midforest clearing (2, 3); VII.

R. popinalis (Fr.) Sing. – among grasses, on a midforest clearing (3); IX.

Pluteaceae

Pluteus atricapillus (Sacr.) Sing. – on stumps and logs of deciduous trees, in alder and mixed wood; VII-X.

P. atromarginatus (Konr.) Kühn. – on stumps and logs of *Pinus*, in pine woods; VII-IX.

P. salicinus (Pers.: Fr.) Kumm. – on fallen branches of deciduous trees, in alder and mixed wood; VIII-X.

Amanitaceae

Amanita citrina (Schaeff.) S. F. Gray – among deciduous and coniferous litter, in pine woods; VIII-X.

A. eliae Quél. – among litter, in mixed wood (2, 3); VII.

A. fulva Schaeff.: Pers. – among deciduous and coniferous litter, in pine woods; VI-IX.

A. muscaria (L.: Fr.) Hook. – among litter, in pine woods; VIII-IX.

A. phalloides (Vaill.) Secr. – among deciduous litter, in mixed wood; VII-IX.

A. porphyria (Alb. et Schw.: Fr.) Secr. – among coniferous litter, in pine wood with *Abies*; IX-X.

A. rubescens (Pers.: Fr.) S. F. Gray – among deciduous and coniferous litter, in pine woods; VII-X.

A. vaginata (Bull.: Fr.) Quél. – among litter, in pine woods; VIII-X.

Agaricaceae

Agaricus dulcidulus Schulz. – among tufts of moss, in pine wood with *Abies* (2, 3); IX.

Cystoderma amiantinum (Scop.: Fr.) K. et M. – among coniferous litter, in pine woods; IX-X.

C. carcharias (Pers.) Konr. et Maubl. – among coniferous litter, in pine woods; IX-X.

C. granuloseum (Batsch: Fr.) Kühn. – among litter, in pine woods; IX-X.

Macrolepiota rhacodes (Vitt.) Sing. – among litter, in pine woods; VIII-X.

Coprinus disseminatus (Pers.: Fr.) S. F. Gray – on a rotten stump, in mixed wood; IX.

Psathyrella candolleana (Fr.) Mre. – among litter, in mixed wood; V.

Strophariaceae

Hypholoma capnoides (Fr.): Fr. Kumm. – on stumps and logs of coniferous trees, in pine woods; VI-XI.

H. elongatipes Peck – among sprouts of *Sphagnum* on a wet midforest meadow; VIII.

H. fasciculare (Huds.: Fr.) Kumm. – on stumps of deciduous and coniferous trees, in alder and in pine woods; V-XI.

H. sublateralium (Fr.) Quél. – on stumps of deciduous trees, in alder and in mixed wood; VI-X.

Pholiota aurivella (Batsch: Fr.) Kumm. – on stumps and logs of deciduous trees (*Betula*), in mixed wood; VIII-X.

P. carbonaria (Fr.) Sing. – on burnt trees at a midforest road, in pine wood with *Abies*; IX.

P. flammans (Fr.) Kumm. – on dried branches of *Pinus*, in pine wood with *Abies*; VIII-X.

Stropharia aeruginosa (Curt.: Fr.) Quél. – among litter and on strongly withered stumps, in pine woods; IX-X.

Cortinariaceae

Cortinarius alboviolaceus (Pers.: Fr.) Fr. – among deciduous and coniferous litter, in mixed wood (2); IX.

C. armillatus (Fr.) Fr. – on the ground near *Betula*, in mixed wood; IX.

C. bolaris (Pers.: Fr.) Fr. – in tufts of mosses, in wet mixed wood (3); VIII-IX.

Dermocybe cinnamomea (L.: Fr.) Wünsche – among coniferous litter near *Pinus*, in pine woods; IX-X.

D. semisanquinea Fr. – among coniferous litter, in pine woods; X.

Gymnopilus penetrans (Fr.: Fr.) Murr. – on dried branches of *Pinus*, in pine wood with *Abies*; VIII-X.

Hebeloma radicosum (Bull.: Fr.) Ricken – on a strongly rotten stump, in pine wood (2, 3); VII.

Inocybe geophylla (Sow.: Fr.) Kumm. – on sandy soil, in pine woods; VIII-X.

Rozites caperata (Pers.: Fr.) Karst. – among coniferous litter, in pine woods; IX-X.

Russulales

Russulaceae

Lactarius aurantiacus Fr. – among litter, in mixed wood; IX-X.

L. camphoratus (Bull.) Fr. – among coniferous litter near *Pinus*, in pine woods; VIII-X.

L. deliciosus (L.) S. F. Gray – among litter near *Pinus*, in pine wood with *Abies*; IX.

L. glyciosmus Fr. – among deciduous litter near *Betula*, in mixed wood; IX-X.

L. helvus Fr. – among litter, in alder and in pine woods; VIII-X.

L. mitissimus Fr. – among litter and in tufts of mosses, in pine woods; VIII-IX.

L. necator (Bull. em Pers.: Fr.) Karst. – among deciduous litter under *Betula*, in alder and in mixed wood; VIII-XI.

L. piperatus (L.: Fr.) S. F. Gray – among deciduous litter, in mixed wood; IX-X.

L. pubescens Fr. – in tufts of *Sphagnum* under *Betula*, in wet mixed wood; IX.

L. quietus Fr. – among litter near *Quercus*, in pine wood with *Abies*; IX-X.

L. rufus (Scop.: Fr.) Fr. – among deciduous and coniferous litter, in alder and pine woods; VIII-XI.

L. serifluus DC: Fr. – among deciduous litter near *Quercus*; in pine wood with *Abies*; VIII-IX.

L. torminosus (Schaeff.: Fr.) S. F. Gray – among deciduous litter under *Betula*, in alder; IX.

L. vellereus (Fr.) Fr. – among deciduous and coniferous litter, in pine woods; VIII-XI.

Russula aeruginea Lindbl. – among litter near *Betula*, in mixed wood; VII-VIII.

R. atropurpurea Krombh. – among litter near *Quercus*, in pine wood with *Abies*; VIII.

R. badia Quél. – among coniferous litter, in wet mixed wood; VII.

R. cyanoxantha Schaeff.: Fr. – among deciduous and coniferous litter, in pine woods; VII-IX.

R. decolorans Fr. – among *Vaccinum*, in pine woods; VII-IX.

R. emetica Fr. – among litter and in tufts of *Sphagnum*, in pine woods; VII-IX.

R. fellea Fr. – among deciduous litter, in mixed wood; VIII.

R. foetens Fr. – among deciduous and coniferous litter, in pine woods; VII-IX.

R. nigricans (Bull.) Fr. – among litter, in pine wood with *Abies*; VII-VIII.

R. ochroleuca (Pers.) Fr. – among litter, in pine woods; VIII-IX.

R. vesca Fr. – among litter, in pine woods; VII-VIII.

Sclerodermatales
Sclerodermataceae

Scleroderma citrinum Pers. – on sandy soil at midforest roads, in pine woods; VII-XI.

S. verrucosum (Bull.): Pers. – among litter, in mixed wood; IX.

Nidulariales
Nidulariaceae

Crucibulum laeve (Huds. ex Relh.) Kambly – on twigs of deciduous trees lying in litter, in alder and mixed wood; IX-X.

Sphaerobolaceae

Sphaerobolus stellatus Tode: Pers. – on twigs and stumps of deciduous and coniferous trees lying in litter, in pine woods; IX.

Lycoperdales
Lycoperdaceae

Calvatia excipuliformis (Pers.) Perd. – among litter on sandy soil, in pine woods; VII-IX.

Lycoperdon perlatum Pers.: Pers. – among litter, in pine woods; VII-X.

L. pyriforme Schaeff.: Pers. – on strongly rotten stumps of deciduous trees, in alder and pine woods; VII-X.

L. umbrinum Pers.: Pers. – on coniferous litter, in pine wood with *Abies*; IX.

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STRESZCZENIE

W rezerwacie Lasy Janowskie dominują bory, torfowiska i olsy, a niezwykle cennym elementem są bory mieszane z przewagą jodły (*Abies*).

W wyniku przeprowadzonych w latach 1994-1997 badań mikologicznych stwierdzono 177 gatunków *macromycetes* należących do 11 rzędów, 32 rodzin oraz 91 rodzajów (tab. 1).

Najliczniejszą florę *macromycetes* prezentują rodziny: *Tricholomataceae*, *Russulaceae*, *Boletaceae* i *Polyporaceae* (ryc. 1).

Spośród 91 rodzajów najzasobniejszymi w gatunki okazały się następujące: *Lactarius*, *Russula*, *Amanita*, *Collybia*, *Mycena* i *Suillus* (ryc. 2).

Około 22% flory *macromycetes* rezerwatu to gatunki o szczególnych wartościach przyrodniczych. *Agaricus dulcidulus*, *Aleurodiscus amorphus*, *Amanita eliae*, *Boletus erythropus*, *Calocera cornea*, *Clitocybe flaccida*, *Collybia cookei*, *Cortinarius bolaris*, *Crinipellis stipitaria*, *Hydnum repandum*, *Hygrophorus hypothejus*, *Hypholoma elongatipes*, *Hypocrea citrina*, *Lentinus suavisissimus*, *Paxillus atrotomentosus*, *P. panuoides*, *Pluteus salicinus*, *Rhodocybe parilis*, *Suillus grevillei* i *Thelephora palmata* – to gatunki, które spotykano rzadko lub sporadycznie.

Stwierdzono 15 gatunków znajdujących się na czerwonej liście (6). Należą one do trzech kategorii: **V** – *Boletus edulis*, *Hericium flagellum*, *Lactarius deliciosus*, *Leptopodia atra*, *Omphalina sphagnicola*, *Rhodocybe popinalis*; **R** – *Cystoderma granulosum*, *Hebeloma radicosum*, *Hymenochaete tabacina*, *Lasiochlaena benzoina*, *Neolentinus adhaerens*; **I** – *Arrhenia spathulata*, *Cantharellus cibarius*, *Macrolepiota rhacodes*, *Phellinus hartigii*, *Tremella foliacea*.

Stwierdzono także stanowiska 2 gatunków (*Hericium flagellum*, *Meripilus giganteus*) objętych ochroną prawną.

Najliczniejszą grupę ekologiczną w rezerwacie Lasy Janowskie stanowią grzyby naziemne (107 gat., ok. 60%), grzybów nadrzewnych stwierdzono 67 gatunków (ok. 38%), a grzybów innych substratów tylko 3 gatunki (ryc. 3 I, tab. 2).

Większość *macromycetes* rezerwatu to saprotrofy (ok. 56,5%), duży udział mają symbiotrofy (ok. 39%), a niewielki, bo ok. 4,5% – pasożyty (ryc. 3 II).