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Macromycetes of the Jastkowice Forest Reserve

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The paper presents a list of 167 species of the *macromycetes* in *Tilio-Carpinetum* forest association in the Jastkowice Forest Reserve (East Poland). The results of some ecological observations are also given.

Key words: *Macromycetes*, higher fungi.

INTRODUCTION

The Jastkowice forest reserve is situated within the boundaries of the Janów Forests Landscape Park (Park Krajobrazowy Lasy Janowskie). As regards the physiographic aspect, the territory of the Janów Forests Landscape Park is situated within the Biłgoraj Plain (Równina Biłgorajska) being the part of the Sandomierz Basin (Kotlina Sandomierska). The Park constitutes the central part of the Solska Forest (Puszcza Solska). It is one of the greatest forest complexes in Poland. With regard to the administrative aspect, the Jastkowice forest reserve is situated within the boundaries of the present Tarnobrzeg voivodeship, within the Pysznica commune, and it covers the area of 46 ha.

The reserve was set up in 1959 in order to preserve a fragment of almost primeval dry-ground forest (*Tilio-Carpinetum*), a part of the former Solska Forest. The tree stand consists of, among others, *Quercus*, *Fagus*, *Abies*, *Tilia*, which have been regenerated in the natural way up till now, and the age of many trees is valued at 150-200 years. In regard to the mycological aspect, the Jastkowice forest reserve has not so far been examined.

CHARACTERISTICS OF THE *MACROMYCETES*

As a result of observations carried out in 1994-1996, 167 *macromycetes* species belonging to 12 orders, 33 families and 85 genera, were found.

The most numerous *macromycetes* flora in the reserve is represented mostly by the following families: *Tricholomataceae*, *Russulaceae*, *Cortinariaceae*, *Boletaceae*, *Polyporaceae*, *Strophariaceae*, *Amanitaceae*, *Agaricaceae* and *Corticiaceae*. Among the observed 85 genera, the most numerous ones appeared to be: *Russula*, *Lactarius*, *Amanita*, *Mycena*, *Cortinarius*, *Xerocomus* and *Pholiota*.

Many species were noted sporadically and rarely. Most of them have also been quite rarely mentioned in the Polish mycological bibliography.

In the litter and on the ground, the fructifications of the following species were observed sporadically or rarely: *Boletus edulis*, *B. erythropus*, *B. reticulatus*, *Calvatia excipuliformis*, *Cantharellus cibarius*, *Coltricia perennis*, *Cortinarius hinnuleus*, *C. mucifluus*, *C. torvus*, *C. traganus*, *Cystoderma amianthinum*, *C. granulosum*, *Gyroporus castaneus*, *Helvella lacunosa*, *Hydnum repandum*, *Hygrophorus nemoreus*, *Lactarius theiogalus*, *Macrolepiota mastoidea*, *Mycena vitrea*, *Otidea abietina*, *Russula atropurpurea*, *R. badia*, *R. flava*, *R. integra*, *R. laurocerasi*, *R. lutea*, *R. pectinatoides*, *R. puellaris*, *R. rhodopoda*, *Tricholoma saponaceum*, *T. sulphureum* and *Xerocomus armeniacus*.

On the wood of deciduous trees there were either sporadically or rarely found the fructifications of: *Cudoniella aciculare*, *Fomes fomentarius*, *Lenzites betulina*, *Marasmiellus ramealis*, *Merulius tremellosus*, *Phaeomarasmius erinaceus*, *Pholiota lenta*, *Piptoporus betulinus* nad *Postia subcaesia*.

On the wood of coniferous trees there were rarely observed such species as: *Columnocystis abietina*, *Paxillus atrotomentosus*, *Phellinus hartigii*, *Sparassis crispa* and *Tricholomopsis rutilans*.

A number of the found fungi (14 species) are the species being on the red list (W o j e w o d a and Ł a w r y n o w i c z 1992). They belong to the three categories of threat: V (vulnerable) — *Boletus edulis*, *B. reticulatus*; R (rare) — *Cystoderma granulosum*, *Micromphale foetidum*, *Mycena vitrea*, *Phaeomarasmius erinaceus*, *Russula rhodopoda*, *Sparassis crispa*, *Xerocomus parasiticus*; I (indeterminate) — *Cantharellus cibarius*, *Gyroporus castaneus*, *Macrolepiota rhacodes*, *Phellinus hartigii* and *Xerocomus armeniacus*.

In the Jastkowice forest reserve 2 species protected by law were found. These are: *Sparassis crispa* and *Xerocomus parasiticus*.

The most numerous ecological group in the Jastkowice forest reserve are overground fungi (Tab. 1; Fig. 1I). They make up ca 63.5% (106 species). Their absolute majority are rhizobiont showing symbiotrophic form of living (73). Among them, 29 species are the fungi of the genus *Lactarius* and *Russula* (*Russulales*). Among the *Agaricales* (24), the most frequently

Table 1

A list of species from the particular ecological groups and orders in numbers

Ecological group / Order	Overground		Arboreal		Other substrates	Total
	Rhizobionts	Saprotrophes	Saprotrophes	Parasites		
Agaricales	24	25	24	2	2	77
Russulales	29	—	—	—	—	29
Aphyllophorales	5	2	15	5	1	28
Boletales	14	1	1	—	1	17
*Gasteromycetes**	1	2	3	—	—	6
Pezizales	—	3	—	—	—	3
Sphaeriales	—	—	2	1	—	3
Tremellales	—	—	2	—	—	2
Dacrymycetales	—	—	1	—	—	1
Helotiales	—	—	1	—	—	1
Total	73	33	49	8	4	167
	106		57		4	

*The orders: *Sclerodermatales, Nidulariales, Lycoperdales* included

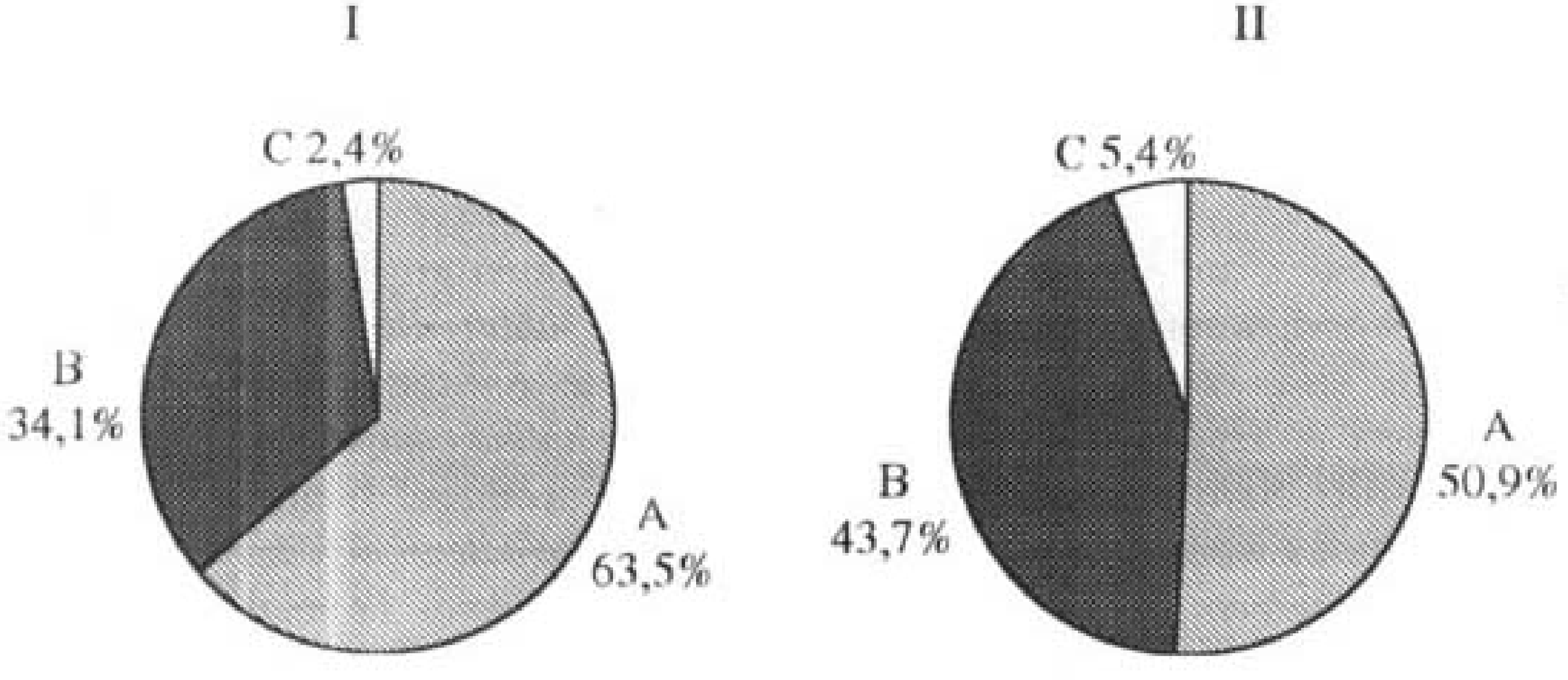

Fig. 1. Per cent share of ecological groups of *macromycetes* in the Jastkowice reserve
I — as regards the substrate: A — overground, B — arboreal, C — other substrates;
II — as regards the form of living: A — saprotrophs, B — symbionts, C — parasites

occurring were the fructifications of the genera: *Amanita*, *Dermocybe*, *Inocybe* and *Laccaria*, among the order *Boletales* (14) the most abundant species were: *Paxillus involutus* and *Xerocomus chrysenteron*, and among *Aphyllophorales* (5) — *Cantharellus tubaeformis*.

A considerably smaller part of overground fungi are pedobionts (33) whose nutritive basis are the litter and humus. These are, first of all, the fungi of the order *Agaricales* (25). The most frequent and most abundantly occurring were the species of the genera: *Clitocybe*, *Collybia*, and species *Lepista nuda*, *Macrolepiota rhacodes*, *Mycena epipterygia*, *M. galopoda* and *Mycena pura*. The most frequently noted species among the genus *Aphyllophorales* was *Clavulina cinerea*, whereas among *Gasteromycetes* the fructifications of *Lycoperdon perlatum* were most often observed.

In the neighbourhood of coniferous trees the greatest number of species were observed near *Pinus* and those were: *Lactarius rufus*, *Russula xerampelina*, *Suillus bovinus*, *S. luteus*, *Tylopilus felleus* and *Xerocomus badius*. The fructifications of *Russula integra* were observed only near *Abies*, whereas *Russula rhodopoda* — in the neighbourhood of *Picea*.

In the neighbourhood of deciduous trees other species were observed: *Lactarius helvus*, *Leccinum scabrum*, *Russula aeruginea* and *R. flava* accompanied the birch (*Betula*), *Boletus reticulatus*, *Lactarius quietus*, *Russula atropurpurea* and *R. virescens-Quercus*, and in the neighbourhood of *Fagus* the fructifications of 2 lactarius species were noted — *Lactarius blennius* and *L. serifluus*.

Another, but a considerably smaller ecological group (ca 34.1%) are 57 arboreal fungi species (Tab. 1; Fig. 1 I). Their nutritive base is dead or alive wood of deciduous and coniferous species, so their way of living is either saprotrophic or parasitic. In the Jastkowice forest reserve saprotrophic xylobionts constitute the majority (49) and these are, most of all, the species affiliated to the orders: *Agaricales* (24) and *Aphyllophorales* (15). The species of the *Agaricales*, order whose fructifications most often grew on the deciduous species wood, were: *Hypholoma fasciculare*, *H. sublateritium*, *Kuehneromyces mutabilis* and *Mycena inclinata*, whereas those on the coniferous species wood were — *Hypholoma capnoides* and *Xeromphalina campanella*. The species of the order *Aphyllophorales* which most often produced their fructifications on deciduous wood were: *Bjerkandera adusta*, *Daedalea quercina*, *Peniophora quercina*, *Stereum hirsutum*, *Thelephora terrestris* and *Trametes versicolor*, and on coniferous species wood were — *Phlebiopsis gigantea*, *Postia caesia* and *Trichaptum fuscoviolaceum*.

The share of parasitic xylobionts in the Jastkowice forest reserve *macromycetes* flora is small (8) and they are affiliated to the three orders: *Aphyllophorales* (5), *Agaricales* (2) and *Sphaeriales* (1). Among this group of xylobionts only *Nectria cinnabarina* was observed frequently.

The fungi inhabiting other substrates (allobionts) make up ca 2.4% and the share of this group in the Jastkowice forest reserve biocenosis is small (Tab. 1; Fig. 1 I).

Taking into consideration only the form of living of the particular species (saprotrophism, symbiosis, parasitism) one should say that in the Jastkowice reserve saprotrophic fungi (pedo-, xylo- and allobionts) prevail and constitute approximately 50.9%, a slightly smaller group (approx. 43.7%) constitute symbionts (rhizobionts), whereas only 5.4% of *macromycetes* species reveal the parasitic form of living (Fig. 1 II).

Worth stressing is a big share of mycorrhizal fungi. It is possible that these fungi have a large and positive influence on the natural regeneration of the standing timber and consequently on preservation of the primeval character of the forest.

LIST OF SPECIES

The nomenclature of *Ascomycetes* after B r e i t e n b a c h, K r ä n z l i n (1981), *Basidiomycetes* after J ü l i c h (1984) and M o s e r (1983).

ASCOMYCETES

Pezizales

Helvella lacunosa Afz.: Fr. — on bare ground; IX.
Otidea abietina (Pers.) Fuck. — only once, among coniferous litter; IX.
Paxina acetabulum (L.) O. Kuntze — on ground among litter; V.

Helotiales

Cudoniella aciculare (Bull.: Fr.) Schroeter — only once, abundantly, on stump of *Quercus*; IX.

Sphaeriales

Nectria cinnabarina (Tode.: Fr.) Fr. — on twigs of deciduous trees; VII-X.
Xylaria hypoxylon (L.) Grev. — on dried branches and stumps of deciduous trees; VII-XI.
X. polymorpha (Pers.) Grev. — on dried branches and stumps of deciduous trees; VII-XI.

BASIDIOMYCETES

Aphyllophorales

Auriscalpium vulgare S. F. Gray — on fallen *Pinus* cones.
Bjerkandera adusta (Wild.: Fr.) P. Karst. — on stumps and branches of deciduous trees (Carpinus); VII-XI.

Cantharellus cibarius Fr. — in small numbers on sandy soil; IX.
C. tubaeformis Fr. — in tufts both on bare and mosses — overed soil; X.
Clavulina cinerea (Fr.) Schroeter — numerously on ground; VIII-X.
C. cristata (Fr.) Schroeter — among deciduous litter; IX-X.
Coltricia perennis (L.: Fr.) Murr. — occasionally, on sandy soil; IX-X.
Columnocystis abietina (Pers.: Fr.) Pouzar — on *Abies* branches lying in litter; VII.
Craterellus cornucopoides L.: Pers. — caespitose, among deciduous litter; IX-X.
Daedalea quercina (L.): Fr. — on *Quercus* stumps; VII-XI.
Fomes fomentarius (L.: Fr.) Fr. — rarely, on logs and stumps of deciduous trees (*Betula*); VIII-X.
Fomitopsis pinicola (Sw.: Fr.) P. Karst. — on *Betula* log; IX.
Hydnum repandum L.: Fr. — singly, on ground; IX.
Lenzites betulina (L.: Fr.) Fr. — rarely, on logs of deciduous trees; IX-XI.
Merulius tremellosus Schrad.: Fr. — on stumps of deciduosus trees; IX-X.
Peniophora quercina (Pers.: Fr.) Cooke — on *Quercus* twigs in litter; IX-X.
Phellinus hartigii (Allesch. et Schnabl) Bond. — on *Abies* wood; VII-IX.
Phlebiopsis gigantea (Fr.) Jülich — on fallen *Pinus* twigs; IX-X.
Piptoporus betulinus (Bull.: Fr.) P. Karst. — rarely, on withered stumps and branches of *Betula*; IX-XI.
Postia caesia (Schrad.: Fr.) P. Karst. — on dead branches of coniferous trees (*Abies*); IX-X.
P. subcaesia (David) Jülich — rarely, on wood of deciduous trees; IX.
Schizophyllum commune Fr.: Fr. — on fallen twigs of deciduous trees; VII-XI.
Sparassis crispa (Wulf.) Fr. — only once, on *Pinus* roots; IX.
Stereum hirsutum (Wild.: Fr.) S.F. Gray — on logs and twigs of deciduous trees; V-X.
S. sanquinolentum (Alb. et Schw.: Fr.) Fr. — on lying among litter twigs of deciduous trees; VII-X.
Thelephora terrestris Pers.: Fr. — among litter, on fallen twigs and remnants of herbaceous plants; IX-X.
Trametes versicolor (L.: Fr.) Pilát — on stumps and branches of deciduous trees; VIII-X.
Trichaptum fuscoviolaceum (Echrenb.: Fr.) Ryv. — on dead branches of coniferous trees; VIII-X.

Tremellales

Tremella encephala Pers. — quite rarely, on *Abies* twigs; VII-X.
T. mesenterica Retz. in Hook — on fallen small branches of deciduous trees; VIII-XI.

Dacrymycetales

Calocera viscosa (Pers.: Fr.) Fr. — on stumps and branches of coniferous trees (*Abies*); VII-X.

Boletales

Boletus edulis Bull.: Fr. — among litter; IX.
B. erythroporus (Fr.) Kbrh. — among litter; IX.
B. reticulatus Schaeff. — near *Quercus*; IX.
Chroogomphus rutilus (Schaeff.: Fr.) O.K. Miller — quite rarely, among litter; IX.
Gyroporus castaneus (Bull.: Fr.) Quél. — occasionally on sandy soil; VII-IX.
Hygrophoropsis aurantiaca (Wulf.: Fr.) R. Maire — on coniferous litter; IX-X.
Leccinum scabrum (Bull.: Fr.) S.F. Gray — near *Betula*; IX-X.
Paxillus atrotomentosus (Batsch) Fr. — on rotten stump of *Abies*; VIII.
P. involutus (Batsch) Fr. — among litter; VIII.
Suillus bovinus (L.) O. Kuntze — among litter; IX-X.
S. luteus (L.) S. F. Gray — near *Pinus*; VIII-X.
Tylopilus felleus (Bull.: Fr.) P. Karst. — quite rarely, in neighbourhood of *Pinus*; IX-X.
Xerocomus armeniacus (Quél.) Quél. — among deciduous litter; IX.
X. badius (Fr.) Kühn. ex Gilb. — among coniferous litter; IX-X.
X. chrysenteron (Bull. ex St. Am.) Quél. — in litter; IX-X.
X. subtomentosus (L.: Fr.) Quél. — singly, among litter; IX-X.
X. parasiticus (Bull.: Fr.) Quél. — only once, on *Scleroderma citrinum* fructifications, at midforest road; IX.

Agaricales

Agaricus silvicola (Vitt.) Sacc. — among deciduous litter; IX-X.
Amanita citrina (Schaeff.) S.F. Gray — among litter: VII-X.
A. fulva (Schaeff.:) Pers. — among litter: VII-X.
A. muscaria (L.: Fr.) Hooker — among litter: VII-X.
A. pantherina (DC: Fr.) Secr. — among litter: VII-X.
A. phalloides (Vaill.: Fr.) Secr. — among litter: VII-X.
A. porphyria (A. et S.: Fr.) Secr. — among litter: VII-X.
A. rubescens (Pers.: Fr.) S.F. Gray — among litter: VII-X.
A. vaginata (Bull.: Fr.) Quél. — among litter: VII-X.
Armillariella mellea (Vahl. in Fl. Dan.) Karst. — on roots, trunks and stumps of coniferous and deciduous trees: IX-XI.
Clitocybe clavipes (Pers.: Fr.) Kumm. — mostly caespitose, among litter; IX.
C. gibba (Pers.: Fr.) Kumm. — mostly caespitose, among litter; IX.
C. inornata (Sow.: Fr.) Gill. — in small numbers, among litter; IX.

Collybia asema (Fr.: Fr.) Kumm. — in litter; IX.
C. butyracea (Bull.: Fr.) Quél. — in litter; IX.
C. peronata (Bolt.: Fr.) Sing. — in litter; IX.
Coprinus xanthotrix Romagn. — on a patch of scorched ground; X.
Cortinarius armillatus (Fr.: Fr.) Fr. — in litter; IX-X.
C. collinitus Fr. — in litter; IX-X.
C. himnuleus Fr. — among litter; IX-X.
C. mucifluus Fr. — among litter; IX-X.
C. torvus (Bull.: Fr.) Fr. — among litter; IX-X.
C. traganus Fr. — among litter; IX-X.
Crepidotus mollis (Schff.: Fr.) Kumm. — on fallen branches of deciduous trees; VIII-X.
C. variabilis (Pers.: Fr.) Kumm. — on fallen branches of deciduous trees; VIII-X.
Cystoderma amianthinum (Scop.: Fr.) Fay. — on coniferous litter; IX-X.
C. granulosum (Batsch: Fr.) Kühn. — on coniferous litter; IX-X.
Dermocybe cinnamomea (L.: Fr.) Wünsche — among litter; IX-X.
D. semisanquinea (Fr.) Mos. — among litter; IX-X.
Gymnopilus penetrans (Fr.: Fr.) Murr. — on *Abies* logs; IX.
Hebeloma crustuliniforme (Bull.) Quél. — among litter; IX.
Hygrophorus nemoreus (Lasch) Fr. — only once, among litter; IX.
Hypholoma capnoides (Fr.: Fr.) Kumm. — abundantly, on stumps of coniferous trees; IX-X.
H. fasciculare (Huds.: Fr.) Kumm. — on stumps of deciduous trees, more rarely — coniferous trees; VI-XI.
H. sublateritium (Fr.) Quél. — on stumps of deciduous trees, more rarely — coniferous trees; VI-XI.
Inocybe asterospora Quél. — at midforest roads; IX-X.
I. fastigiata (Schaeff.: Fr.) Quél. — at midforest roads; IX-X.
I. geophylla (Sow.: Fr.) Kumm. — at midforest roads; IX-X.
Kuehneromyces mutabilis (Schaeff.: Fr.) Sing. et Smith. — on rotten stumps of deciduous trees; V-X.
Laccaria amethystina (Bolt. ex Hooker) Murr. — among litter; VIII-X.
L. laccata (Scop.: Fr.) Bk. et Br. — among litter; VIII-X.
Lepiota cristata (A. et S.: Fr.) Kumm. — singly in litter; IX.
Lepista nuda (Bull.: Fr.) Cke. — among litter; VIII-X.
Macrolepiota mastoidea (Fr.) Sing. — among deciduous litter; IX.
M. rhacodes (Vitt.) Sing. — in litter; IX-X.
Marasmiellus ramealis (Bull.: Fr.) Sing. — on dead small branches of deciduous trees; IX-X.
Marasmius androsaceus (L.: Fr.) Fr. — on fallen needles of *Pinus*; VII-X.
M. oreades (Bolt.: Fr.) Fr. — mostly at grassy roadsides; VII-X.

M. scorodonius (Fr.) Fr. — on *Pinus* fallen needles; VII-X.
Micromphale foetidum (Sow.: Fr.) Sing. — on remnants of deciduous wood; VIII-X.
Mycena alcalina (Fr.) Kumm. — on stumps of *Abies*; IX-X.
M. epipterygia (Scop.: Fr.) S. F. Gray — specially among mosses; IX-X.
M. galericulata (Scop.: Fr.) S. F. Gray — on stumps of deciduous trees; IX-X.
M. galopoda (Pers.: Fr.) Kumm. — among litter; X.
M. inclinata (Fr.) Quél. — on rotten stumps of deciduous trees; IX-X.
M. pura (Pers.: Fr.) Kumm. — among deciduous litter; IX.
M. vitrea (Fr.) Quél. — rarely, among litter; V.
M. zephirus (Fr.: Fr.) Kumm. — among coniferous litter; IX.
Oudemansiella platyphylla (Pers.: Fr.) Mos. — at base of stumps (*Abies*); VIII-IX.
O. radicata (Relhan.: Fr.) Sing. — among litter, near stumps; VIII-IX.
Panellus mitis (Pers.: Fr.) Sing. — on fallen twigs of coniferous trees; IX-XI.
P. stipticus (Bull.: Fr.) — on branches of *Quercus*; IX-X.
Phaeomarasmius erinaceus (Fr.) Kühn. — on rotten deciduous wood; IX.
Pholiota aurivella (Batsch: Fr.) Kumm. — on stump of deciduous tree; VIII-IX.
P. carbonaria (Fr.) Sing. — on remnants of burnt out wood; IX.
P. lenta (Pers.: Fr.) Sing. — on deciduous wood lying in the soil; IX.
P. squarrosa (Pers.: Fr.) Kumm. — at base of cut down stems; X.
Pluteus atricapillus (Secr.) Sing. — on stumps of decidous trees occasionally on *Abies*; V-IX.
Psathyrella candolleana (Fr.: Fr.) R. Maire — on wood remnants, at midforest road; V-IX.
Pseudoclitocybe cyathiformis (Bull.: Fr.) Sing. — specially among grasses; IX.
Rickenella fibula (Bull.: Fr.) Raith. — among mosses; V-IX.
Rozites caperata (Pers.: Fr.) P. Karst. — among coniferous litter; VIII-X.
Stropharia aeruginosa (Curt.: Fr.) Quél. — on litter and rotten stumps; VIII-X.
Tricholoma saponaceum (Fr.) Kumm. — among deciduous litter; IX-X.
T. sulphureum (Bull.: Fr.) Kumm. — among deciduous litter; IX-X.
Tricholomopsis rutilans (Schaeff.: Fr.) Sing. — at stumps of *Pinus*; IX-X.
Xeromphalina campanella (Batsch: Fr.) R. Maire — on stumps of coniferous trees; VII-X.

Russulales

Lactarius blennius (Fr.) Fr. — among litter near *Fagus*; IX-X.
L. helvus Fr. — specially in neighbourhood of *Betula*; X.
L. mitissimus Fr. — in coniferous litter and among mosses; IX-X.
L. necator (Bull. em Pers.: Fr.) Karst. — in litter; IX-X.
L. piperatus (L.: Fr.) S.F. Gray — in litter; IX-X.
L. quietus Fr. — in litter under *Quercus*; IX-X.

L. rufus (Scop.) Fr. — in neighbourhood of *Pinus*; IX-X.
L. serifluus DC: Fr. — specially near *Fagus* and *Quercus*; IX-X.
L. theiogalus (Bull.) Fr. — among litter; X.
L. vellereus (Fr.) Fr. — among coniferous and deciduous litter; IX-X.
Russula aeruginea Lindbl. — in neighbourhood of *Betula*; X.
R. atropurpurea Krbh. — specially in neighbourhood of *Qurecus*; IX.
R. badia Quél. — among litter; X.
R. cyanoxantha Schaeff.: Fr. — among coniferous and deciduous litter; VII-IX.
R. decolorans Fr. — among coniferous litter; IX-X.
R. emetica Fr. — among litter; IX-XI.
R. flava (Rom.) ap. Lindbl. — occasionally, in neighbourhood of *Betula*; X.
R. fragilis (Pers.: Fr.) Fr. — among coniferous and deciduous litter; IX-X.
R. integra (L.) Fr. — occasionally, in neighbourhood of *Abies*; VIII-IX.
R. laurocerasi Melzer — occasionally, among litter; IX
R. lutea (Huds.: Fr.) ss. F. Gray — occasionally, among litter; IX.
R. nigricans (Bull.) Fr. — among coniferous and deciduous litter; IX.
R. ochroleuca (Pers.) Fr. — among coniferous and deciduous litter; IX.
R. pectinatoides Peck — among coniferous litter; IX.
R. puellaris Fr. — among coniferous litter; IX.
R. rhodopoda Zv. — near *Picea*; IX.
R. vesca Fr. — among coniferous and deciduous litter; IX-X.
R. virescens (Schaeff. ex Zant.) Fr. — in neighbourhood of *Quercus*; VII.
R. xerampelina (Schaeff. ex Secr.) Fr. — specially among coniferous litter; X.

Sclerodermatales

Scleroderma citrinum Pers. — along midforest roads; VIII-X.

Nidulariales

Crucibulum laeve (Huds. ex Relh.) Kambly et all. — on wood remnants and on twigs of coniferous and deciduous trees; IX-X.
Cyathus striatus (Huds.): Pers. — on rotten wood and plant remnants; VIII-XI.

Lycoperdales

Calvatia excipuliformis (Schaeff.) Perd. — in neighbourhood of midforest roads and clearings; IX-X.
Lycoperdon perlatum Pers.: Pers. — among litter; VIII-X.
L. pyriforme Schaeff.: Pers. — on rotten stumps; VII-X.

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Grzyby wielkoowocnikowe (*macromycetes*) rezerwatu leśnego Jastkowice

S t r e s z c z e n i e

W rezerwacie leśnym Jastkowice zachował się fragment pierwotnego lasu (*Tilio-Carpinetum*) dawnej Puszczy Solskiej. W wyniku przeprowadzonych obserwacji (1994-1996) stwierdzono w rezerwacie Jastkowice 167 gatunków *macromycetes* należących do 12 rzędów, 33 rodzin, oraz 85 rodzajów.

Najliczniejszą florę *macromycetes* rezerwatu prezentują następujące rodziny: *Tricholomataceae*, *Russulaceae*, *Cortinariaceae*, *Boletaceae*, *Polyporaceae*, *Strophariaceae*, *Amanitaceae*, *Agaricaceae* i *Corticiaceae*. Spośród obserwowanych tu 85 rodzajów najliczniejszymi w gatunki okazały się następujące: *Russula*, *Lactarius*, *Amanita*, *Mycena*, *Cortinarius*, *Xerocomus* i *Pholiota*.

Wśród ściółki i na ziemi, sporadycznie obserwowano owocniki następujących gatunków: *Boletus edulis*, *B. erythropus*, *B. reticulatus*, *Calvatia excipuliformis*, *Cantharellus cibarius*, *Coltricia perennis*, *Cortinarius hinnuleus*, *C. mucifluus*, *C. torvus*, *C. traganus*, *Cystoderma amianthinum*, *C. granulosum*, *Gyroporus castaneus*, *Helvella lacunosa*, *Hydnum repandum*, *Hygrophorus nemoreus*, *Lactarius theiogalus*, *Macrolepiota mastoidea*, *Mycena vitrea*, *Otidea abietina*, *Russula atropurpurea*, *R. badia*, *R. flava*, *R. integra*, *R. laurocerasi*, *R. lutea*, *R. pectinatoides*, *R. puellaris*, *R. rhodopoda*, *Tricholoma saponaceum*, *T. sulphureum* i *Xerocomus armeniacus*.

Na drewnie drzew liściastych sporadycznie spotykano owocniki: *Cudoniella aciculare*, *Fomes fomentarius*, *Lenzites betulina*, *Marasmiellus ramealis*, *Merulius tremellosus*, *Phaeomarasmius erinaceus*, *Pholiota lenta*, *Piptoporus betulinus* i *Postia subcaesia*.

Szereg znalezionych grzybów to gatunki znajdujące się na czerwonej liście. Należą one do trzech kategorii zagrożenia: V (narażone) — *Boletus edulis*, *B. reticulatus*; R (rzadkie) — *Cystoderma granulosum*, *Micromphale foetidum*, *Mycena vitrea*, *Phaeomarasmius erinaceus*, *Russula rhodopoda*, *Sparassis crispa*, *Xerocomus parasiticus*; I (o nieokreślonym stopniu zagrożenia) — *Cantharellus cibarius*, *Gyroporus castaneus*, *Macrolepiota rhacodes*, *Phellinus hartigii* i *Xerocomus armeniacus*.

W rezerwacie leśnym Jastkowice stwierdzono stanowiska 2 gatunków objętych ochroną prawną. Są to: *Sparassis crispa* i *Xerocomus parasiticus*.

Najliczniejszą grupą ekologiczną są grzyby naziemne (ok. 63.5%), grzyby nadrzewne stanowią ok. 34.1%, zaś grzyby zasiedlające inne substraty (ok. 2.4%) mają niewielki udział (Tab. 1; Fig. 1 I). Grzyby wykazujące saprotroficzny sposób życia (pedo-, ksylo- i allobionty) dominują i stanowią ok. 50.9%, niewiele mniejszą grupę (ok. 43.7%) stanowią symbionty (ryzobionty), zaś pasożytniczą formę życiową wykazuje jedynie ok. 5.4% gatunków *macromycetes* (Fig. 1 II).