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Macrofungi of manorial park in Turew near Poznań

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The aim of this study was to describe the species composition of macrofungi in a manorial park in Turew and to evaluate the importance of the park as a refuge habitat. The study carried out in 1997–1999 resulted in 177 taxa (*Basidiomycetes* – 84.7%, *Ascomycetes* – 15.3%). Among them 23 species were recognized to be protected or listed in the Polish Red List. It turned out that the manorial park in Turew is an important refuge area for many species of macrofungi occurring in agricultural landscape.

Key words: macrofungi, agricultural landscape, manorial park, conservation of fungi.

INTRODUCTION

In an agricultural landscape which prevails in Polish lowlands the impoverishment and disappearance of natural, semi-natural and other non-farmed habitats is observed (Loster 1991; Ryszkowski and Bałazy 1995) because of deforestation, wetlands draining, water bodies eutrophication and area pollution which are closely linked to the development of intensive agriculture. In such intensively used farmlands many species are able to survive due to the presence of small-sized landscape elements such as forest islands, village parks and mid-field afforestations (Ryszkowski and Bałazy 1991; Dąbrowska-Prot 1998; Ratyńska and Szwed 1998 a, b). The importance of village parks for biodiversity protection in agricultural landscape was pointed out by many authors who showed that for plants as well as for animals village parks are refuge areas, especially on the areas where the forest was cut or changed into a one-species tree stand (Tomiałojć 1970; Olaczek 1972;

Kujawa 1992). For the effective conservation of fungi species richness the protection of their natural habitats is particularly important because the fungi cannot be held (like most vascular plant species and many animal species) in "mycological gardens" (Wojewoda 1976; Wojewoda and Ławrynowicz 1992). Though the adaptation of some species to habitats altered by man is sometimes observed (Wojewoda and Ławrynowicz 1992; Wojewoda 1996), most species of macrofungi are significantly endangered or even disappearing. Ca. 25% of the potential number of macrofungi occurring in Poland is listed in the Polish Red List (Wojewoda and Ławrynowicz 1992).

In this paper an attempt was taken to answer the question whether the village parks can play a role of refuge areas for macrofungi. Such a role of village parks was earlier confirmed in the case of plants and animals. The macrofungi of village parks in Poland have been poorly recognized so far. The studies were carried out in the parks in Radojewo (Lisiewska and Ratyńska 1984) and Uniejów (Lisiewska and Rybak 1990) as well as in arboreta in Gołuchów (Lisiewska and Płaczek 1993) and Kórnik (Lisiewska and Nowicka 1979).

The aim of the present study was to recognize the macrofungi species composition in a village park in Turew and to evaluate the importance of the park as a refuge habitat.

STUDY AREA AND METHODS

The study was carried out in 1997–1999 in a manorial park in Turew established in the 18th century, located in the central part of the General Dezydery Chłapowski Landscape Park, ca. 50 km south of Poznań. The park in Turew is shaped as a "landscape" park with rather "open arrangement" (Błaszyk 1977) and covers the area of 21.86 ha (Wendlandt 1992). It comprises relatively well developed fragments of oak-hornbeam forest (*Galio sylvatici-Carpinetum*) and elm-alder forest (*Ficario-Ulmetum*) as well as a small enclave of ash-alder forest (*Circaeo-Alnetum*). A small part of the park is kept as a walking area for visitors. Some cultivating activities (raking the litter, mowing the grass and herbs, removing the seedlings of trees and shrubs) are undertaken there. A major part of the park is not available for visitors. Here the cultivating activities are limited to removing some trees knocked down by the wind (Fig. 1 and 2). The tree stand of the park is characterized by a number of old trees. Ca. 80 trees fulfill the cryteria of a "monumental tree" and 40 others will fulfill them within several years (Karg and Kujawa 1996).

The study was carried out with the aid of a transect method. Transects were located in fragments of oak-hornbeam forest, elm-alder forest and ash-alder forest. Additionally, fungi were also collected in other parts of the

Fig. 2. Fragment of the park in Turew with blooming *Leucoium vernum* (Phot. Anna Kujawa)

Fig. 3. *Meripilus giganteus* growing on the roots of living *Fagus sylvatica* (Phot. Anna Kujawa)

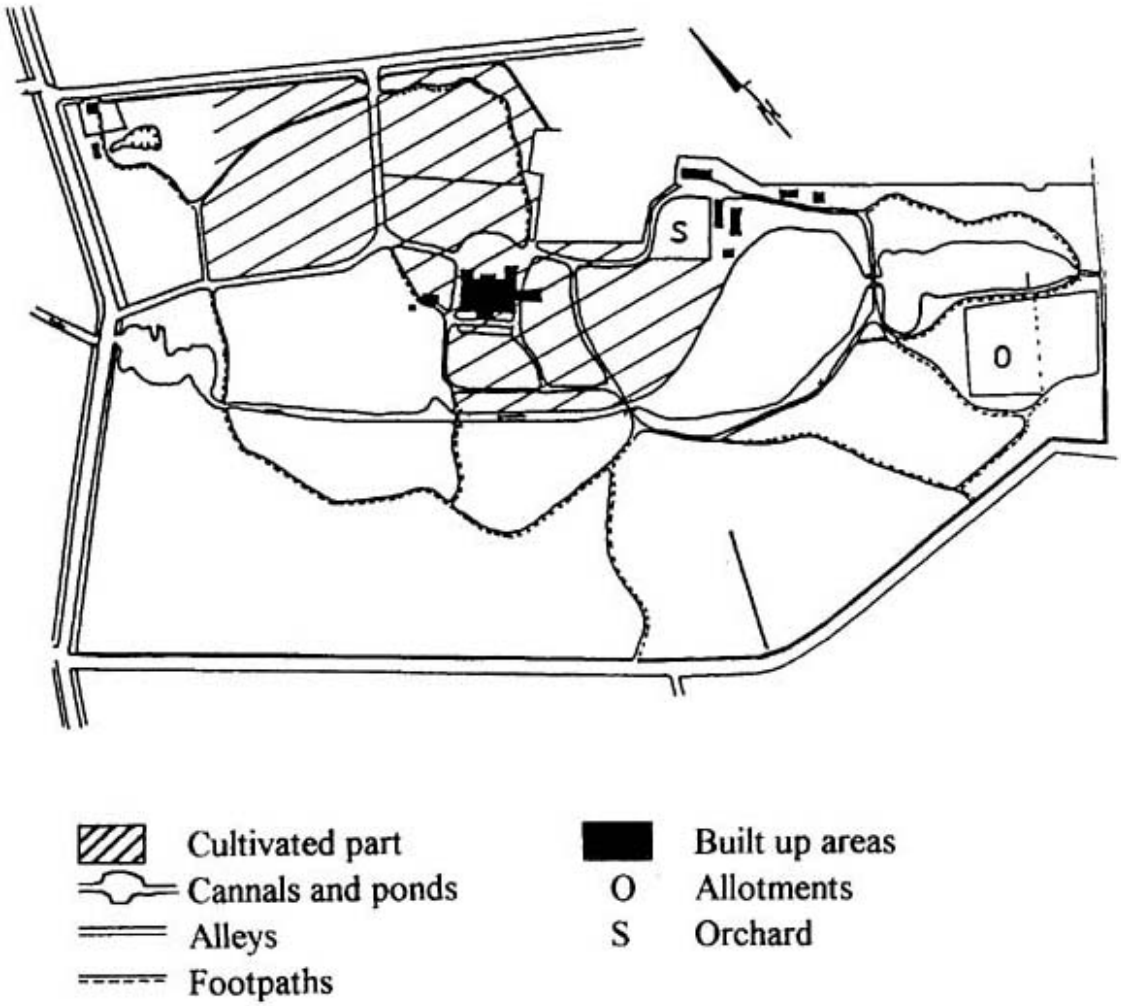

Fig. 1. Plan of the manorial park in Turew (after Karg, Kujawa 1996)

park. Transects were visited 35 times altogether at least once a month from April to November and occasionally in other months. During each visit the number of fruit-bodies was recorded as well as the substrate, which the fungus was recorded on.

Recorded fungi were classified to three basic ecological groups: **terrestrial species** – i.e. fungi occurring on soil (saprotrophic and mycorrhizal ones); **litter decomposing species** – i.e. saprotrophs growing on litter (fallen leaves, dead herbs stems, fruits and little twigs); **lignicolous species** – i.e. saprotrophs occurring on dead branches, bark, stumps and logs as well as parasites growing on living trees.

LIST OF SPECIES

Collected macrofungi were determined according to several monographs and identification guides (among them the most important were: M o s e r

1963, 1983; Lisiewska 1987; Nespiak 1990; Domański 1991; Rudnicka-Jezierska 1991; Skirgiełło 1991; Antonin and Noordeloos 1997). The nomenclature and systematic order of macrofungi follow those by Hawksworth et al. 1995.

Explanations:

GC	– *Galio-Carpinetum*	t	– terrestrial species
FU	– *Ficario-Ulmetum*	l	– litter decomposing species
CA	– *Circaeo-Ulmetum*	lg	– lignicolous species
L	– lawns	**P**	– protected species
O	– orchards	**V**	– vulnerable species
A	– allotments	**I**	– indeterminate (category) species
C	– charted species	**R**	– rare speciess

After Nespiak (1959), the abundance of fruit-bodies was measured with the aid of the Moser's scale (+, 1, 2,...5) taking into account the maximum number recorded.

ASCOMYCETES

Leotiales

Ascocoryne cylichnium (Tul.) Korf – lg (on stump); FU – Oct. 1998; 2
Bulgaria inquinans Fr. – lg (on dead *Carpinus betulus*); GC – July 1999; 4; **R; C**
Ciboria batschiana (Zopf.) Buchw. – l (on acorns); GC – Sept. 1999; 2
C. viridifusca (Fuck.) von Höhnel. – l (on fruits of *Alnus glutinosa*); CA – Dec. 1997; 1
Cyathicula coronata (Bull. ex Mérat) de Notaris – l (on stems of perennials); GC – Oct. 1999; 2
Hymenoscyphus fructigenus (Bull.: Fr.) S. F. Gray – l (on acorns), FU – July, Sept. 1997, Aug. 1999; GC – Sept., Oct. 1997, Sept. 1998, Sept, Oct. 1999; 4
H. scutula (Pers.: Fr.) Phill. – l (on stems of perennials and dry blades); FU – Aug. 1999; 2
Mollisia amenticola (Sacc.) Rehm. – l (on fruits of *Alnus glutinosa*); CA – Dec. 1997; 1
M. cinerea (Batsch. ex Mérat) Karst. – l (on fruits of *Fagus sylvatica*); FU – Oct. 1999; 1
Orbilia xanthostigma (Fr.) Fr. – lg (on stump); FU – Sept. 1997; 3
Rutstroemia conformata (Karst.) Nannf. – l (on leaves of *Alnus glutinosa*); CA – Oct. 1999; 2
R. luteovirescens (Rob. in Desm.) White – l (on leaves of trees); FU – Oct. 1999; 2
R. sydowiana (Rehm) White – l (on leaves of *Quercus robur*); GC – Sept. 1999; 2
Sclerotinia tuberosa (Hedw.) Fuckel – t; FU – May 1999; 1

Pezizales

Aleuria aurantia (Fr.) Fuckel – t (among roots of knocked down *Fagus sylvatica* and on walks); FU – Oct. 1997, Sept. 1998, GC – Oct. 1999; 3
Helvella crispa Fr. – t (on rotten wood in the place of wood accumulating and close to *Fagus sylvatica*); GC – Oct. 1997, FU – Oct. 1997; 2
Humaria hemisphaerica (Wigg.: Fr.) Nannf. – t; FU – July 1998; 2
Leptopodia elastica (Bull.) Boud. – t; FU – July 1998; 2
Macroscyphus macropus (Pers.: Fr.) S. F. Gray – t; FU – Sept. 1998; +
Morchella gigas (Batsch) Pers.: Fr. – t; O – May 1998, Apr. 1999, L – Apr. 1999; 2; **P, C, I**
Otidea alutacea (Pers.) Massee – t; FU – Oct. 1997, June 1999; 2
Peziza micropus Pers.: Pers. – lg (on log); GC – Oct. 1997, May 1998; 1
Scutellinia scutellata (L.: St. Amans) Lambotte – t; CA – July 1997, May, June 1998, June 1999; 2
Tarzetta cupularis (L.: Fr.) Lambotte ss. Dennis – t; GC – Sept. 1998; 1

Sphaeriales

Hypoxylon fragiforme (Pers.: Fr.) Fr. – lg (on dead *Fagus sylvatica*); FU – Oct. 1998; 2
Xylaria hypoxylon (L.: Hook.) Grev. – lg (on stump); FU – Aug., Dec. 1997, Nov. 1998; 2
X. polymorpha (Pers.) Grev. – lg (on stump); FU – June 1999; 4

BASIDIOMYCETES
Auriculariales and Tremellales

Exidia truncata Fr. – lg (on *Corylus avellana*); FU – June 1999; 2
Hirneola auricula-judae (Bull.) Berk. – lg (on *Sambucus nigra, Fraxinus excelsior* and *Ribes nigrum*); GC – Oct. 1997, Oct., Nov. 1998; CA – May, June 1998; O – Apr. 2000; 2; **C**

Aphyllophorales

Auriculariopsis ampla (Lév.) Maire – lg (on twigs of broad-leaved trees); GC – Sept. 1997; CA – May 1999; 2
Bjerkandera adusta (Willd.: Fr.) P. Karst. – lg (on dead *Fagus sylvatica*); FU – Oct. 1999; 4
Byssomerulius corium (Fr.) Parm. – lg (on twigs of broad-leaved trees); CA – Aug. 1997; 1
Chondrostereum purpureum (Pers.: Fr.) Pouzar – lg (on log); GC – Sept. 1999; 2

Clavulina cinerea (Fr.) Schroet. – t; GC – Sept. 1997, July 1998; 1
Fistulina hepatica (Schff.): Fr. – lg (on old living and dead *Quercus robur*); GC – Sept. 1997, Oct. 1998, Sept. 1999; 2; **V**; **C**
Fomes fomentarius (L.: Fr.) Kickx – lg (on dead *Fagus sylvatica*); GC – June 1997; 2; **C**
Ganoderma applanatum (Pers.: Wallr.) Pat. – lg (on dead *Ulmus minor*); FU – Sept. 1998; 2; **C**
Gloeophyllum odoratum (Wulf.: Fr.) Imaz. – lg (on stump); GC – Sept. 1997, Apr. 2000; 1
Laetiporus sulphureus (Bull.: Fr.) – lg (on dead *Quercus robur*); GC – June 1997, Sept. 1999; 1
Meripilus giganteus (Pers.: Fr.) P. Karst. – lg (about dead *Quercus robur* and on roots of living *Fagus sylvatica*); FU – Oct. 1999, GC – Oct. 1999; 2; **P**; **C** (Fig. 3)
Merulius tremellosus Fr. – lg (on branches of dead *Quercus robur*); GC – Oct. 1999; 2
Piptoporus betulinus (Bull.: Fr.) P. Karst. – lg (on dead *Betula pendula*); FU – Jan. 1999; +; **C**
Polyporus arcularius (Batsch) Fr. – lg (on twigs); FU – Oct. 1998; +
P. squamosus (Huds.) Fr. – lg (on living *Ulmus minor* and dead *Acer platanoides*); GC – May 1997, FU – May 1998; 2
P. varius Fr. – lg (on dead *Ulmus minor*); FU – Dec. 1997; 1
Postia subcaesia (David) Jülich – lg (on stump); FU – Oct. 1997; 2
Ramaria stricta (Fr.) Quél. – t; GC – Sept. 1998; +
Schizophyllum commune Fr. – lg (on dead *Fraxinus excelsior*, *Quercus robur* and *Juglans regia*); FU – March 1998; GC – Oct. 1998; 4; **C**
Stereum hirsutum (Willd.: Fr.) S.F. Gray – lg (on roots of knocked down *Tilia cordata*); GC – Nov. 1998; 4
S. subtomentosum Pouz. – lg (on dead branch); CA – Sept. 1997; 1; **R**
Typhula erythropus Fr. – l (on leaves and twigs); CA – Oct. 1999; 2

Boletales

Paxillus atrotomentosus (Batsch) Fr. – lg (about stump); GC – Sept. 1998; 1
P. filamentosus Fr. – t; FU – Sept., Oct. 1997, Sept. 1998; 2; **R**
P. involutus (Batsch) Fr. – t; GC – Sept. 1997; 1
Xerocomus badius (Fr.) Kühner ex Gilb. – t; GC – Oct. 1997, Oct. 1999; 2
X. chrysenteron (Bull. ex St. Amans) Quél. – t; GC – Aug., Sept. 1997; Aug. 1998; 1
X. subtomentosus (L.: Fr.) Quél. – t; July 1998; 1

Agaricales

Agaricus arvensis Schff.: Fr. – t; GC – Oct. 1999; 2
A. semotus Fr. – t; FU – Sept. 1998; +

Agrocybe cylindracea (DC.: Fr.) Mre. – l (on branch buried in the ground); GC – May 1999; 1; **R**
Amanita citrina (Schff.) S.F. Gray – t; GC – Oct. 1997; 1; **C**
A. phalloides (Vaill.) Secr. – t; FU – Sept., Oct. 1997, Aug. – Oct. 1999; 1; **C**
A. rubescens (Pers.: Fr.) S.F. Gray – t; GC – Oct. 1997; 2
Armillaria mellea s.l. – t; GC – Oct. 1997, Oct. 1998; 4; **C**
Clitocybe clavipes (Pers.: Fr.) Kummer – t; GC – Oct. 1997; 2
C. flaccida (Sow.: Fr.) Kummer – l (on leaves); GC – Oct. 1997; 2
C. lignatilis (Pers.: Fr.) Karst. – lg (on log); FU – Aug. 1997; 1, **V**
Conocybe mairei (Kühner ex) Watling – t; FU – July 1999; 1
C. rickeniana P.D. Orton – t; GC – Oct. 1997; 2
Coprinus atramentarius (Bull.: Fr.) Fr. – t; GC – Apr. 1998, Oct. 1999; 2
C. cortinatus Lge. – t; FU – Sept. 1999; 1
C. disseminatus (Pers.: Fr.) S.F. Gray – lg (on and about stump); FU – July, Sept. 1998, GC – June 1999; 4
C. hemerobius Fr. – t; FU – July, Oct. 1998, Sept. 1999; 2
C. impatiens (Fr.) Quél. – t; FU – Oct. 1997; 1
C. micaceus (Bull.: Fr.) Fr. – lg (about living *Carpinus betulus*); GC – Nov. 1998; 2
C. plicatilis (Curt.: Fr.) Fr. – t; FU – July, Spet. 1998, Aug. 1999, CA – May 1998; 2
Cortinarius alnetorum (Vel.) Mos. – t; FU – Oct. 1998; CA – Oct. 1998; 2
C. helvelloides (Fr.) Fr. – t; CA – Oct. 1998; 2
Crepidotus variabilis (Pers.: Fr.) Kummer – t (on branch); GC – Sept., Oct. 1999; 2
Cystolepiota sistrata (Fr.) Sing. – t; GC – Sept. 1998; 1
Entoloma araneosum (Quél.) Mos – t; FU – Oct. 1997, Oct. 1998, Aug. 1999; 1
E. byssisedum (Pers.: Fr.) Donk – lg (on branch); CA – Sept. 1999; +; **I**
E. nidorosum (Fr.) Qué(l. – t; FU – Aug. 1999; 2
E. rhodopolium (Fr.) Kummer – t; GC – Sept. 1997; 2
Flammulina velutipes (Curt.: Fr.) Sing. – lg (on dead *Ulmus minor*); FU – Nov. 1998; 2
Galerina unicolor (Fr.) Sing. – lg (on log); FU – Oct. 1998; 2
Gymnopus confluens (Pers.: Fr.) Antonin (*Collybia confluens* (Pers.: Fr.) Kummer) – t (often in fairy rings); FU – Aug. 1998, GC – Sept., Oct. 1997, Oct. 1998, June, July, Sept. 1999; 4
G. dryophilus (Bull.: Fr.) Murrill (*Collybia dryophila* (Bull.: Fr.) Kummer – l (litter); FU – Sept. 1998; GC – June, Aug., Sept. 1997; 1
G. ocior (Pers.) Antonin et Noordel. (*Collybia exculpta* (Fr.) Gill.) – t; FU – June 1999; 1
G. peronatus (Bolt.: Fr.) Antonin (*Collybia peronata* (Bolt.: Fr.) Sing.) – l (litter); FU – Sept. 1998, Aug. 1999, GC – Sept., Oct. 1997, Sept. 1999; 1
Hebeloma sacchariolens Quél. – t; FU – Aug. 1999; +
H. testaceum (Batsch: Fr.) Quél. – t; FU – Oct. 1999; 1

Hohenbuehelia myxotricha (Lév.) Sing. – lg (on branches of dead *Fraxinus excelsior*); CA – Sept. 1997, 1999; 2; **R**

Hypholoma fasciculare (Huds.: Fr.) Kummer – lg (about dead *Quercus robur*); GC – Aug., Oct. 1997, May, June 1999; 2

Inocybe fastigiata (Schff.: Fr.) Quél. – t; GC – July 1998; 1

I. geophylla (Sow.: Fr.) Kummer – t; GC – Sept. 1997, Aug. 1998; 2

I. geophylla (Sow.: Fr.) Kummer var. *violacea* Pat. – t; GC – Oct. 1997, July 1998; 2

I. patouillardii Bres. – t; GC – June 1999; 1; **C**

I. perlata Cooke – t; FU – Oct. 1997, July 1998, Aug. 1999, GC – Oct. 1997; 2

I. petiginosa (Fr.: Fr.) Gill. – t (close to *Fagus sylvatica*); FU – Sept., Oct. 1997, 1998, 1999; 2

Kuehneromyces mutabilis (Schaeff: Fr.) Sing. ex Smith – lg (on log and roots of knocked down tree); GC – Sept. 1997, Sept., Nov. 1998, Apr., Sept. 1999; 4; **C**

Laccaria amethystina (Bolt. ex Hook.) Murr. – t; FU – Oct. 1997, 1998, 1999; 2; **C**

L. laccata (Scop.: Fr.) Bk. et Br. – t; FU – Aug. 1999, GC – Oct. 1997, 1998, 1999; 2

L. tortilis (Bolt.) S.F. Gray – t, FU – Sept., Oct. 1999; 2

Lepiota aspera (Pers. in Hofm.) Quél. – t (on rotten wood in the place of wood accumulation); FU – Oct. 1997; 2

L. cristata (A. et S.: Fr.) Kummer – t, GC – Sept. 1997; +

L. pseudofelina Lge. – t; FU – Sept. 1998; 1; **I**

Lepista nebularis (Fr.) Harmaja – t; GC – Oct. 1997, 1998; 2

L. nuda (Bull.: Fr.) Cke – t; GC – Oct. 1997, 1998; 2

Macrolepiota procera (Scop.: Fr.) Sing. – t; GC – Aug. 1998; 2; **I**

M. rhacodes (Vitt.) Sing. – t; GC – Oct. 1998; 2; **I**

Marasmius oreades (Bolt.: Fr.) Fr. – t; L – Sept. 1997; 2

M. setosus (Sow.) Noordel. (*Marasmius recubans* Quél.) – l (on leaves, twigs and acorns of *Quercus robur*); FU – Oct. 1997, 1998, 1999; 2; **I**

M. rotula (Scop.: Fr.) Fr. – l (on twigs); FU – July – Oct. 1997, June 1998, June – Aug. 1999, GC – June 1997, Oct. 1998, VI, Sept. 1999; 2

M. scorodonius (Fr.) Fr. – l (on twigs); GC – Sept. 1999; 1

Melanoleuca cognata (Fr.) K. et M. – t; GC – Sept. 1998, Oct. 1999; 1

Mycena acicula (Schff.: Fr.) Kummer – l (on twigs); FU – Aug. 1997, June, July 1999, GC – Sept. 1997, June 1999; 1

M. aetites (Fr.) Quél. – l (on leaves); GC – Oct. 1997, CA – Aug. 1997; 3

M. alcalina (Fr.) Kummer – lg (on stump); GC – Oct. 1998; 2

M. aurantiomarginata (Fr.) Quél – l (on leaves); FU – Oct. 1999; 1; **R**

M. citrinomarginata Gill. – l (on leaves); FU – June 1999; +

M. chlorinella (Lge.) Sing. – l (on leaves); CA – Oct. 1999, GC – Oct. 1998, Sept. 1999; 2

M. flavescens Vel. – l (on leaves of *Fagus sylvatica*); FU – Oct. 1999; 2; **R**

M. galericulata (Scop.: Fr.) S.F. Gray – l-lg (on twigs and pieces of wood); CA – Oct. 1999, FU – Oct. 1997, GC – Sept., Oct. 1997, Sept., Oct. 1998, Sept., Oct. 1999; 2

M. galopus (Pers.: Fr.) Kummer – l (on twigs under the ground); CA – June 1999, FU – Oct. 1997, June, July, Oct. 1999, GC – Sept. 1997, July, Sept., Oct. 1998, June, Sept. 1999; 2

M. lineata (Fr.) Quél. ss. Lange – lg (on stump); FU – Sept. 1998; 1

M. polygramma (Bull.: Fr.) S.F. Gray – l (on twigs buried in the ground), GC – Oct. 1997, Sept. 1999; 2

M. pseudocorticola Kühn. – lg (on mossy butt of *Ulmus minor*, *Fraxinus excelsior* and *Quercus robur*); FU – Dec. 1997, GC – Dec. 1997, Oct. 1999; 2; **R**

M. pura (Pers.: Fr.) Kummer – t; GC – Oct. 1997, Sept. 1998, Oct. 1999; 2

M. purpureofusca (Peck) Sacc. – lg (on stump); GC – Oct. 1997, 1998; +; **V**

M. sanguinolenta (Alb. et Schw.: Fr.) Kummer – l (on leaves); Fu – June 1999, GC – Oct. 1998; 2

M. speirea (Fr.: Fr.) Gill. – l (on twigs); FU – Sept. 1997, Sept. 1998, June, Aug., Oct. 1999; 2

M. tintinnabulum (Fr.) Quél. – lg (on stump); FU – Aug. 1999, GC – Dec. 1997; 4

M. vitilis (Fr.) Quél. – l (on leaves); CA – Oct. 1998, GC – Oct. 1997, Oct. 1998, May 1999; 2

M. zephirus (Fr.: Fr.) Kummer – l (on leaves); GC – Oct. 1998, Oct. 1999; 1

Naucoria alnetorum (R. Mre.) Kühner et Romagn. – l (on twigs); CA – Oct. 1998; 1

N. escharoides (Fr.: Fr.) Kummer – l (on twigs); CA – Sept. 1998, Oct. 1999, FU – Oct. 1997, Sept. 1998, Sept., Oct. 1999; 2

N. scolecina (Fr.) Quél. – t; CA – Aug., Oct. 1997, May, June, Sept., Oct. 1998, May 1999, FU – Oct. 1997, Aug., Oct. 1999; 3

N. subconspersa Kühner – l (on twigs buried in the ground); CA – Sept. 1998; 2

Oudemansiella radicata (Relhan: Fr.) Sing. – t; GC – Aug., Oct. 1997, Sept. 1999; 1

Pholiota aurivella (Batsch: Fr.) Kummer – lg (on roots of knocked down *Fagus sylvatica*); GC – Oct. 1997; 3

Ph. squarrosa (Pers.: Fr.) Kummer – lg (on stump); GC – Sept. 1998; 2

Pleurotus ostreatus (Jacq.: Fr.) Kummer – lg (on dead *Ulmus minor*); FU – Dec. 1997, Nov. 1998; 3

Pluteus atricapillus (Secr.) Sing. – lg (on stump); CA – Aug. 1999, FU – Sept., Oct. 1997, June 1998; Aug. 1999, GC – June, Aug., Oct. 1997, Aug., Oct. 1998, Sept. 1999; 1

P. podospileus Sacc. ex Cub. – l (on twigs buried in the ground); CA – Sept., Oct. 1999; 1

P. romellii (Britz.) Laplanche – t; FU – Aug. 1999; +

P. semibulbosus (Lasch ap. Fr.) Gill (P. boudieri Orton) – lg (on stump), FU – Sept. 1998; +
P. umbrosus (Pers.: Fr.) Kummer – lg (on log); FU – Oct. 1997, Nov. 1998; +
Psathyrella candolleana (Fr.) Mre. – l (on pieces of wood); CA – Sept. 1997, June, Sept. 1998, June, July, Sept. 1999; 3
P. gracilis (Fr.) Quél. – l (on pieces of wood); CA – Oct. 1999; 2
P. hydrophila (Bull.: Merat) R. Mre. – lg (about and on stump); GC – Sept. 1997, Sept. 1998, Oct. 1999; 4
P. prona (Fr.) Gill. – t; FU – Oct. 1997; 2
P. spadiceo-grisea (Fr.) R. Mre. – t; CA – Apr. 1998, Apr., May 1999, FU – March 1998; 1
P. subatrata (Batsch.: Fr.) Gill. – t; FU – Oct. 1997; 2
P. velutina (Pers.: Fr.) Sing. – t; FU – Sept. 1998, Aug. 1999; 2
Rhodocollybia butyracea (Bull.: Fr.) Lennox (*Collybia butyracea* (Bull.: Fr.) Quél.) – t; GC – Oct. 1997, Sept., Oct. 1998; 2
Simocybe rubi (Berk.) Sing. – t (on twigs); FU – Aug. 1997; 1
Stropharia aeruginosa (Curt.: Fr.) Quél. – t; GC – Oct. 1997, 1998; 2
S. coronilla (Bull.: Fr.) Quél. – t; T – Sept. 1998; +
Tricholoma sulphureum (Bull.: Fr.) Kummer – t; FU – Oct. 1999; 1; **C**
T. terreum (Schff.: Fr.) Kummer – t; GC – Oct. 1999; 1
Volvariella taylori (Berk.) Sing. – t; FU – Aug., Sept. 1999; +; **I**
V. volvacea (Bull.: Fr.) Sing. – lg (on stump); GC – June 1999; 1; **I**

Russulales

Lactarius blennius Fr. – t (close to *Fagus sylvatica*); FU – Sept. 1997, Oct. 1998, Oct. 1999; 2
Russula cyanoxantha (Schff.) Fr. – t (close to *Quercus robur*); GC – Aug. – Oct. 1997, July 1998; 1
R delica Fr. – t; GC – Oct. 1997, July 1998; 1
R. grisea (Pers.) Fr. ss. Gill. – t; GC – Sept. 1999; 2
R. mairei Sing. – t (close to *Fagus sylvatica*); Aug. – Oct. 1997, Oct. 1998, July, Sept, Oct. 1999; 2
R. pumila Rouzeau et Massatr – t; CA – Oct. 1998; +; **I**
R. solaris Ferd. et Winge – t (close to *Fagus sylvatica*); FU – Oct. 1997, Sept. 1998; 2

Sclerodermatales

Scleroderma verrucosum Pers. – t; GC – Oct. 1997, June 1998; 1

Nidulariales

Crucibulum laeve (Huds. ex Relh.) – lg (on branches); GC – July 1998; 2
Cyathus olla (Batsch): Pers – l (on dead stems of *Rubus idaeus*); A – March 1999; 2; **C**

Lycoperdales

Langermannia gigantea (Batsch.: Pers.) Rostk. – t; GC – Oct. 1997; 1; **P; C**
Lycoperdon perlatum Pers. – t; GC – Oct. 1997; 2
L. pyriforme Schff.: Pers. – lg (about stump); GC – Oct. 1997; 2

Phallales

Phallus impudicus L.: Pers. – t; GC – Oct. 1997; 1; **P; C**

RESULTS AND CONCLUSIONS

1. In the manorial park in Turew 177 taxa (176 species and 1 variety) were recorded in total.
2. Terrestrial species constitute the most numerous group of species (47.5% of all taxa). A group of lignicolous species make 31.6% and a group of litter decomposing species – 20.9%.
3. The proportion of *Ascomycetes* was relatively high and constitutes 15.3%. Most species belonged to *Basidiomycetes* (84.7%). Genera with the highest number of species were: *Mycena* – 19 spp., *Coprinus* – 7, *Psathyrella* – 7, *Russula* – 6, *Inocybe* – 5 + 1 var., *Pluteus* – 5.
4. Among the recorded macrofungi 23 species (13% of all) are protected by law in Poland: *Langermannia gigantea, Meripilus giganteus, Morchella gigas* and *Phallus impudicus* or listed in Polish Red List (W o j e w o d a and Ł a w r y n o w i c z 1992): *Agrocybe cylindracea, Bulgaria inquinans, Clitocybe lignatilis, Entoloma byssisedum, Fistulina hepatica, Hohenbuehelia myxotricha, Lepiota pseudofelina, Macrolepiota procera, M. rhacodes, Marasmius setosus, Morchella gigas, Mycena aurantiomarginata, M. flavescens, M. pseudocorticola, M. purpureofusca, Paxillus filamentosus, Russula pumila, Stereum subtomentosum, Volvariella taylori, V. volvacea.* Besides, four other rare species were found: *Ascocoryne cylichnium, Coprinus cortinatus, Exidia truncata* and *Pluteus podospileus.*
5. The geographical distribution in Europe of 19 species occurring in the park in Turew was mapped by S k i r g i e ł ł o (1965–1984).
6. The majority of species were recorded in an oak-hornbeam forest (93 spp., incl. 68 exclusive spp.), which covers the largest area. 85 spp. occurred in an elm-alder forest (60 exclusive spp.), and 29 spp. – in an ash-alder forest (16 exclusive), covering the smalles area in the park. The species number distribution is probably partially influenced by the differentiated size of a studied habitat (and the length of transect). Only three species were found in the all studied types of forests: *Mycena galericulata, M. galopus* and *Pluteus atricapillus.*
7. The results show that the manorial park in Turew is an important refuge area for many species of macrofungi occurring in agricultural landscape.

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Grzyby wielkoowocnikowe parku pałacowego w Turwi, koło Poznania

Streszczenie

Badania prowadzono w latach 1997 – 99 na terenie parku pałacowego w Turwi (Wielkopolska, Park Krajobrazowy im. gen. D. Chłapowskiego) w celu poznania składu gatunkowego grzybów wielkoowocnikowych tego parku i określenia jego roli jako środowiska refugialnego w krajobrazie rolniczym. Ogółem zebrano 176 gatunków i 1 odmianę grzybów wielkoowocnikowych. Dominowały *Basidiomycetes* – 84,7%, a *Ascomycetes* stanowiły 15,3%. 23 gatunki (prawie 13%) to grzyby objęte ochroną gatunkową i/lub umieszczone na czerwonej liście z różnym stopniem zagrożenia. W krajobrazie rolniczym, jaki dominuje w Parku Krajobrazowym im. gen. D. Chłapowskiego, park pałacowy w Turwi stanowi ostoję dla wielu gatunków grzybów wielkoowocnikowych.