CHosen Macromycetes of the Kup Inspectorate – Preliminary Research*

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Abstract: The area of the Kup Inspectorate (part of the Stobrawski Landscape Park) has no completely published and more detailed mycological surveys up to now. Therefore, the goal of this paper is focused on presentation of the preliminary studies on Macromycetes from the Kup Inspectorate area. Sites of red-listed and rare species were reported as a result of the study. Moreover, the presence of interesting species, which have different forms of their body fruits and toxic activities, were set off. The paper shows common species which are easy to mark on the base of macromorphological features.

Key Words: Macromycetes, Stobrawski Landscape Park, rare macrofungi, Opole Silesia, conservation

Introduction

Forests of the Kup Inspectorate in majority are located in the Stobrawski Landscape Park. They also constitute external Park’s buffer zone. More detailed mycological data were not given from the area of the Kup Inspectorate up to now, so these studies have pioneer character.

*This article is overworked and shortened version of the M.Sc. thesis “The Macromycetes flora of the Kup Inspectorate (Opole Province - South of Poland)” written by Anna Stala M.Sc. The thesis was performed under the supervision of Sławomir Sokół D.Sc. (University of Opole).

¹Anna Stala is a recipient of a Ph. D. scholarship under a project founded by the European Social Found.
The goal of this paper is to present results of the preliminary studies of Macromycetes from the Kup Inspectorate area. Sites of endangered and rare species – protected by the Regulation of the Minister of Environment from July 9th of 2004 (Dz. U. No. 168, pos. 1765), as well as these included into the red list (Wojewoda 1999; Wojewoda and Ławrynowicz 2006) were reported in presented work. Additionally, the presence of interesting species, which have different forms of their body fruits and toxic activity, were set off.

**Physiographical characteristics of the study area**

The Kup Inspectorate is situated in the northern part of the Opole Province. Areas of several communes contribute to Inspectorate: Dobrzeń Wielki, Łubniany, Murów, Pokój, Popielów and Świerczów. According to the state division used in the forestry, it belongs in majority to the Silesian Natural – Forest Province (Śląska Kraina Przyrodniczo-Leśna), the Opole Plateau, the Bory Stobrawskie mesoregion (Mroczkiewicz 1952). The area ranges approximately between: N 50º 46’ and N 50º 57’, as well as E 17º 45’ and E 18º 00’. The Kup Inspectorate is divided into three districts: the Kup District, including the following forestries: Brynica, Kup, Masów and Nowy Kup; the Pokój District with Czarna Woda, Dąbrówka Dolna, Kozuby and Winna Góra forestries; the Popielów District with: Chróścice, Kaniów, Lubienie and Ładza forestries.

The total area of the Kup Inspectorate is about 20 600 ha (State Forests, Kup Inspectorate 2012), approximately 70% of that number takes areas of the Stobrawski Landscape Park, established in 1996. The Park has lowland character and was funded to maintain and preserve the most valuable nature wonders of the Silesian Lowland. It includes complex of compact and dense forests called the Stobrawsko – Turawskie Forests. Mature pine monocultures significantly prevail among the tree stands there. Broadleaved woods such as: oak – linden – hornbeam forests (Galio-Carpinetum betuli), ash – alder forests (Fraxino-Alnetum), as well as ash – elm forests (Ficario-Ulmetum minoris) occur mainly in river valleys. Willow – poplar forests (Salici-Populetum) along rivers are very rare.

The Stobrawski Landscape Park is situated in the basin of the following rivers: Bogacica, Brynica, Budkowiczanka, Smotrawa and Stobrawa; its southern border is limited by the Odra and Nysa Kłodzka rivers (Provincial Inspectorate of Environment Protection 2007). Abundantly developed hydrological net of the Stobrawski Landscape Park is a refuge for many valuable species of fauna and flora. Fifty species of protected plants, including 38 under the strict protection and 12 partly protected, as well as approximately 250 species of...
animals have been reported from the area of the Park up to now (The Stobrawski Landscape Park 2012).

**Materials and methods**

Mycological studies were made between the April 31\textsuperscript{st} of 2011 and the April 2\textsuperscript{nd} of 2012 (additional research has been led in 2013). Photographs were taken at the sites of the *Macromycetes* occurrence (the first author’s photos are presented in the paper). Then, measurements of the body fruit (height, width of the cap) were made with the highest possible attention paid to the maintenance of the object studied in its natural habitat. Basic ecological information like: insolation, humidity of the substratum, tree species growing in the vicinity of the fungus were gathered. GPS coordinates have been taken during the studies every time for each basidiocarp in order to make easier the return to the same place for monitoring conservation important taxa: protected, rare or withdrawing. Each basidiocarp has been determined with guides – books and atlases (Lange 1974; Gumińska and Wojewoda 1988; Hansen and Knudsen 1992; Bielli 2001; Chmiel 2006; Evans and Kibby 2007; Škubla 2007; Petersen and Laessøe: MycoKey 2012; Sokół 2012). Such characteristic features as: taste, smell, colour and shape of the hymenophore and pores have been noticed.

The short description of research areas (Fig.1):

**The 1\textsuperscript{st} research area: Brynica**

Research area Brynica includes Kup Forestry, the Kup District.

I. Brynica – fresh mixed coniferous forest, forest divisions numbers: 177 – 178, 198 – 204.

II. Brynica – “Górka”, the patch of dry forest on postglacial dune.


**The 2\textsuperscript{nd} research area: Kup**

Research area Kup includes the Nowy Kup Forestry, the Kup District.

I. Kup – fresh mixed coniferous forest, forest section numbers: 139 – 140, 147 – 149.
The 3rd research area: Ładza

Research area Ładza includes the Stobrawski Landscape Park, Ładza Forestry, Popielów District

I. Ładza – fresh forest – 200 years old pine stand, forest section numbers: 143 – 145.

The 4th research area: Pokój

Research area Pokój includes the Stobrawski Landscape Park, the Winna Góra Forestry, the Pokój District.

I. Pokój – acidophilous lowland beechwood in the vicinity of the “Matylda” pond.

List of abbreviations for Tab. 1:

Forest habitat types: Tree species:
df – dry forest Bp. – Betula pendula
ff – fresh forest Fs. – Fagus sylvatica
fmcf – fresh mixed coniferous forest Ps. – Pinus sylvestris
fmbf – fresh mixed broadleaved forest
mmbf – moist mixed broadleaved forest

Status:

§ – the species taken under the protection of the law based on the Regulation of the Minister of Environment from July 9th of 2004 regarding the wild protected fungi species (Dz. U. No. 168, pos. 1765)

PL – Polish red list of the macrofungi (Wojewoda and Ławrynowicz 2006)
Status: E – endangered species; V – vulnerable species; R – rare species

OP – Red list of Upper Silesian macrofungi (Wojewoda 1999)
Status: R – rare species (remark: status applies only to Opole Province)

M – morphologically untypical fungus
**Remark:** Synonymy follows Wojewoda (2003). Forest habitat types had been identified by first author during the field studies based on the forest typology according to Zaręba (1988).

**Results of studies**

The occurrence of 32 species of *Macromycetes* has been ascertained in the area of the Kup Inspectorate as the result of these studies. Six of them are considered as rare, endangered, protected by law or these which deserve on attention (Fig. 2; Tab. 1). During the studies the following species also have been found: *Amanita citrina* (Schaeff.) Pers., *Amanita muscaria* (L.: Fr.) Hook., *Calocera viscosa* (Pers.: Fr.) Fr., *Cantharellus cibarius* Fr., *Coltricia perennis* (L.: Fr.) Murrill, *Craterellus cornucopioides* (L.: Fr.) Pers., *Fomitopsis pinicola* (Swartz.: Fr.) P. Karst., *Ganoderma applanatum* (Pers.) Pat., *Gloeophyllum odoratum* (Wulf.: Fr.) Imaz., *Lactarius deliciosus* (L.: Fr.) Gray, *Lepista nuda* (Bull.: Fr.) Cooke, *Leucopaxillus giganteus* (Quél.) Kotl., *Macrolepiota procera* (Scop.: Fr.) Singer, *Paxillus involutus* (Batak: Fr.) Fr., *Phallus impudicus* L.: Fr., *Phellinus pini* (Brot.: Fr.) A. Ames, *Phellinus robustus* (P. Karst.) Bourd. & Galz., *Piptoporus betulinus* (Bull.: Fr.) Karst., *Polyborus brumalis* Pers.: Fr., *Psilocybe fascicularis* (Huds.: Fr.) Noordel., *Scleroderma citrinum* Pers., *Suillus luteus* (L.: Fr.) Roussel, *Trametes versicolor* (L.:Fr.) Pilát, *Tylopilus felleus* Karst., *Xerocomus badius* (Fr.: Fr.) Gilbert, *Xerocomus subtomentosus* (L.: Fr.) Quél.

All listed species are those which have not been included in Tab.1. These species are not protected by law and are not on the red lists – they are common. Six species which deserve special attention have been described in Tab.1.

Forest management which is led by foresters should not cause fungi damages. Some risk may be connected with excessive harvesting of mushrooms associated with the destruction of the undergrowth.

**Acknowledgements**

Authors would like to thank Kup Inspectorate for giving opportunity to do the mycological research on its area. Special thanks due to Arkadiusz Nowak for valuable comments and the final correction.
Fig. 1. Localization of research areas in the southern part of the Stobrawski Landscape Park and the fragment of its buffer zone (Kup Inspectorate).
Tab. 1. List of rare, endangered and interesting species of the *Macromycetes* ascertained in the area of the Kup Inspectorate with notes concerning: research area/s; date of findings; forest habitat type; number of basidiocarps. Symbol abbreviations in “Material and method” section.

<table>
<thead>
<tr>
<th>No.</th>
<th>Species and additional information</th>
<th>Research area/s; date of findings species; forest habitat type; number of basidiocarps</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><em>Amanita virosa</em> (Fr.) Bertillon PL – V 1/II; 9 VII 2011; df – glacial dune; 1 basidiocarp under the <em>Ps.</em> 4/I; 17 VII 2011; fmbf; 2 basidiocarps under the <em>Fs.</em></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td><em>Clavariadelphus truncatus</em> (Quél.) Donk §</td>
<td>1/I; 19 XI 2011; ff; 3 basidiocarps near to <em>Fs.</em></td>
</tr>
<tr>
<td>4.</td>
<td><em>Otidea onotica</em> (Pers.) Fuckel (Index fungorum) M</td>
<td>1/II; 29 VIII 2011; df – glacial dune; 3 basidiocarps fused in a cluster 4/I; 22 X 2011; fmbf; 5 basidiocarps fused in a cluster, under the <em>Fs.</em></td>
</tr>
<tr>
<td>5.</td>
<td><em>Sparassis crispa</em> §</td>
<td>1/II; 29 VIII 2011; df; 1 basidiocarp under the <em>Ps.</em></td>
</tr>
<tr>
<td>6.</td>
<td><em>Tremella mesenterica</em> Retz.: Fr. M</td>
<td>2/I; 19 X 2011; fmcf; 1 basidiocarp on the rotten oak branch</td>
</tr>
</tbody>
</table>

**Bibliography**


Regulation of the Minister of Environment from July 9th of 2004 (Dz. U. Nr 168, poz. 1765) – Rozporządzenie Ministra Środowiska z dnia 9 lipca 2004 r. w sprawie gatunków dziko występujących grzybów objętych ochroną (Dz. U. Nr 168, poz. 1765).


