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AK is the Associate Editor of the journal; other authors: no competing interests have been declared

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## CHECKLIST

# Contribution to Knowledge of Mycobiota of the Wielkopolski National Park (W Poland), Part 2

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## Abstract

Wielkopolski National Park is a protected area located in central Wielkopolska, near Poznań City, and is an important refuge to numerous valuable species of plants, fungi, and animals. Through 2019, the project to recognize and catalog the macromycetes of this Park was continued. The current paper presents the results of these studies in the form of an annotated list of the recorded species. One hundred and eighty-nine taxa new for Wielkopolski National Park have been identified. Among these, nine are new to Poland (*Acanthophysellum lividocoeruleum*, *Agaricus moellerianus*, *Callistosporium luteo-olivaceum*, *Entoloma terreum*, *Flammulina populicola*, *Leucoagaricus sublittoralis*, *Marasmius anomalus* var. *microsporus*, *Phaeohelotium rufescens*, and *Tulasnella danica*). The current number of fungal taxa found in this park is 1,122.

## Keywords

Ascomycota; Basidiomycota; new regional reports; new country reports

## 1. Introduction

This article is a continuation of our previously published contribution to the mycobiota of Wielkopolski National Park (WPN), which is one of two national parks located within the borders of the Wielkopolska region. A general description of the study area and the history of mycological studies in WPN has been briefly described in the first part of this paper (Gierczyk & Kujawa, 2020). In 2018, the number of known species in this area was verified based on published and unpublished materials. At the close of the first year of this study, the number of fungal taxa in the WPN had reached 975. The taxa recorded in 2018 (312) included 140 that were new to WPN, 26 that were new to the Wielkopolska region, and five that had hitherto not been reported in Poland (Gierczyk & Kujawa, 2020). The purpose of this study was to present new mycological data for the WPN.

## 2. Material and Methods

Specimens were collected in 2019 from January to December using the route method. Forest compartment numbers are given after the Forest Data Bank (<https://www.bdl.lasy.gov.pl/>). Methods of specimen identification, taxonomic literature used, sources of nomenclature, distribution data, and threat/protection status in Poland have been previously described (Gierczyk & Kujawa, 2020). Additionally, the following monographs have been also used: *Amanita* (Galli, 2001; Kibby, 2012), *Entoloma* (Noordeloos, 1992, 2004), *Inocybe* (Ferrari, 2006, 2010; Ferrari et al., 2014; Kuyper, 1986; Stangl, 2011), *Lactarius* (Heilmann-Clausen et al., 1998), *Mycena* (Aronsen & Læssøe, 2016), *Ramaria* (Christan, 2008),

*Sowerbyella* (Yao & Spooner, 2006), *Tricholoma* (Christensen & Heilmann-Clausen, 2013), *Tulasnella* (Roberts, 1994), Boletales (Mikšík, 2017), gasteroid fungi (Jeppson, 2013, 2018; Sarasini, 2005; Sunhede, 1989), and jelly fungi (Wojewoda, 1977). Dried specimens have been deposited in Błażej Gierczyk and Tomasz Ślusarczyk private fungaria, and in the fungarium of Turew Field Station of the Institute for Agricultural and Forest Environment of the Polish Academy of Sciences.

### 3. Results

During field research in WPN in 2019, over 1,250 records were collected, referring to 526 taxa (species, varieties, and forms). Among these, 189 had not previously collected within WPN. Nine taxa are new to Poland, and 24 to the Wielkopolska region. Many taxa have been confirmed for the first time in WPN almost 90 years since they were observed in the park. Among other interesting and valuable taxa, one could find, for example, species partially protected, observed only in single localities in Poland, or red-listed species (Ex – 1, E – 7, V – 8, R – 13, I – 1). Among the valuable species found growing in the WPN, many may have a higher chance of survival than their populations occurring outside protected areas. To the best of our knowledge, populations of numerous species are only preserved in the Wielkopolska region within the WPN [compare with other published data from this region, e.g., Gierczyk & Ślusarczyk (2020)]. The current state of knowledge indicates that some taxa need habitats and conditions for their growth and propagation that are secured only in protected areas, due to factors such as noninvasive forest management, presence of old tree stands, abundant coarse woody debris, or mosaic habitats (Moore et al., 2001). The current number of fungal taxa known in this park reached 1,122 (1,164 including species of uncertain status), which proves the importance of this area for protecting and conserving fungal biota in central Wielkopolska.

Abbreviations:

- ! – species new to Poland, # – species new to the Wielkopolska region;
- LP – Landscape Park, NP – National Park, NR – Nature Reserve;
- PU – Protection Unit (Polish: Obwód Ochronny): Jz – Jeziory; Gr – Górkę; OG – Osowa Góra; Pu – Puszczykowo; Wi – Wiry; Wy – Wypalanki; in parentheses is given the number of forest compartment;
- NICL – species not included in Polish checklists; PP – species partially protected by law; RL – species mentioned in Red List with categories: Ex – extinct, E – endangered, V – vulnerable, R – rare, I – indeterminate;
- *Ae* – *Aesculus hippocastanum*, *Al* – *Alnus* spp., *Al.g* – *Alnus glutinosa*, *Bt* – *Betula* spp., *Bt.p* – *B. pendula*, *Co* – *Corylus avellana*, *Cp* – *Carpinus betulus*, *Fg* – *Fagus sylvatica*, *Fx* – *Fraxinus excelsior*, *Pi* – *Pinus sylvestris*, *Pc* – *Picea abies*, *Po* – *Populus* spp., *Po.a* – *Populus alba*, *Q* – *Quercus* spp., *Rb* – *Robinia pseudoacacia*, *Sa* – *Salix* spp.; *Sy* – *Syringa* spp., *Um* – *Ulmus* spp.

#### 3.1. Annotated Species List: Ascomycota

##### 3.1.1. *Diatrype stigma* (Hoffm.) Fr.

**Specimens Examined.** 1. Wielkawieś, 0.5 km N (WyPU: 122K); IV/2019; mixed forest; *Co* branches. 2. Rosnówko, 0.75 km NW (WyPU: 177); V/2019; mixed forest; *Co* branches. 3. Mosina-Jeziory, 0.6 km E (JzPU: 83); IV/2019; mixed forest; *Co* branches.

##### 3.1.2. *Hyaloscypha fuckelii* Nannf.; NICL

**Specimens Examined.** Mosina-Jeziory, 0.6 km E (JzPU: 83); IV/2019; mixed forest; deciduous wood.

##### 3.1.3. *Hymenoscyphus fraxineus* (T. Kowalski) Baral, Queloz & Hosoya; NICL

**Specimens Examined.** Mosina-Jeziory, 0.5 km W (JzPU: 121); X/2019; broad-leaved forest; petioles of *Fx* leaves.

3.1.4. *Hypocrea sinuosa* P. Chaverri & Samuels

**Specimens Examined.** Wielkowieś, 0.6 km N (WyPU: 123K); IX/2019; mixed forest (Fg, Q, Pi, Co); branch of a deciduous tree.

**Notes.** In Poland, hitherto known only from Gryżyna LP (Ślusarczyk, 2019).

3.1.5. *Lasiosphaeria ovina* (Pers.) Ces. & De Not.

**Specimens Examined.** Wielkowieś, 1.5 km NW (WyPU: 125K); IX/2019; broad-leaved forest; branch of a deciduous tree.

3.1.6. *Peziza michelii* (Boud.) Dennis

**Specimens Examined.** Wielkowieś, 1.5 km NW (WyPU: 125K); IX/2019; riparian forest; soil.

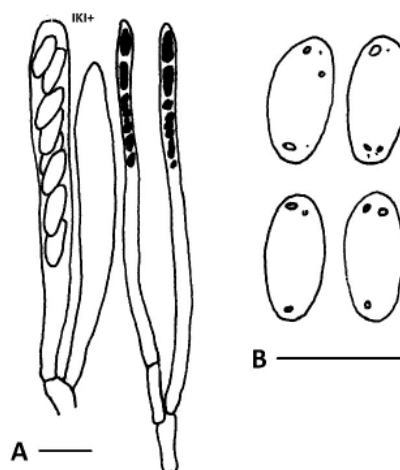
3.1.7. *Peziza vesiculosa* Bull.

**Specimens Examined.** 1. Mosina-Jeziory, 0.6 km SE (JzPU: 86); IV/2019; mixed forest; decayed woody debris. 2. Wypalanki, 0.6 km S (WyPU: 166); X/2019; margin of the abandoned field; horse manure.

3.1.8. *Phaeohelotium rufescens* (Velen.) Declercq (Figure 1)

**Specimens Examined.** Wielkowieś, 1 km NNW (WyPU: 123K); IX/2019; nitrophilous vegetation on dirt road margin in a mixed forest; Pi cone.

**Notes.** Apothecia minute, disc- to cushion-shaped, sessile to subsessile, up to 3 mm in diameter, whitish, yellowish or dirty yellow, reddening after bruised. Asci without croziers, with amyloid apical apparatus. Spores ovoid or ellipsoid-ovoid, hyaline, smooth, without septa,  $8-11 \times 3.5-4.5 \mu\text{m}$ , with small guttules at both ends, oil content ca. 5% (OCI = 1–2). Paraphyses cylindrical, with strongly refractive content. Ectal excipulum of textura angularis.



**Figure 1** Microcharacters of *Phaeohelotium rufescens*: (A) asci and paraphyses; (B) spores. Scale bars: 10  $\mu\text{m}$ .

3.1.9. *Rutstroemia sydowiana* (Rehm) W. L. White

**Specimens Examined.** Wielkowieś, 1.3 km NW (WyPU: 125K); IX/2019; broad-leaved forest; Q leaves.

3.1.10. *Sowerbyella radiculata* (Sowerby) Nannf. var. *radiculata*; NICL (Figure 2)

**Specimens Examined.** Wielkowieś, 0.3 km NE (WyPU: 122K); IX/2019; nitrophilous vegetation on dirt road margin, under *Rb* and *Po*; soil.

**Notes.** In Poland, known only from Górzycza (Bujakiewicz, 2010).



**Figure 2** Ascomata of *Sowerbyella radiculata* var. *radiculata* from WPN; September 29, 2019. Photography by B. Gierczyk.

3.1.11. *Tarzetta catinus* (Holmsk.) Korf & J. K. Rogers

**Specimens Examined.** Wielkawieś, 1.9 km NW (WyPU: 126K); IX/2019; riparian forest; soil.

3.2. Annotated Species List: Basidiomycota

3.2.1. *Acanthophysellum lividocoeruleum* (P. Karst.) Parmasto (Figure 3)

**Specimens Examined.** Trzebaw, 1.2 km NNW (WyPU: 201); I/2019; mixed forest (*Pi*, *Q*, *Fg*, *Cp*, *Um*); branch of a deciduous tree.

**Notes.** Basidiomata thin, resupinate, smooth, grey with a distinct bluish tint. Basidia four-spored. Spores ellipsoid to subcylindrical, smooth, without iodine reaction,  $6.5\text{--}8 \times 3\text{--}4 \mu\text{m}$ . Acanthophyses indextrinoid, with short outgrowths in apical part. Cystidia obclavate to fusoid-ventricose, often with apical moniliform protuberance. Hyphal system moniliform. Clamps present.

3.2.2. *Agaricus essettei* Bon

**Specimens Examined.** Wielkawieś, 1 km NNW (WyPU: 123K); IX/2019; mixed forest (*Q*, *Fg*, *Pi*, *Co*); soil.

3.2.3. *Agaricus lanipes* (F. H. Møller & Jul. Schäff.) Hlaváček

**Specimens Examined.** 1. Wielkawieś, 0.6 km N (WyPU: 122K); IX/2019; broad-leaved forest; soil. 2. Wielkawieś, 1 km NNW (WyPU: 123K); IX/2019; broad-leaved forest; soil.

3.2.4. *Agaricus lutosus* (F. H. Møller) F. H. Møller (Figure 4)

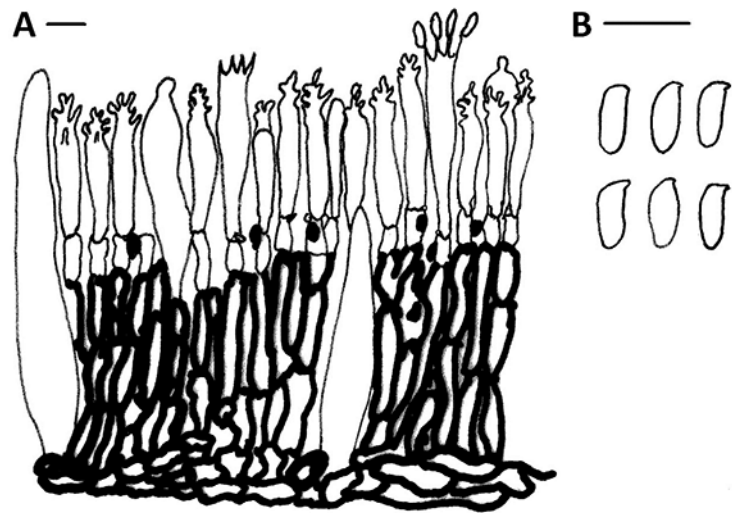
**Specimens Examined.** 1. Wypalanki, 1.9 km SSW (WyPU: 171); IX/2019; *Q* forest; soil. 2. Ludwikowo, 0.5 km W (OGPU: 92); X/2019; broad-leaved forest; soil. 3. Wielkawieś, 0.6 km N (WyPU: 122K); IX/2019; mixed forest; soil. 4. Wielkawieś, 0.8 km NNW (WyPU: 123K); IX/2019; mixed forest (*Q*, *Fg*, *Pi*, *Co*); soil.

**Notes.** In Poland, known only from Poznań (as *A. xantholepis*) (Lisiewska & Mikołajczyk, 1998).

3.2.5. *Agaricus moelleri* Wasser (Figure 5)

**Specimens Examined.** Wielkawieś, 1 km NNW (WyPU: 123K); IX/2019; ash forest; soil.

**Notes.** In Poland, known only from Brodogóry NR (Stasińska, 2003), Poznań-Radojewo (Kujawa et al., 2020) and Bielinek NR (Gierczyk, unpublished data).



**Figure 3** Microcharacters of *Acanthophysellum lividoeruleum*: (A) basidioma cross section; (B) spores. Scale bars: 10  $\mu$ m.



**Figure 4** Basidiomata of *Agaricus lutosus* from WPN; October 10, 2019. Photography by A. Kujawa.

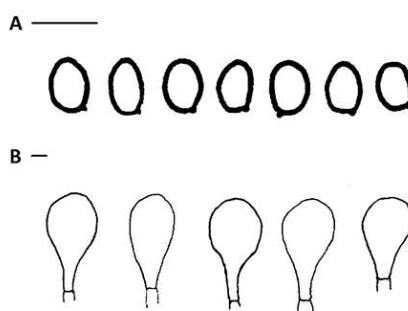


**Figure 5** Basidiomata of *Agaricus moelleri* from WPN; September 29, 2019. Photography by B. Gierczyk.

3.2.6. *Agaricus moellerianus* Bon (Figure 6)

**Specimens Examined.** Wypalanki, 0.6 km S (WyPU: 166); X/2019; abandoned *Medicago sativa* field; soil.

**Notes.** Basidiomata stout, caps 8–13 cm in diameter, hemispherical, becoming plane with age, white with slightly ochre center, smooth or with scattered scales at a center. Stipe 6–9 × 1.5–2 cm, cylindrical, white to whitish, with small scales and fibrils. Annulus intermediate, thin, appressed. Context white, smell of bitter almonds. All parts of the basidiomata become yellow, then ochre-yellow, and finally brownish when rubbed or bruised. Basidia four-spored. Spores 6.5–7.5 × 5–5.5 μm, ellipsoid to (sub)ovate, smooth, dark brown, thick-walled, without germ pore but with thinner wall at apex. Cheilocystidia scarce (in some basidiomata absent), spheropedunculate, simple. Clamps absent.



**Figure 6** Microcharacters of *Agaricus moellerianus*: (A) spores; (B) cheilocystidia. Scale bars: 10 μm.

3.2.7. *Agrocybe erebia* (Fr.) Kühner ex Singer

**Specimens Examined.** Wielkowieś, 1.3 km NW (WyPU: 125K); IX/2019; riparian forest; soil.

3.2.8. *Amanita olivaceo-grisea* Kalamees; NICL (Figure 7)

**Specimens Examined.** Wielkowieś, 1.9 km NW (WyPU: 126K); IX/2019; riparian forest; soil.

**Notes.** In Poland, known only from Biebrza NP (Kujawa et al., 2012) and Kampinos NP (Karasiński et al., 2015).

3.2.9. *Athelia alnicola* (Bourdot & Galzin) Jülich

**Specimens Examined.** 1. Górka, 1.5 km SSE (GrPU: 131); II/2019; alder forest margin; *Al.g* log. 2. Krosinko, 1.8 km N (OGPU: 149); II/2019; humid deciduous forest; *Bt* log. 3. Krosinko, 2.5 km N (OGPU: 144); II/2019; meadow margin; *Pc* log. 4. Trzebaw, 2 km NNW (WyPU: 199); I/2019; mixed forest; branch of a deciduous tree.

**Notes.** *Athelia alnicola*, *A. nivea*, and *A. salicum* are often considered as synonyms of *A. epiphylla* (Eriksson & Ryvarden, 1973; Wojewoda, 2003), however in current monographs, they are recognized as separate species (Bernicchia & Gorjón, 2010). Their distribution in Poland needs to be revised.

3.2.10. *Athelia nivea* Jülich

**Specimens Examined.** Trzebaw, 2 km NNW (WyPU: 190); I/2019; mixed forest; *Pi* log.

**Notes.** See notes under *A. alnicola*.

3.2.11. *Athelia salicum* Pers.

**Specimens Examined.** Krosinko, 0.5 km N (OGPU: 162); II/2019; mixed forest; *Bt* log.

**Notes.** See notes under *A. alnicola*.



**Figure 7** Basidiomata of *Amanita olivaceogrisea* from WPN; September 29, 2019. Photography by T. Ślusarczyk.

3.2.12. *Bolbitius variicolor* G. F. Atk.; NICL

**Specimens Examined.** Mosina, 0.5 km NW from the end of Jeziorna Street (OGPU: 91D); grassland on esker; soil.

**Notes.** In Poland, known only from Bieszczady Mts (Gierczyk et al., 2019), Poznań and the vicinity of Świebodzin (Gierczyk & Ślusarczyk, 2020), probably not distinguished from *B. titubans* (Bull.) Fr.

3.2.13. *Botryobasidium laeve* (J. Erikss.) Parmasto; RL-R

**Specimens Examined.** Trzebaw, 2 km NNW (WyPU: 198); I/2019; mixed forest; log of a deciduous tree.

3.2.14. *Bovista furfuracea* (J. F. Gmel.) Pers.

**Specimens Examined.** 1. Wielkawieś, 0.6 km N (WyPU: 122K); IX/2019; grassy roadside; soil. 2. Lisówki, 0.3 km SE (WyPU: 121K); X/2019; thermophilous margin of *Rb* forest; soil.

3.2.15. *Bovista graveolens* Schwalb; RL-E

**Specimens Examined.** 1. Mosina-Pożegowo, 1 km NWW (OGPU: 91C); IV/2019; roadside in a mixed forest; soil. 2. Puszczykowo, 1 km NE (PuPU: 9); X/2019; mixed forest; soil.

3.2.16. *Buchwaldoboletus lignicola* (Kallenb.) Pilát; RL-V

**Specimens Examined.** Dębienko, 1.2 km N (WyPU: 172); IX/2019; mixed forest; *Pi* trunk.

3.2.17. *Callistosporium luteo-olivaceum* (Berk. & M. A. Curtis) Singer (Figure 8, Figure 9)

**Specimens Examined.** 1. Dymaczewo Stare, 1.7 km NNW (GrPU: 147); X/2019; oak forest; Q trunk. 2. Puszczykowo, 1.3 km NE (PuPU: 9); X/2019; deciduous forest; *Pi* log.

**Notes.** Basidiomata fasciculate, small, caps <3 cm in diameter, convex, campanulate to hemispherical, becoming applanate to concave with age, sometimes broadly umbonate, smooth, brownish to orange-brownish with olive hue, hygrophane. Lamellae crowded, emarginate, dirty yellow, contrasting with pileus surface. Stipe central, cylindrical, pruinose at the top, otherwise fibrillose, yellowish-brown to brown with a darker base. Basidia four-spored. Spores smooth, thin-walled, ellipsoid, with pale yellowish to brownish content, without iodine reaction,  $4.5\text{--}6.5 \times 3.5\text{--}4.5 \mu\text{m}$ . Cystidia absent. Pileipellis a cutis composed of smooth or incrustated elements. Clamps present.



**Figure 8** Basidiomata of *Callistosporium luteo-olivaceum* from WPN; October 12, 2019. Photography by T. Ślusarczyk.



**Figure 9** Spores of *Callistosporium luteo-olivaceum*. Scale bar: 10  $\mu\text{m}$ .

3.2.18. *Clitocybe amarescens* Harmaja

**Specimens Examined.** Wypalanki, 0.6 km SSE (WyPU: 166); X/2019; field margin; horse manure.

3.2.19. *Clitocybe diatretra* (Fr.) P. Kumm.

**Specimens Examined.** Wielkowieś, 0.3 km NE (WyPU: 122K); IX/2019; among nitrophilous vegetation, under *Rb* and *Po*; soil.

3.2.20. *Collybia cookei* (Bres.) J. D. Arnold

**Specimens Examined.** **1.** Dymaczewo Stare, 2 km N (GrPU: 139); X/2019; mixed forest; litter. **2.** Rosnówko, 0.8 km NW (WyPU: 177); V/2019; mixed forest; decaying agaricoid fungi. **3.** Mosina-Jeziory, 0.5 km W (JzPU: 121); hornbeam-oak forest; base of Q trunk. **4.** Ludwikowo (OGPU: 92); X/2019; deciduous forest; litter.



3.2.21. *Conocybe ambigua* Watling; RL-E

**Specimens Examined.** Mosina, 0.5 km NW from the end of Jeziorna Street (OGPU: 91D); grassland on esker; soil.

3.2.22. #*Conocybe brachypodii* (Velen.) Hauskn. & Svrček; NICL

**Specimens Examined.** Trzebaw, 0.7 km NNW (WyPU: 217); X/2019; nitrophilous vegetation at the field margin; soil.

3.2.23. *Conocybe macrocephala* Kühner & Watling

**Specimens Examined.** Wielkowieś, 1 km NNW (WyPU: 123K); IX/2019; riparian forest; soil.

3.2.24. *Conocybe pubescens* (Gillet) Kühner

**Specimens Examined.** Trzebaw, 0.7 km NNW (WyPU: 217); X/2019; nitrophilous vegetation at the field margin; soil.

3.2.25. *Conocybe subpubescens* Kühner

**Specimens Examined.** Wielkowieś, 1 km N (WyPU: 122K); IX/2019; ash forest; soil.

3.2.26. #*Conocybe subxerophytica* Singer & Hauskn. var. *brunnea*; NICL

**Specimens Examined.** Mosina, 0.5 km NW from the end of Jeziorna Street (OGPU: 91D); grassland on esker; soil.

**Notes.** In Poland, hitherto known only from Kampinos NP (Karasiński et al., 2015)

3.2.27. *Coprinellus marculentus* (Britzelm.) Redhead, Vilgalys & Moncalvo; NICL

**Specimens Examined.** Mosina-Jeziory, 0.6 km SE (JzPU: 86); IV/2019; mixed forest; decayed wood debris.

3.2.28. *Coprinellus sclerocystidiosus* (M. Lange & A. H. Sm.) Vilgalys, Hopple & Jacq. Johnson; NICL

**Specimens Examined.** Mosina-Jeziory, 0.6 km SE (JzPU: 86); IV/2019; mixed forest; decayed wood debris.

3.2.29. *Coprinopsis cothurnata* (Godey) Redhead, Vilgalys & Moncalvo; NICL

**Specimens Examined.** Wypalanki, 0.6 km SSE (WyPU: 166); X/2019; field margin; horse manure.

3.2.30. *Coprinopsis krieglsteineri* (Bender) Redhead, Vilgalys & Moncalvo; NICL

**Specimens Examined.** Wielkowieś, 0.3 km NE (WyPU: 122K); IX/2019; among nitrophilous vegetation, under *Rb* and *Po*; litter.

3.2.31. *Coprinopsis macrocephala* (Berk.) Redhead, Vilgalys & Moncalvo; NICL

**Specimens Examined.** Wypalanki, 0.6 km SSE (WyPU: 166); X/2019; field margin; horse manure.

3.2.32. *Coprinopsis scobicola* (P. D. Orton) Redhead, Vilgalys & Moncalvo; NICL

**Specimens Examined.** Mosina-Jeziory, 0.6 km SE (JzPU: 86); IV/2019; mixed forest; decayed wood debris.

**Notes.** In Poland, known only from Poznań (Gierczyk et al., 2014).

3.2.33. *Corioloopsis gallica* (Fr.) Ryvarden; RL-R

**Specimens Examined.** 1. Wielkowieś, 1.3 km NW (WyPU: 125K); IX/2019; broad-leaved forest; Q log. 2. Wielkowieś, 1 km NNW (WyPU: 123K); IV/2019; forest; *Fx* log. 3. Górką, 1.1 km NW (GrPU: 208); X/2019; riparian forest (*Fx*, *Al*); *Al*(?) log.

3.2.34. *Cortinarius olearioides* Rob. Henry; RL-V

**Specimens Examined.** Wielkowieś, 1 km NNW (WyPU: 123K); IX/2019; broad-leaved forest; soil.

**Notes.** From Wielkopolska NP *C. fulmineus* Fr. has been reported (Domański, 1955); however, this species is sometimes considered to be conspecific with *C. olearioides*.

3.2.35. *Cortinarius violaceus* (L.) Gray; RL-V

**Specimens Examined.** Wielkowieś, 1 km NNW (WyPU: 123K); IX/2019; riparian forest; soil.

3.2.36. *Crepidotus applanatus* (Pers.) P. Kumm.; RL-R

**Specimens Examined.** Dębienko, 1.5 km N (WyPU: 171); IX/2019; Q forest; log of a deciduous tree.

3.2.37. *Crepidotus caspari* Velen.

**Specimens Examined.** Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; mixed forest; twigs of a deciduous tree.

3.2.38. *Cyathus olla* (Batsch) Pers.

**Specimens Examined.** Mosina, 0.5 km NW from the end of Jeziorna Street (OGPU: 91D); grassland on esker; soil.

3.2.39. *Deconica crobula* (Fr.) Romagn.

**Specimens Examined.** Ludwikowo (OGPU: 92); X/2019; deciduous forest; woody remains.

3.2.40. *Deconica micropora* (Noordel. & Verduin) Noordel.; NICL

**Specimens Examined.** Łęczycza, 0.8 km SE (PuPU: 9); X/2019; psammophilous vegetation under power line; soil.

3.2.41. *Diplomitoporus flavescens* (Bres.) Domanski; RL-R

**Specimens Examined.** Łęczycza, 1.5 km SEE (PuPU: near 8); X/2019; *Pi* forest margin; *Pi* trunk.

3.2.42. *Entoloma dysthaloides* Noordel.

**Specimens Examined.** Mosina-Pożegowo, 0.6 km E (OGPU: 91B); X/2019; forest; soil.

3.2.43. *Entoloma formosum* (Fr.) Noordel.

**Specimens Examined.** Wielkowieś, 1 km NNW (WyPU: 123K); IX/2019; riparian forest; soil.

3.2.44. *Entoloma lividoalbum* (Kühner & Romagn.) Kubička

**Specimens Examined.** Wielkowieś, 0.3 km NE (WyPU: 122K); IX/2019; nitrophilous vegetation at the roadside, under *Rb* and *Po*, soil.

3.2.45. *Entoloma sericatum* (Britzelm.) Sacc.; NICL (Figure 10)

**Specimens Examined.** 1. Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; riparian forest; soil. 2. Łęczycza, 0.8 km E (PuPU: 8); X/2019; riparian forest; soil.

3.2.46. *Entoloma sericeum* Quél. var. *cinereoopacum* Noordel.; NICL

**Specimens Examined.** Łęczycza, 0.8 km SE (PuPU: 9); X/2019; psammophilous vegetation under power line; soil.

3.2.47. *Entoloma sordidulum* (Kühner & Romagn.) P. D. Orton; NICL

**Specimens Examined.** Mosina, 0.5 km NW from the end of Jeziorna Street (OGPU: 91D); humid woodlot (*Al.g.*, *Po*); soil.

3.2.48. *Entoloma subradiatum* (Kühner & Romagn.) M. M. Moser

**Specimens Examined.** Wielkowieś, 1.9 km NW (WyPU: 126K); IX/2019; broad-leaved forest; soil.

3.2.49. *Entoloma terreum* Esteve-Rav. & Noordel. (Figure 11, Figure 12)

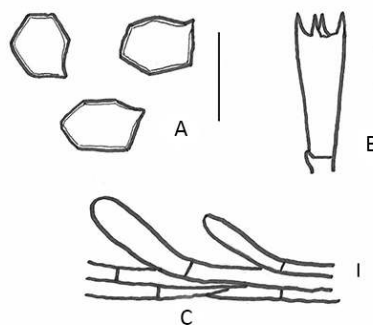
**Specimens Examined.** Dymaczewo Stare, 2.5 km NNW (GrPU: 134); X/2019; psammophilous grassland; soil.



**Figure 10** Basidiomata of *Entoloma sericatum* from WPN; October 12, 2019. Photography by T. Ślusarczyk.



**Figure 11** Basidiomata of *Entoloma terreum* from WPN; October 12, 2019. Photography by T. Ślusarczyk.



**Figure 12** Microcharacters of *Entoloma terreum*: (A) spores; (B) basidium; (C) pileipellis. Scale bars: 10 µm.

**Notes.** Basidiomata solitary, small, caps <1 cm in diameter, convex to hemispherical, radially, coarsely fibrillose, blackish grey, hygrophanous, not translucently striate. Lamellae distant, adnexed, grey. Stipe central, cylindrical, longitudinally fibrillose, grey. Basidia four-spored. Spores five–six-angled, thick-walled, subisodiametrical,  $8.0\text{--}9.0 \times 6.5\text{--}7.5$  µm. Cystidia absent. Pileipellis a cutis with transitions to the trichoderm composed of up to 11 µm wide, brown incrustated hyphae. Stipitipellis a cutis with many clavate terminal elements with smooth walls. Clamps only present in the hymenium.

3.2.50. #*Exidiopsis effusa* (Bref. ex Sacc.) Möller

**Specimens Examined.** Wielkowieś, 0.3 km NE (WyPU: 122K); IX/2019; nitrophilous vegetation of roadside, under *Rb* and *Po*; branch of a deciduous tree.

3.2.51. #*Flammulina elastica* (Lasch) Redhead & Petersen

**Specimens Examined.** Mosina-Pozegowo, 0.6 km E (OGPU: 91B); X/2019; forest; *Sa* log.

3.2.52. *Flammulina fennae* Bas

**Specimens Examined.** Wielkowieś, 1 km NNW (WyPU: 123K); IX/2019; broad-leaved forest; Q stump.

3.2.53. !*Flammulina populicola* Redhead & R. H. Petersen (Figure 13)

**Specimens Examined.** Mosina, 0.5 km NW from the end of Jeziorna Street (OGPU: 91D); humid woodlot (*Al.g*, *Po*); deciduous wood.

**Notes.** Basidiomata small, caps 1–3 cm in diameter, convex, minutely pruinose, viscid, yellowish-orange with a darker center. Gills adnate, almost white. Stem cylindrical, cream color at the top, blackening towards a base, velutinous, rooting. Basidia four-spored. Spores hyaline, ellipsoid to ovoid, without iodine reaction, smooth,  $6.5\text{--}8 \times 4\text{--}5$  µm. Cheilocystidia lageniform to clavate, pleurocystidia similar. Pileipellis an ixotrichoderm. Pileocystidia narrowly lageniform, somewhat thick-walled in the lower part, projecting. Clamps present.

3.2.54. *Galerina mniophila* (Lasch) Kühner

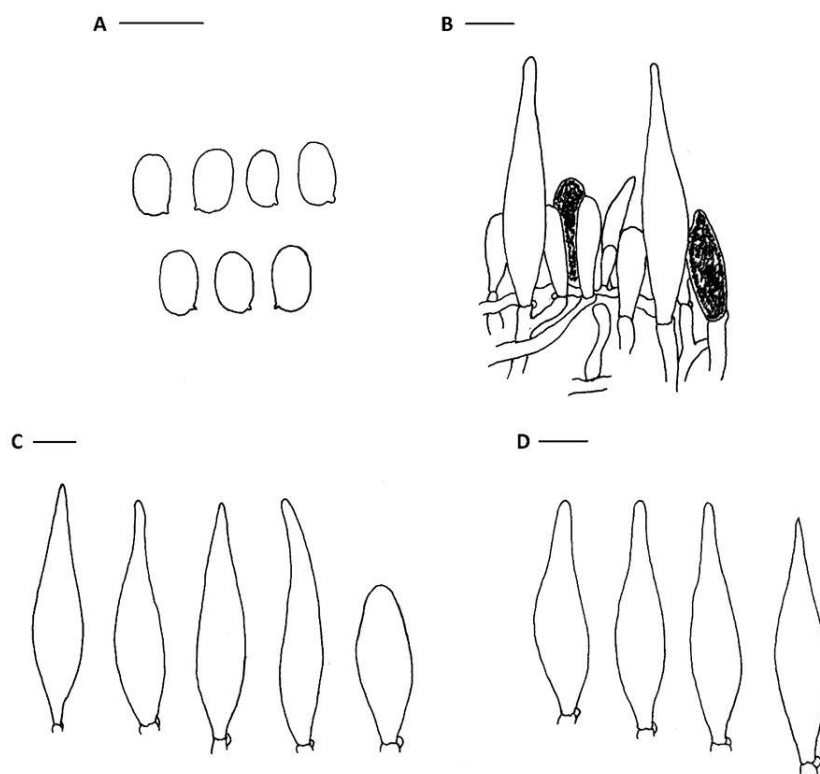
**Specimens Examined.** Mosina-Pozegowo, 1.6 km NE (OGPU: 76); X/2019; mixed forest, among mosses; soil.

3.2.55. *Geastrum corollinum* (Batsch) Hollós; PP, RL-V

**Specimens Examined.** Mosina-Jeziory (JzPU: 121); VIII/2019; park; soil.

3.2.56. *Gerhardtia borealis* (Fr.) Contu & A. Ortega

**Specimens Examined.** Wielkowieś, 1.2 km NNW (WyPU: 124K); IX/2019; mixed forest; soil.



**Figure 13** Microcharacters of *Flammulina populicola*: (A) spores; (B) pileipellis cross section and pileocystidia; (C) cheilocystidia; (D) pleurocystidia. Scale bars: 10  $\mu$ m.

3.2.57. *Gymnopus erythropus* (Pers.) Antonín, Halling & Noordel.

**Specimens Examined.** 1. Wielkowieś, 1.4 km NW (WyPU: 125K); IX/2019; oak-hornbeam forest; litter. 2. Dymaczewo Stare, 2 km N (GrPU: 139); X/2019; broad-leaved forest; litter. 3. Mosina-Jeziory (JzPU: 121); X/2019; broad-leaved forest; litter. 4. Ludwikowo (OGPU: 92); X/2019; broad-leaved forest; trunk.

3.2.58. *Gymnopus impudicus* (Fr.) Antonín, Halling & Noordel. (Figure 14)

**Specimens Examined.** Ludwikowo (OGPU: 92); X/2019; broad-leaved forest; log of a deciduous tree.

3.2.59. *Hebeloma aanenii* Beker, Vesterh. & U. Eberh.; NICL

**Specimens Examined.** Wielkowieś, 0.3 km NW (WyPU: 122K); IX/2019; nitrophilous vegetation of roadside, under *Rb* and *Po*; soil.

3.2.60. *Hebeloma cavipes* Huijsman; NICL

**Specimens Examined.** Łęczycza, 0.8 km E (PuPU: 8); X/2019; riparian forest (*Al.g*, *Po*); soil.

3.2.61. *Hebeloma crustuliniforme* (Bull.) Quél. s. str.

**Specimens Examined.** Wielkowieś, 1.2 km N (WyPU: 124K); IX/2019; mixed forest; soil.

3.2.62. *Hebeloma eburneum* Malençon; NICL

**Specimens Examined.** Wielkowieś, 0.6 km N (WyPU: 123K); IX/2019; *Fx* forest; soil.

3.2.63. *Hebeloma leucosarx* P. D. Orton

**Specimens Examined.** Wielkowieś, 1.4 km NW (WyPU: 125K); IX/2019; riparian forest; soil.



**Figure 14** Basidiocarps of *Gymnopus impudicus* from WPN; October 10, 2019. Photography by A. Kujawa.

3.2.64. *Hebeloma theobrominum* Quadr.

**Specimens Examined.** Wielkowieś, 1 km NNW (WyPU: 123K); IX/2019; broad-leaved forest; soil.

3.2.65. *Hemimycena cucullata* (Pers.) Singer

**Specimens Examined.** Mosina-Jeziory (JzPU: 121); X/2019; broad-leaved forest; litter.

3.2.66. *Hygrophoropsis pallida* (Peck) Kreisel; RL-R

**Specimens Examined.** Mosina-Pożegowo, 0.9 km E (OGPU: 91A); X/2019; forest; soil.

3.2.67. *Hymenochaete tabacina* (Sowerby) Lév.; RL-R

**Specimens Examined.** Wypalanki, 2.1 km SSW (WyPU: 171); V/2019; roadside in a broad-leaved forest; deciduous wood.

3.2.68. #*Hymenopellis radicata* (Relhan) R. H. Petersen f. *marginata* (Konrad & Maubl.) R. H. Petersen; NICL

**Specimens Examined.** Wypalanki, 2.1 km SSW (WyPU: 184); V/2019; deciduous forest; soil.

**Notes.** Form often not distinguished from typical one, in Poland mentioned from Sudety Mts (Gierczyk, Soboń, et al., 2018) and Przemyśl Foothills (Gierczyk, Szczepkowski, et al., 2018).

3.2.69. *Hyphoderma argillaceum* (Bres.) Donk

**Specimens Examined.** Jarosławiec, 0.5 km NW (WiPU: 106); IX/2019; roadside in mixed forest; *Sa*(?) log.

3.2.70. #*Hyphoderma occidentale* (D. P. Rogers) Boidin & Gilles; NICL

**Specimens Examined.** Mosina-Pożegowo, 1 km NW (OGPU: 78C); IV/2019; *Pi* forest; *Pi* log.

**Notes.** In Poland, hitherto known only from Kampinos NP (Karasiński et al., 2015).

3.2.71. *Hyphodontia arguta* (Fr.) J. Erikss.

**Specimens Examined.** Puszczykowo, 1.3 km NE (PuPU: 9); deciduous forest; log of a deciduous tree.

3.2.72. *Inocybe geophylla* (Bull.) P. Kumm.

**Specimens Examined.** 1. Wielkowieś, 1.4 km NW (WyPU: 125K); IX/2019; broad-leaved forest; soil. 2. Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; broad-leaved forest; soil.

3.2.73. *Inocybe leiocephala* D. E. Stuntz; NICL

**Specimens Examined.** Łęczycza, 0.8 km E (PuPU: 8); X/2019; mixed forest (*Pi* domination); soil.

3.2.74. *Inocybe mixtilis* (Britzelm.) Sacc.

**Specimens Examined.** Mosina, near the end of Jeziorna Street (OGPU: 160); *Sy* shrubs in *Pi* forest; soil.

3.2.75. *Inocybe nitidiuscula* (Britzelm.) Lapl.

**Specimens Examined.** Mosina, 0.1 km N from the end of Jeziorna Street (OGPU: 160); mixed forest; soil.

3.2.76. #*Inocybe pseudodestructa* Stangl & J. Veselský

**Specimens Examined.** 1. Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; mixed forest; soil. 2. Łęczycza, 0.8 km E (PuPU: 8); X/2019; mixed forest (*Pi* domination); soil.

**Notes.** In Poland, known only from Świętokrzyskie Mts (Łuszczynski, 2007, 2008) and Knyszyn Forest (Kujawa et al., 2019).

3.2.77. #*Inocybe splendens* R. Heim var. *phaeoleuca* (Kühner) Kuyper

**Specimens Examined.** Mosina-Pozegowo, 0.5 km E (OGPU: 91B); X/2019; forest; soil.

3.2.78. *Inocybe whitei* (Berk. & Broome) Sacc.

**Specimens Examined.** Wielkowieś, 1.2 km NNW (WyPU: 124K); IX/2019; mixed forest; soil.

3.2.79. *Junghuhnia lacera* (P. Karst.) Niemelä & Kinnunen; RL-V

**Specimens Examined.** Wielkowieś, 1 km N (WyPU: 122K); IX/2019; *Fx* forest; log.

3.2.80. *Lactarius controversus* Pers.; RL-E

**Specimens Examined.** Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; shore of the lake, under *Po*; soil.

3.2.81. *Lactarius decipiens* Quél.

**Specimens Examined.** Wielkowieś, 0.6 km N (WyPU: 123K); IX/2019; *Fx* forest; soil.

3.2.82. *Lactarius deterrimus* Gröger

**Specimens Examined.** Wielkowieś, 0.6 km N (WyPU: 122K); IX/2019; riparian forest, under *Pc*; soil.

3.2.83. *Lactarius pyrogalus* (Bull.) Fr.

**Specimens Examined.** Wielkowieś, 1 km NNW (WyPU: 123K); IX/2019; broad-leaved forest; soil.

3.2.84. *Lactarius quieticolor* Romagn.; NICL

**Specimens Examined.** Wielkowieś, 1.4 km NW (WyPU: 125K); IX/2019; mixed forest; soil.

3.2.85. #*Lactarius subumbonatus* Lindgr.; NICL

**Specimens Examined.** Wielkowieś, 0.6 km N (WyPU: 123K); IX/2019; mixed forest, under *Fg*, *Q*; soil.

**Notes.** Species often synonymized with *L. serifluus* (DC.) Fr. (Heilmann-Clausen et al., 1998).

3.2.86. #*Leccinum albstipitatum* den Bakker & Noordel; NICL

**Specimens Examined.** Wielkawieś, 0.6 km N (WyPU: 123K); IX/2019; *Fx* forest, under *Po.a*; soil.

3.2.87. *Leccinum variicolor* Watling

**Specimens Examined.** Wielkawieś, 0.6 km N (WyPU: 122K); IX/2019; riparian forest; soil.

3.2.88. *Lepiota angustispora* (Migl. & Bizzi) Hauskn. & Pidlich-Aigner; NICL

**Specimens Examined.** Puszczykowo, 1 km NE, near Warta River (PuPU: 12); X/2019; mixed forest margin, embankment; soil.

3.2.89. *Lepiota boudieri* Bres.

**Specimens Examined.** Ludwikowo (GrPU: 92); X/2019; broad-leaved forest; soil.

3.2.90. *Lepiota castanea* Quél.

**Specimens Examined.** 1. Dymaczewo Stare, 2 km N (GrPU: 139); X/2019; nitrophilous vegetation on the roadside; soil. 2. Wielkawieś, 0.6 km N (WyPU: 123K); IX/2019; nitrophilous vegetation on the roadside; soil.

3.2.91. *Lepiota echinella* Quél. & G. E. Bernard var. *echinella*; RL-E (Figure 15)

**Specimens Examined.** 1. Wielkawieś, 0.6 km N (WyPU: 122K); IX/2019; broad-leaved forest; soil. 2. Wielkawieś, 1.9 km NW (WyPU: 126K); IX/2019; nitrophilous vegetation on the roadside; soil. 3. Wielkawieś, 0.6 km N (WyPU: 123K); IX/2019; nitrophilous vegetation on the roadside; soil. 4. Wypalanki, 1 km SSE (WyPU: 166); X/2019; nitrophilous vegetation on the roadside in a mixed forest; soil.



**Figure 15** Basidiomata of *Lepiota echinella* from WPN; September 29, 2019. Photography by T. Ślusarczyk.

3.2.92. *Lepiota erminea* (Fr.) P. Kumm.; RL-Ex

**Specimens Examined.** Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; grassy roadside; soil.

3.2.93. *Lepiota ochraceofulva* P. D. Orton (Figure 16)

**Specimens Examined.** Wielkawieś, 0.6 km N (WyPU: 122K); IX/2019; broad-leaved forest; soil.





**Figure 16** Basidiomata of *Lepiota ochraceofulva* from WPN; September 29, 2019. Photography by T. Ślusarczyk.

3.2.94. *Lepiota oreadiformis* Velen.

**Specimens Examined.** Górka, 1 km SW (GrPU); X/2019; meadow; soil.

3.2.95. *Lepiota pseudolilacea* Huijsman

**Specimens Examined.** 1. Ludwikowo (GrPU: 92); X/2019; broad-leaved forest; soil. 2. Łęczycza, 0.8 km E (PuPU: 8); X/2019; mixed forest margin, nitrophilous vegetation; soil. 3. Wielkawieś, 0.6 km N (WyPU: 123K); IX/2019; nitrophilous vegetation on the roadside; soil.

3.2.96. *Lepiota rufipes* Morgan s. auct.; NICL

**Specimens Examined.** Wielkawieś, 0.3 km NE (WyPU: 122K); IX/2019; nitrophilous vegetation of roadside, under *Rb* and *Po*; soil.

3.2.97. *Leucoagaricus serenus* (Fr.) Bon & Boiffard; NICL

**Specimens Examined.** Wielkawieś, 0.6 km N (WyPU: 123K); IX/2019; *Fx* forest; soil.

**Notes.** In Poland, known from Górzycza (Bujakiewicz, 2010) and arboretum in Kórnik (Lisiewska, 2004).

3.2.98. *Leucoagaricus sericifer* (Locq.) Vellinga f. *sericellatus* (Malençon) Vellinga; NICL

**Specimens Examined.** 1. Ludwikowo, Lipowa Street (OGPU); IX/2019; park; soil. 2. Wielkawieś, 0.3 km NE (WyPU: 122K); IX/2019; nitrophilous vegetation of roadside; soil. 3. Dębienko, 1.5 km N (WyPU: 171); IX/2019; Q forest; soil. 4. Jeziory (JzPU: 121); X/2019; broad-leaved forest; soil.

3.2.99. #*Leucoagaricus sericifer* (Locq.) Vellinga var. *sericifer*; NICL

**Specimens Examined.** Wielkawieś, 1.9 km NW (WyPU: 126K); IX/2019; broad-leaved forest; soil.

**Notes.** In Poland, known from Sudety Mts (Gierczyk, Soboń, et al., 2018) and Białowieża Primeval Forest (Gierczyk, Ślusarczyk, et al., 2018).

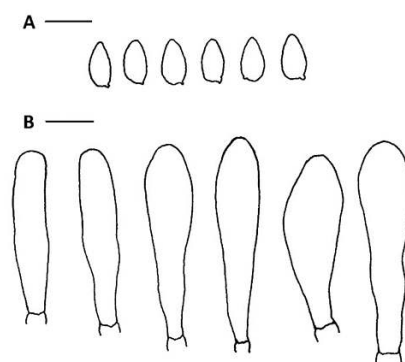
3.2.100. !*Leucoagaricus sublittoralis* (Kühner ex Hora) Singer (Figure 17, Figure 18)

**Specimens Examined.** Wielkawieś, 0.6 km N (WyPU: 123K); IX/2019; *Fx* forest; soil.

**Notes.** Basidiomata medium-size. Cap with broad umbo, first subglobose, then convex, hemispherical to applanate, finally concave, pale with a darker center, with pinkish-brown or pinkish-ochre colors, radially fibrillose at margins, up to 6 cm in diameter. Stipe cylindrical slightly inflated at a base, whitish with brownish hue in the lower part, indistinctly fibrillose, up to 15 cm high. Annulus ascending, white with a darker edge. Lamellae moderately distant, white, free. Basidia four-spored. Spores,  $7-10.5 \times 4-5.5 \mu\text{m}$ , amygdaliform, indistinctly apically papillate, hyaline, smooth, without germ pore, dextrinoid. Cheilocystidia cylindrical, narrowly clavate, narrowly utriform, or indistinctly lageniform. Pleurocystidia absent. Pileipellis a cutis of cylindrical, encrusted hyphae, often with fusoid terminal elements. Clamps absent.



**Figure 17** Basidiomata of *Leucoagaricus sublittoralis* from WPN; September 29, 2019. Photography by B. Gierczyk.



**Figure 18** Microcharacters of *Leucoagaricus sublittoralis*: (A) spores; (B) cheilocystidia. Scale bar:  $10 \mu\text{m}$ .

3.2.101. *Leucopaxillus rhodoleucus* (Sacc.) Kühner; NICL (Figure 19)

**Specimens Examined.** 1. Wielkowieś, 1.9 km NW (WyPU: 126K); IX/2019; *Rb* scrubs; soil. 2. Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; mixed forest; soil.



**Figure 19** Basidiomata of *Leucopaxillus rhodoleucus* from WPN; September 29, 2019. Photography by T. Ślusarczyk.

3.2.102. *Limacella guttata* (Pers.) Konrad & Maubl.; RL-V

**Specimens Examined.** Wielkawieś, 1.2 km N (WyPU: 123K); X/2019; moist broad-leaved forest; soil.

3.2.103. *Lycoperdon molle* Pers.

**Specimens Examined.** 1. Wielkawieś, 0.6 km N (WyPU: 123K); IX/2019; mixed forest; soil. 2. Dymaczewo Stare, 1.7 km NNW (GrPU: 147); X/2019; mixed forest; soil.

3.2.104. *Lycoperdon nigrescens* Pers.

**Specimens Examined.** Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; mixed forest; soil.

3.2.105. *Lycoperdon pratense* Pers.

**Specimens Examined.** Wypalanki, 0.6 km SSE (WyPU: 166); X/2019; abandoned *Medicago sativa* field; soil.

3.2.106. *Macrolepiota permixta* (Barla) Pacioni; NICL

**Specimens Examined.** Dębienko, 1.2 km N (WyPU: 172); IX/2019; Q forest; soil.

3.2.107. #*Macrolepiota rickenii* (Velen.) Bellù & Lanzoni

**Specimens Examined.** Wielkawieś, 1.2 km N (WyPU: 123K); X/2019; moist broad-leaved forest; soil.

**Notes.** Species belonging to *M. mastoidea* (Fr.) Singer s. lato and often considered as its synonym. The distribution of *M. rickenii* in Poland needs revision.

3.2.108. *Marasmius anomalus* Lasch var. *microsporus* (Maire) Antonín

**Specimens Examined.** Mosina, 0.5 km NW from the end of Jeziorna Street (OGPU: 91D); grassland on esker; dead grasses.

**Notes.** Variety differs from a typical one by spore dimensions, i.e.,  $13\text{--}16.5 \times 3.5\text{--}5 \mu\text{m}$  (vs.  $16\text{--}22 \times 4\text{--}5 \mu\text{m}$  for var. *anomalus*) (Antonín & Noordeloos, 2010).

3.2.109. *Melanoleuca humilis* (Pers.) Pat.

**Specimens Examined.** Dymaczewo Stare, 1.7 km N (GrPU: 146); X/2019; nitrophilous vegetation on roadside; soil.

3.2.110. #*Melanoleuca strictipes* (P. Karst.) Jul. Schäff.; RL-R

**Specimens Examined.** Wielkawieś, 0.6 km N (WyPU: 123K); IX/2019; nitrophilous vegetation on a roadside; soil.

3.2.111. *Meripilus giganteus* (Pers.) P. Karst.

**Specimens Examined.** Trzebaw, 0.7 km NNW (WyPU: 217); X/2019; roadside avenue; base of *Ae* trunk.

3.2.112. *Mutinus caninus* (Huds.) Fr.

**Specimens Examined.** 1. Wielkawieś, 0.3 km NE (WyPU: 122K); IX/2019; nitrophilous vegetation of roadside; soil. 2. Wielkawieś, 1 km N (WyPU: 123K); IX/2019; *Fx* forest, roadside; soil.

3.2.113. #*Mycena diosma* Krieglst. & Schwöbel; N1CL

**Specimens Examined.** Wielkawieś, 0.6 km N (WyPU: 123K); IX/2019; mixed forest, under *Fg*; soil.

**Notes.** In Poland, hitherto known only from Sudety Mts (Gierczyk, Soboń, et al., 2018).

3.2.114. *Mycena galopus* (Pers.) P. Kumm. var. *leucogala* (Cooke) J. E. Lange

**Specimens Examined.** Ludwikowo (GrPU: 92); X/2019; broad-leaved forest; litter.

3.2.115. *Oxyporus corticola* (Fr.) Ryvarden; RL-R

**Specimens Examined.** Puszczykowo, 1.3 km NE (PuPU: 9); X/2019; deciduous forest; log of a deciduous tree.

3.2.116. *Panaeolina foeniseicii* (Pers.) Maire

**Specimens Examined.** Mosina, 0.5 km NW from the end of Jeziorna Street (OGPU: 91D); grassland on esker; soil.

3.2.117. *Panaeolus guttulatus* Bres. (Figure 20)

**Specimens Examined.** Jeziory (JzPU: 121); X/2019; broad-leaved forest; woodchips.

3.2.118. *Parasola leiocephala* (P. D. Orton) Redhead, Vilgalys & Hopple

**Specimens Examined.** 1. Mosina, 0.5 km NW from the end of Jeziorna Street (OGPU: 91D); grassland on esker; soil. 2. Wielkawieś, 1.5 km NNW (WyPU: 123K); IX/2019; nitrophilous vegetation on the roadside in a mixed forest; soil.

3.2.119. *Parasola schroeteri* (P. Karst.) Redhead, Vilgalys & Hopple

**Specimens Examined.** Górka, 0.5 km W (GrPU: 128A); VIII/2019; meadow; soil.

3.2.120. *Paxillus ammoniavirescens* Contu & Dessi; N1CL

**Specimens Examined.** Wielkawieś, 0.6 km N (WyPU: 123K); IX/2019; *Fx* forest (under *Po.a*); soil.

**Notes.** In Poland, known from Kamieński Mt (Kałucka et al., 2016) and mycorrhizal associations (Leski et al., 2010; as *P. involutus*).

3.2.121. #*Peniophorella guttulifera* (P. Karst.) K. H. Larss.

**Specimens Examined.** Jarosławiec, 0.5 km NW (WiPU: 106); IX/2019; mixed forest; *Sa*(?) log.

3.2.122. *Phanerochaete sordida* (P. Karst.) J. Erikss. & Ryvarden

**Specimens Examined.** Trzebaw, 2 km NNW (WyPU: 200); I/2019; mixed forest; *Pi* log.



**Figure 20** Basidiomata of *Panaeolus guttulatus* from WPN; October 4, 2019. Photography by A. Kujawa.

3.2.123. #*Phlebia livida* (Pers.) Bres.; RL-E

**Specimens Examined.** Górką, 1.5 km SEE, near Skrzynka Lake (GrPU: 131); II/2019; riparian forest margin; wood.

3.2.124. *Pholiota gummosa* (Lasch) Singer var. *gummosa*

**Specimens Examined.** Łęczycą, 0.8 km E (PuPU: 8); X/2019; mixed forest with *Pi* domination; buried wood.

3.2.125. *Pholiota highlandensis* (Peck) Singer

**Specimens Examined.** Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; fireplace; charcoal.

3.2.126. *Pholiotina aporos* (Kits van Wav.) Cléménçon

**Specimens Examined.** Jeziory (JzPU: 121); X/2019; broad-leaved forest; soil.

3.2.127. *Pholiotina arrhenii* (Fr.) Quéł.

**Specimens Examined.** Wielkawię, 0.5 km N (WyPU: 122K); IX/2019; nitrophilous vegetation of roadside; soil.

3.2.128. #*Pholiotina nemoralis* (Harmaja) Bon var. *dentatmarginata* (Watling) Hauskn.

**Specimens Examined.** Trzebaw, 0.7 km NNW (WyPU: 217); X/2019; nitrophilous vegetation on the field margin; soil.

**Notes.** In Poland, known hitherto only from Knyszyn Forest (Kujawa et al., 2019).

3.2.129. *Pluteus ephebeus* (Fr.) Gillet; RL-R

**Specimens Examined.** Wielkawię, 0.6 km N (WyPU: 122K); IX/2019; Fx riparian forest; wood.

3.2.130. *Pluteus insidiosus* Vellinga & Schreurs; NICL

**Specimens Examined.** Wielkawię, 1.4 km NW (WyPU: 125K); IX/2019; riparian forest; branch of a deciduous tree.

3.2.131. *Pluteus pallescens* P. D. Orton

**Specimens Examined.** Puszczykowo, 1.3 km NE (PuPU: 9); X/2019; mixed forest; log of a deciduous tree.

3.2.132. *Pluteus umbrosus* (Pers.) P. Kumm.

**Specimens Examined.** 1. Puszczykowo, 1.3 km NE (PuPU: 9); X/2019; mixed forest; log of a deciduous tree. 2. Wielkawieś, 1.2 km N (WyPU: 123K); X/2019; riparian forest; log of a deciduous tree.

3.2.133. *Polyporus alveolaris* (DC.) Bondartsev & Singer; RL-E

**Specimens Examined.** Mosina, 0.5 km NW from the end of Jeziorna Street (OGPU: 91D); moist woodlot (*Al.g, Po*); wood.

3.2.134. *Postia fragilis* (Fr.) Jülich

**Specimens Examined.** 1. Łęczycza, 0.8 km E (PuPU: 8); X/2019; riparian forest (*Al.g, Po.a*); log of coniferous tree. 2. Ludwikowo, 0.5 km N, by Kociołek Lake (OGPU: 90); IX/2019; alder forest; log of coniferous tree.

3.2.135. *Psathyrella cortinarioides* P. D. Orton; NICL

**Specimens Examined.** Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; riparian forest; soil.

3.2.136. *Psathyrella pseudocasca* (Romagn.) Kits van Wav.

**Specimens Examined.** 1. Wielkawieś, 1.5 km NNW (WyPU: 123K); IX/2019; nitrophilous vegetation on mixed forest margin (*Pi, Q*); soil. 2. Wielkawieś, 0.6 km N (WyPU: 123K); IX/2019; mixed forest; soil.

3.2.137. *Psathyrella pseudogracilis* (Romagn.) M. M. Moser

**Specimens Examined.** Lisówki, 0.3 km SE (WyPU: 121K); X/2019; riparian forest margin; litter.

3.2.138. *Psathyrella pygmaea* (Bull.) Singer

**Specimens Examined.** Lisówki, 0.3 km SE (WyPU: 121K); X/2019; roadside at riparian forest margin; base of *Fx* trunk.

3.2.139. *Ramaria abietina* (Pers.) Quél.

**Specimens Examined.** Wielkawieś, 0.5 km N (WyPU: 122K); IX/2019; mixed forest; litter.

3.2.140. *Ramaria apiculata* (Fr.) Donk

**Specimens Examined.** Ludwikowo (GrPU: 92); X/2019; broad-leaved forest; *Pi*(?) trunk.

3.2.141. *Ramaria decurrens* (Pers.) R. H. Petersen; NICL (Figure 21)

**Specimens Examined.** Wielkawieś, 1.2 km NNW (WyPU: 124K); IX/2019; mixed forest; soil.

3.2.142. *Ramaria rubella* (Schaeff.) R. H. Petersen; NICL

**Specimens Examined.** Jarosławiec, 0.5 km NW (WiPU: 106); IX/2019; mixed forest; *Sa*(?) log.

3.2.143. *Rhodocybe popinalis* (Fr.) Singer; RL-V

**Specimens Examined.** Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; grassy roadside; soil.

3.2.144. *Russula amoenolens* Romagn.; RL-R

**Specimens Examined.** 1. Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; mixed forest; soil. 2. Wielkawieś, 1.2 km NNW (WyPU: 124K); IX/2019; broad-leaved forest; soil.

3.2.145. *Russula badia* Quél.

**Specimens Examined.** Dymaczewo Stare, 2.5 km NNW (GrPU: 134); X/2019; mixed forest; soil.



**Figure 21** Basidiomata of *Ramaria decurrens* from WPN; September 29, 2019.  
Photography by T. Ślusarczyk.

3.2.146. *Russula chloroides* (Krombh.) Bres.; RL-I

**Specimens Examined.** Wielkawiś, 1.2 km NNW (WyPU: 124K); IX/2019; broad-leaved forest; soil.

3.2.147. *Russula claroflava* Grove

**Specimens Examined.** 1. Dymaczewo Stare, 1.8 km NNW (GrPU: 141); IX/2019; riparian forest; soil. 2. Wielkawiś, 1.4 km NW (WyPU: 125K); IX/2019; mixed forest; soil.

3.2.148. *Russula coerulea* Fr.; RL-R

**Specimens Examined.** 1. Dymaczewo Stare, 2.2 km NNW (GrPU: 141); X/2019; pine forest; soil. 2. Wielkawiś, 1.2 km NNW (WyPU: 124K); IX/2019; mixed forest; soil.

3.2.149. *Russula graveolens* Romell

**Specimens Examined.** Wielkawiś, 1.4 km NW (WyPU: 125K); IX/2019; broad-leaved forest; soil.

3.2.150. *Russula heterophylla* (Fr.) Fr.

**Specimens Examined.** Ludwikowo, 0.5 km N, near Kociołek Lake (OGPU: 90); IX/2019; deciduous forest (Fg, Q); soil.

3.2.151. *Russula parazurea* Jul. Schäff.

**Specimens Examined.** Wielkawiś, 1.9 km NW (WyPU: 126K); IX/2019; broad-leaved forest; soil.

3.2.152. *Russula pectinatoides* Peck

**Specimens Examined.** Wielkawiś, 1.2 km NNW (WyPU: 124K); IX/2019; broad-leaved forest; soil.

3.2.153. *Russula sororia* (Fr.) Romell

**Specimens Examined.** Ludwikowo (OGPU: 92); X/2019; broad-leaved forest; soil.

3.2.154. *Russula velenovskyi* Melzer & Zvára

**Specimens Examined.** Wielkawiś, 1.2 km NNW (WyPU: 124K); IX/2019; broad-leaved forest; soil.

3.2.155. *Schizophyllum amplum* (Lév.) Nakasone

**Specimens Examined.** Wielkowieś, 1.9 km NW (WyPU: 126K); IX/2019; riparian forest; twig of a deciduous tree.

3.2.156. *Simocybe sumptuosa* (P. D. Orton) Singer

**Specimens Examined.** **1.** Górką, 1.1 km NW (GrPU: 208); X/2019; riparian forest (*Fx*, *Al*); *Al*(?) log. **2.** Ludwikowo (OGPU: 92); X/2019; broad-leaved forest; log of deciduous tree. **3.** Wielkowieś, 1 km N (WyPU: 122K); IX/2019; *Fx* forest; wood.

3.2.157. *Sistotrema brinkmanii* (Bres.) J. Erikss.

**Specimens Examined.** Krosinko, 1.8 km N (OGPU: 149); II/2019; riparian forest (*Al*, *Po*, *Bt.p*); *Bt.p* log.

3.2.158. #*Sistotrema coroniferum* (Höhn. & Litsch.) D. P. Rogers & H. S. Jacks.

**Specimens Examined.** Krosinko, 1.8 km N (OGPU: 149); II/2019; riparian forest (*Al*, *Po*, *Bt.p*); *Bt.p* log.

**Notes.** In Poland, known only from Kraków (Wojewoda, 1996) and Ojców NP (Wojewoda, 2008).

3.2.159. *Steccherinum fimbriatum* (Pers.) J. Erikss.; RL-R

**Specimens Examined.** Wielkowieś, 1.4 km NW (WyPU: 125K); IX/2019; riparian forest; *Al.g* branch.

3.2.160. *Suillus viscidus* (L.) Roussel

**Specimens Examined.** Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; mixed forest; soil.

3.2.161. *Trichaptum fuscoviolaceum* (Ehrenb.) Ryvarden

**Specimens Examined.** **1.** Wypalanki, 0.6 km S (WyPU: 166); V/2019; forest; *Pi* log. **2.** Ludwikowo, park around the hospital (OGPU); X/2019; park; *Pi* log. **3.** Mosina-Pożegowo, 0.6 km E (OGPU: 91B); X/2019; forest; *Pi* log.

3.2.162. *Tricholoma argyraceum* (Bull.) Gillet

**Specimens Examined.** Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; mixed forest; soil.

3.2.163. *Tricholoma populinum* J. E. Lange; RL-V

**Specimens Examined.** Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; shore of the lake, under *Po*; soil.

3.2.164. *Tricholoma scalpturatum* (Fr.) Quél.

**Specimens Examined.** Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; riparian forest; soil.

3.2.165. *Tricholoma stiparophyllum* (N. Lund) P. Karst.

**Specimens Examined.** **1.** Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; mixed forest; soil. **2.** Wielkowieś, 0.6 km N (WyPU: 122K); IX/2019; mixed forest; soil.

3.2.166. #*Tricholoma ustaloides* Romagn.; N1CL

**Specimens Examined.** **1.** Mosina-Pożegowo, 0.6 km E (OGPU: 91B); X/2019; forest; soil. **2.** Łęczycza, 0.8 km E (PuPU: 8); X/2019; mixed forest, under *Q*; soil.

**Notes.** In Poland, known only from Łęczczok NR (Halama, 2015; Halama et al., 2016).

3.2.167. *Tubaria conspersa* (Pers.) Fayod

**Specimens Examined.** Dymaczewo Stare, 1.3 km NW (GrPU: 155); X/2019; mixed forest; litter.

3.2.168. *Tulasnella albida* Bourdot & Galzin

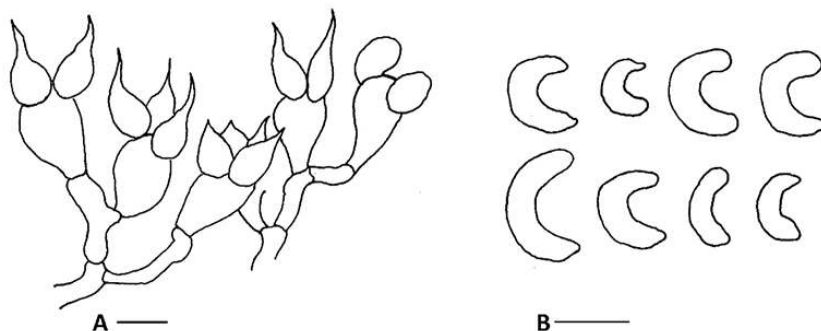
**Specimens Examined.** Krosinko, 1.8 km N (OGPU: 149); II/2019; riparian forest (*Al*, *Po*, *Bt.p*); *Bt.p* log.



3.2.169. *Tulasnella danica* Hauerslev (Figure 22)

**Specimens Examined.** Trzebaw, 2 km NNW (WyPU: 198); I/2019; mixed forest; *Pi* log.

**Notes.** Basidiomata thin, inconspicuous, greyish to hyaline, ceraceous. Basidia two- (rarely four)-spored. Spores cylindrical, strongly allantoid, hyaline, smooth,  $11\text{--}16 \times 3.5\text{--}4.5 \mu\text{m}$ . Clamps absent at almost all septa.



**Figure 22** Microcharacters of *Tulasnella danica*: (A) basidia; (B) spores. Scale bars: 10  $\mu\text{m}$ .

3.2.170. *Tyromyces fissilis* (Berk. & M. A. Curtis) Donk; RL-R

**Specimens Examined.** 1. Mosina, 0.5 km N from the end of Jeziorna Street (OGPU: 160); IX/2019; mixed forest; Q log. 2. Trzebaw, 1.3 km NNW (WyPU: 216); IX/2019; roadside avenue; *Ae* trunk.

3.2.171. *Ustilago maydis* (DC.) Corda

**Specimens Examined.** Rosnówko, 1 km SE (WiPU); IX/2019; margin of *Zea mays* field; *Zea mays* cob.

3.2.172. #*Volvariella caesiointincta* P. D. Orton; NICL

**Specimens Examined.** Wielkawieś, 1 km NNW (WyPU: 123K); IX/2019; broad-leaved forest; trunk.

3.2.173. *Volvariella gloiocephala* (DC.) Boekhout & Enderle

**Specimens Examined.** 1. Łęczycza, 0.8 km E (PuPU: 5B); X/2019; meadow; soil. 2. Mosina, 0.5 km NW from the end of Jeziorna Street (OGPU: 91D); grassland on esker; soil.

3.2.174. *Xerocomus ferrugineus* (Schaeff.) Alessio; NICL (Figure 23)

**Specimens Examined.** Wielkawieś, 0.6 km N (WyPU: 122K); IX/2019; mixed forest; soil.

3.2.175. *Xerocomus porosporus* Imler

**Specimens Examined.** Ludwikowo, 1.2 km NNW (OGPU: 136); VIII/2019; broad-leaved forest; soil.

3.2.176. *Xerula melanotricha* Dörfelt; RL-E

**Specimens Examined.** Wielkawieś, 0.4 km N (WyPU: 122K); IX/2019; mixed forest (*Pi* domination); *Pi* roots.

3.2.177. *Xylodon brevisetus* (P. Karst.) Hjortstam & Ryvarden

**Specimens Examined.** Wielkawieś, 1.2 km NNW (WyPU: 124K); IX/2019; mixed forest; *Pc* branch.

3.2.178. *Xylodon crustosus* (Pers.) Chevall.

**Specimens Examined.** Krosinko, 2.5 km N (OGPU: 144); II/2019; meadow margin; *Pi* log.



**Figure 23** Basidiomata of *Xerocomus ferrugineus* from WPN; September 29, 2019. Photography by T. Ślusarczyk.

### 3.3. List of Taxa Reported from WPN Previously, Confirmed in 2019

#### 3.3.1. Ascomycota

*Ciboria amentacea* (Balb.) Fuckel (149); *Dialonectria episphaeria* (Tode) Cooke (83); *Hydropisphaera peziza* (Tode) Dumort. (8); *Hymenoscyphus albidus* (Roberge ex Desm.) W. Phillips (171); *H. fructigenus* (Bull.) Fr. (126K); *Hypoxylon fragiforme* (Pers.) J. Kickx f. (177); *H. howeanum* Peck. (173); *Nectria cinnabarina* (Tode) Fr. (126K, 198); *Orbilia xanthostigma* (Fr.) Fr. (122K); *Propolis farinosa* (Pers.) Fr. (126K); *Rhytisma acerinum* (Pers.) Fr. (8, 10, 91B, 92); *Rutstroemia firma* (Pers.) P. Karst. (92, 122K); *R. luteovirescens* (Roberge ex Desmazières) W. L. White (92); *Xylaria hypoxylon* (L.) Grev. (8); *X. polymorpha* (Pers.) Grev. (8).

#### 3.3.2. Basidiomycota

*Agaricus bitorquis* (Quél.) Sacc. (90, 217); *A. campestris* L. (155); *A. impudicus* (Rea) Pilát (8, 155); *A. porphyrrhizon* P. D. Orton (124K); *A. semotus* Fr. (166); *A. xanthodermus* Genev. (122K, 135); *Agrocybe pediades* (Fr.) Fayod (91D); *A. praecox* (Pers.) Fayod (166A, 182); *Amanita citrina* (Schaeff.) Pers. f. *citrina* (155); *A. excelsa* (Fr.) Bertill. f. *excelsa* (155); *A. gemmata* (Fr.) Bertill. (124K, 148); *A. muscaria* (L.) Hook. var. *muscaria* (121K, 122K, 126K, 155); *A. phalloides* (Vaill.) Link var. *phalloides* (124K, 141); *A. porphyria* Alb. & Schwein. (124K); *A. rubescens* (Pers.) Gray f. *rubescens* (124K); *Ampulloclitocybe clavipes* (Pers.) Redhead, Lutzoni, Moncalvo & Vilgalys (134, 160, 184); *Antrodia xantha* (Fr.) Ryvarden (83, 119); *Armillaria borealis* Marxm. & Korhonen (76); *A. lutea* Gillet (121, 155); *A. ostoyae* (Romagn.) Herink (141); *Athelia arachnoidea* (Berk.) Jülich (198); *A. epiphylla* Pers. (199); *Auricularia auricula-judae* (Bull.) J. Schröt. (10, 91B, 121, 125K, 160); *Auriscalpium vulgare* Gray (8, 91A, 92, 123K, 125K, 133, 160, 172); *Baeospora myosura* (Fr.) Singer (9, 76, 92, 121); *Bjerkandera adusta* (Willd.) P. Karst. (121, 125K, 155, 166A, 177, near the hospital in Ludwikowo); *Bolbitius titubans* (Bull.) Fr. (86, 155); *Boletus edulis* Bull. (124K, 155); *Botryobasidium isabellinum* (Fr.) D. P. Rogers (9, 86, 90, 136); *B. robustius* Pouzar & Hol.-Jech. (144); *B. subcoronatum* (Höhn. & Litsch.) Donk (90); *Bovista aestivalis* (Bonord.) Demoulin (122K); *B. nigrescens* Pers. (122K); *Bulbillomyces farinosus* (Bres.) Jülich (149); *Byssomerulius corium* (Pers.) Parmasto (160); *Calocera cornea* (Batsch) Fr. (92, 172, 208); *C. furcata* (Fr.) Fr. (125K); *C. viscosa* (Pers.) Fr. (132, 172); *Chlorophyllum olivieri*

(Barla) Velling (10, 91A, 92, 123K, 147, 160, 167, 168, 172, 174, 176, 179, 184, 186); *C. rachodes* (Vittad.) Vellinga (124K, 125K, 135); *Chondrostereum purpureum* (Pers.) Pouzar (91A, 135, 208); *Chroogomphus rutilus* (Schaeff.) O. K. Mill. var. *rutilus* (125K, 134); *Clitocybe agrestis* Harmaja (5B, 166, Górká 1 km SW); *C. candicans* (Pers.) P. Kumm. var. *candicans* (135); *C. fragrans* (With.) P. Kumm. (8); *C. metachroa* (Fr.) P. Kumm. var. *metachroa* (147); *C. nebularis* (Batsch) P. Kumm. var. *nebularis* (8, 10, 91A, 91B, 122K, 123K, 135, 172); *C. odora* (Bull.) P. Kumm. var. *odora* (122K); *C. phaeophthalma* (Pers.) Kuyper (122K, 171); *C. phyllophila* (Pers.) P. Kumm. (155); *Clitocybula platyphylla* (Pers.) Malençon & Bertault (124K); *Clitopilus hobsonii* (Berk.) P. D. Orton (86, 91B, 92); *C. prunulus* (Scop.) P. Kumm. (90, 125K); *Coniophora arida* (Fr.) P. Karst. (78C, 190); *C. puteana* (Schum.) P. Karst. (91A); *Conocybe juniana* (Velen.) Hauskn. & Svrček var. *juniana* (155); *C. rickeniana* P. D. Orton (8, 121K, 133); *C. siliginea* (Fr.) Kühner (166h); *C. tenera* (Schaeff.) Fayod (122K, 139); *Coprinellus disseminatus* (Pers.) J. E. Lange (8, 91B, 155, 166A, 170, 208); *C. domesticus* (Bolton) Vilgalys, Hopple & Jacq. Johnson (122K); *C. micaceus* (Bull.) Vilgalys, Hopple & Jacq. Johnson (8, 9, 10, 92, 121, 122K, 123K, 166, 166A, 167, 175, 177); *C. xanthothrix* (Romagn.) Vilgalys, Hopple & Jacq. Johnson (123K, 172); *Coprinopsis atramentaria* (Bull.) Redhead, Vilgalys & Moncalvo (90, 91A, 122K, 155, 189A); *C. lagopus* (Fr.) Redhead, Vilgalys & Moncalvo var. *lagopus* (86); *Coprinus comatus* (O. F. Müll.) Pers. (85, 91D, 118B, 166, 167, 174, 182, 183, 189A, 210, 211, 216, 217, 223); *Cortinarius largus* Fr. s. lato (141); *Crepidotus cesatii* (Rabenh.) Sacc. var. *sphaerosporus* (Pat.) Ortega & Buendia (126K); *C. variabilis* (Pers.) P. Kumm. (91A, 92, 121, 122K, 136, 160, 172, 208); *C. versutus* (Peck) Sacc. (177); *Crucibulum laeve* (Huds.) Kambly (92, 123K, 125K, 133, 136, 167, 172, 180); *Cyathus striatus* (Huds.) Willd. (92, 121, 122K, 172); *Cylindrobasidium laeve* (Pers.) Chamuris (149, 199); *Cystoderma amianthinum* (Scop.) Fayod (134); *Cystolepiota seminuda* (Lasch) Bon (123K); *Daedaleopsis confragosa* (Bolton) J. Schröt. (8, 91A, 92, 125K, 172, 190A); *Datronia mollis* (Sommerf.) Donk (125K); *Echinoderma aspera* (Pers.) Bon (90, 92, 133); *Entoloma araneosum* (Qué.) M. M. Moser (123K); *E. juncinum* (Kühner & Romagn.) Noordel. (155); *E. rhodopolium* (Fr.) P. Kumm. f. *rhodopolium* (123K); *E. sericeum* Qué. var. *sericeum* (167); *E. undatum* (Fr.) M. M. Moser (125K); *Exidia nigricans* (With.) P. Roberts (89, 122K, 125K, 172, 173, 177, 184, 190A, 199); *E. truncata* Fr. (83, 88, 119, 166A); *Fistulina hepatica* (Schaeff.) With. (122K, 123K, 136); *Flammulina velutipes* (Curtis) P. Karst. var. *velutipes* (201); *Fomes fomentarius* (L.) Fr. (8, 9, 10, 78C, 86, 91A, 91B, 96, 122K, 123K, 136, 149, 160, 166A, 171, 174, 176, 179, 191B); *Fomitopsis pinicola* (Sw.) P. Karst. (8, 9, 10, 91B, 91C, 123K, 160, 179, 184, 186); *Galerina clavata* (Velen.) Kühner (5B); *G. hypnorum* (Schrank) Kühner s. Horak 2005 and de Haan & Walley 2006 (135); *G. marginata* (Batsch) Kühner s. lato (9, 76, 135, 171); *G. triscopa* (Fr.) Kühner (9, 167); *Ganoderma lipsiense* (Batsch) G. F. Atk. (8, 9, 10, 87, 95, 97, 121, 123K, 149d, 155, 175, 177, near the hospital in Ludwikowo); *Gastrum fimbriatum* Fr. (160); *G. rufescens* Pers. (122K); *G. triplex* Jungh. s. auct. (121, 122K, 123K; Figure 24); *Gloeophyllum sepiarium* (Wulfen) P. Karst. (9); *G. trabeum* (Pers.) Murrill (9); *Gloeoporus dichrous* (Fr.) Bres. (91A); *Gymnopilus penetrans* (Fr.) Murrill (9, 91B, 141, 160, 168, 175); *G. picreus* (Pers.) P. Karst. (135); *Gymnopus brassicolens* (Romagn.) Antonín & Noordel. (172); *G. confluens* (Pers.) Antonin, Halling & Noordel. (90, 122K, 123K, 123K, 155, 167, 172); *G. dryophilus* (Bull.) Murrill (90, 121, 122K, 123K, 125K, 167, 177, 184); *G. fusipes* (Bull.) Gray (122K, 147); *G. peronatus* (Bolt.) Gray (122K, 125K); *Hapalopilus nidulans* (Fr.) P. Karst. (123K, 136, 155); *Hebeloma mesophaeum* (Pers.) Qué. (8, 155); *Hemipholiota populnea* (Pers.) Bon (8); *Hohenbuehelia mastrucata* (Fr.) Singer (122K, 172); *Hygrophoropsis aurantiaca* (Wulfen) Maire (8, 9, 10, 122K, 135, 160, 172); *Hymenochaete rubiginosa* (Schrad.) Lév. (83, 93, 119, 125K, 166A, 172, 176); *Hyphoderma nemorale* K. H. Larss. (144); *H. praetermissum* (P. Karst.) J. Erikss. & Å. Strid (78C, 123K, 198); *H. setigerum* (Fr.) Donk (162, 190A, 198); *Hyphodontia sambuci* (Pers.) J. Erikss. (201); *Hypholoma capnoides* (Fr.) P. Kumm. (123K, 177); *H. fasciculare* (Huds.) Kumm. var. *fasciculare* (8, 9, 10, 76, 90, 91A, 91B, 91D, near 92, 123K, 123K, 125K, 155, 160, 171, 172, 177, 184, 186); *H. lateritium* (Schaeff.) P. Kumm. (125K, 160); *Infundibulicybe catinus* (Fr.) Harmaja (122K); *I.*

*gibba* (Pers.) Harmaja (92, 125K, 147, 172); *Inocybe asterospora* Quél. (123K); *I. cincinnata* (Fr.) Quél. var. *cincinnata*; (5B); *I. fuscidula* Velen. var. *fuscidula* (8, 123K); *I. hirtella* Bres. (155); *Inonotus radiatus* (Sowerby) P. Karst. (91B, 155, 172); *Ischnoderma benzoinum* (Wahlenb.) P. Karst. (160, 208); *I. resinotum* (Schrad.) P. Karst. (172); *Kuehneromyces mutabilis* (Schaeff.) Singer & A. H. Sm. (106, 123K, 125K); *Laccaria amethystea* Cooke (122K); *L. laccata* (Scop.) Cooke (125K, 134); *L. proxima* (Boud.) Pat. (76); *Lacrymaria lacrymabunda* (Bull.) Pat. (8, 125K, 172); *Lactarius deliciosus* (L.) Gray (155); *L. glyciosmus* (Fr.) Fr. (134); *L. necator* (Bull.) Pers. (121K); *L. obscuratus* (Lasch) Fr. (122K, 125K); *L. quietus* (Fr.) Fr. (124K, 155); *L. subdulcis* (Bull.) Gray (123K); *L. tabidus* Fr. (91A, 121K, 122K, 126K, 135); *L. torminosus* (Schaeff.) Pers. (124K); *Laetiporus sulphureus* (Bull.) Murrill (90, 122K, 210); *Langermannia gigantea* (Batsch) Rostk. (91D); *Leccinum scabrum* (Bull.) Gray (166A); *Lepiota clypeolaria* (Bull.) P. Kumm. (122K, 123K); *L. cristata* (Bolton) P. Kumm. (8, 121K, 122K, 126K, 133, 166, 167, 171, 172); *L. subincarnata* J. E. Lange (8, 121K, 123K, 160, 166); *Lepista flaccida* (Sowerby) Pat. (8, 91A, 92, 121, 121K, 123K, 155, 172, 176); *L. gilva* (Pers.) Pat. (122K); *L. nuda* (Bull.) Cooke (10, 91A, 92, 124K, 132); *L. saeva* (Fr.) P. D. Orton (155); *L. sordida* (Schumach.) Singer (121, 122K); *Leucoagaricus leucothites* (Vittad.) Wasser var. *leucothites* (8B, 91D, 155, 166, 171, 211); *Lycoperdon excipuliforme* (Scop.) Pers. (125K, 147); *L. perlatum* Pers. (92, 122K, 123K, 132, 166, 171, 172); *L. pyriforme* Schaeff. (8, 91, 121, 122K, 123K, 172, 184); *L. utrifforme* Bull. (Górka 1km SW); *Lyophyllum decastes* (Fr.) Singer var. *decastes* (133); *Macrocyttidia cucumis* (Pers.) Joss. var. *cucumis* (123K, 133, 186); *Macrolepiota konradii* (Huijsman ex P. D. Orton) M. M. Moser (10, 76, 91A, 92, 155, 160, 167, 172); *M. procera* (Scop.) Singer (8, 9, 10, 91A, 122K, 123K, 155, 184); *Macrotiophula filiformis* (Bull.) Rauschert (92, 121, 122K, 169, 170, 172, 175, 176, 184); *Marasmius bulliardii* Quél. (122K, 172); *M. epiphyllum* (Pers.) Fr. (91A, 92, 121, 166, 167); *M. oreades* (Bolton) Fr. (122K, 124K, 155, 160); *M. rotula* (Scop.) Fr. (9, 121, 122K, 123K, 125K, 166, 172); *M. setosus* (Sowerby) Noordel. (125K); *M. torquescens* Quél. (121); *Melanoleuca brevipes* (Bull.) Pat. (92, 167); *M. friesii* (Bres.) Bon (91D, 92, 121, 124K); *M. grammopodia* (Bull.) Pat. (141; Figure 25); *M. melaleuca* (Per.) Murrill s. lato (5B); *M. polioleuca* (Fr.) Kühner & Maire f. *polioleuca* (123K); *Melanophyllum haematospermum* (Bull.) Kreisel (8, 122K, 123K); *Meruliopsis taxicola* (Pers.) Bondartsev (124K, 190, 198); *Mycena acicula* (Schaeff.) P. Kumm. (91B, 121, 122K, 123K, 125K, 166, 171, 172); *M. aetites* (Fr.) Quél. (134); *M. citrinomarginata* Gillet (9, near 92, 122K, 172); *M. epipterygia* (Scop.) Gray var. *epipterygia* (76); *M. erubescens* Höhn. (92); *M. flavoalba* (Fr.) Quél. (126K); *M. galericulata* (Scop.) Gray (8, 9, 10, 91B, 92, 121, 123K, 125K, 155, 160, 166A, 167, 172, 176, 183, 184, 199); *M. galopus* (Pers.) P. Kumm. var. *galopus* (91A, 92, 121, 134, 171, 172); *M. haematopus* (Pers.) P. Kumm. (91B, 121, 122K, 125K, 208); *M. hiemalis* (Osbeck) Quél. (12, 125K); *M. inclinata* (Fr.) Quél. (172); *M. leptcephala* (Pers.) Gillet (91A, 92); *M. polygramma* (Bull.) Gray f. *polygramma* (122K, 122K, 171); *M. pseudocorticola* Kühner (12, 92, 121); *M. pura* (Pers.) P. Kumm. f. *pura* (91A, near 92, 172); *M. rosea* (Bull.) Gramberg (92, 102, 121, 123K, 125K, 155, 166, 167, 168, 169, 170, 172, 174, 175, 176, 179, 182, 183, 184, 186); *M. sanguinolenta* (Alb. & Schwein.) P. Kumm. (90A, 92, 121, 123K, 172); *M. speirea* (Fr.) Gillet (12, 91B, 92); *M. vitilis* (Fr.) Quél. (123K, 126K, 160, 166, 167, 171, 172, 176, 183, 184); *M. zephrus* (Fr.) P. Kumm. (8, 9, 10, 91B, near 92, 100, 102, 103, 121, 123K, 125K, 155, 160, 166, 167, 169, 170, 171, 172, 173, 174, 175, 176, 179, 182, 183, 184, 186); *Mycetinis scorodonius* (Fr.) Wilson & Desjardin (92, 121, 171); *Naucoria bohémica* Velen. (148); *N. scolecina* (Fr.) Quél. (125K); *N. subconspersa* Kühner (91D); *Onnia triquetra* (Pers.) Imazeki (76, 155); *Ossicaulis lignatilis* (Pers.) Redhead & Ginns (121, 146); *Panaeolus papilionaceus* (Bull.) Quél. var. *papilionaceus* (166); *Panellus stipticus* (Bull.) P. Karst. (172); *Parasola conopilea* (Fr.) Örstadius & E. Larss. (122K); *P. plicatilis* (Curtis) Redhead, Vilgalys & Hopple (123K); *Paxillus involutus* (Batsch) Fr. s. lato (8, 91B, 121K, 125K, 155, 160); *P. rubicundulus* P. D. Orton s. str. (121K); *P. rubicundulus* P. D. Orton s. lato (91D); *Peniophora quercina* (Pers.) Cooke (83, 124K, 166A, 172, 199); *Peniophorella pubera* (Fr.) P. Karst. (78C, 198); *Phaeolus schweinitzii* (Fr.) Pat. (160, 172); *Phallus impudicus* L. var. *impudicus* (92, 122K); *Phellinus ferruginosus* (Schrad.) Pat. (125K, 166A, 199); *P. igniarius* (L.) Quél. s. lato (8, 155); *P. robustus* (83, 119,

124K, 125K, 177); *Phlebia radiata* Fr. (91A, 91B, 92); *P. subochracea* (Bres.) J. Erikss. & Ryvarden (103); *P. tremellosa* (Schrad.) Nakasone & Burds. (8, 9, 10, 92, 125K, 133); *Phlebiopsis ravenelii* (Cooke) Hjortstam (78C, 122K); *Pholiota adiposa* (Batsch) P. Kumm. s. str. (160); *P. conissans* (Fr.) M. M. Moser (91D, 155); *P. lenta* (Pers.) Singer (179); *P. limonella* (Peck) Sacc. (Ludwikowo – near parking place); *P. squarrosa* (Weigel) P. Kumm. (121K, 155); *Pholiotina velata* (Velen.) Hauskn. (122K); *Piptoporus betulinus* (Bull.) P. Karst. (8, 92, 123K, 135, 91A, 91B, 191B); *Pleurotus ostreatus* (Jacq.) P. Kumm. (121); *P. pulmonarius* (Fr.) Quél. (121, 172, 176, 184); *Plicatura crispa* (Pers.) Rea (91A, 92, 125K, 190A); *Pluteus cervinus* (Schaeff.) P. Kumm. f. *cervinus* (10, 92, 121, 123K, 155, 166A, 172, 175, 199); *P. cinereofuscus* J. E. Lange (91D, 123K, 155, 167); *P. nanus* (Pers.) P. Kumm. f. *nanus* (123K, 124K); *P. phlebophorus* (Ditmar) P. Kumm. (92); *P. podospileus* Saccardo f. *minutissimus* (Maire) Vellinga (92, 103); *P. salicinus* (Pers.) P. Kumm. (9, 123K); *P. semibulbosus* (Lasch) Quél. (121, 124K, 155); *P. thomsonii* (Berk. & Broome) Dennis (123K); *Polyporus badius* (Pers.) Schwein. (91D, 121, 122K, 123K, 171, 172); *P. squamosus* (Huds.) Fr. (91C, 123K, 217); *P. tuberaster* (Jacq. ex Pers.) Fr. (172, 177); *P. varius* (Pers.) Fr. (124K); *Porodaedalea pini* (Brot.) Murrill (83, 90, 119, 141, 166, 172, 190, 190A, 191); *Porostereum spadiceum* (Pers.) Hjortstam & Ryvarden (121); *Postia stiptica* (Pers.) Jülich (122K); *P. tephroleuca* (Fr.) Jülich (90); *Psathyrella corrugis* (Pers.) Konrad & Maubl. (91D, 121, 123K); *P. fatua* (Fr.) Konrad & Maubl. (123K, 126K, 179/183); *P. marcescibilis* (Britzelm.) Singer (91D, 122K); *P. microrrhiza* (Lasch) P. Kumm. (91D, 122K, 123K, 123K); *P. noli-tangere* (Fr.) A. Pearson & Dennis (123K); *P. orbicularis* (Romagn.) Kits van Wav. (122K); *P. piluliformis* (Bull.) P. D. Orton (122K, 171, 173, 179, 184); *P. prona* (Fr.) Gillet (5B, 91D); *P. spadiceogrisea* (Schaeff.) Maire (near the hospital in Ludwikowo, 179/183, 199); *Radulomyces confluens* (Chaillat) M. P. Christ. (90, 144, 201); *Resupinatus trichotis* (Pers.) Singer (121, 136, 171, 208); *Rhodocollybia butyracea* (Bull.) Lennox f. *asema* (Fr.) Antonín, Halling & Noordel (76, 91B, 135, 171, 172); *R. butyracea* (Bull.) Lennox f. *butyracea* (8, 9, 10, 122K, 123K, 167, 176, 184); *R. maculata* (Alb. & Schwein.) Singer var. *maculata* (135); *R. prolixa* (Hornem.) Antonín & Noordel. var. *distorta* (Fr.) Antonín, Halling & Noordel (136); *Rhodocybe gemina* (Paulet) Kuyper & Noordel. (122K, Ludwikowo – between the hospital and Kociołek Lake); *Rickenella fibula* (Bull.) Raitheh. (9, 76, 92, 121, 122K, 125K, 141, 160, 172, 208); *Russula cyanoxantha* (Schaeff.) Fr. (123K); *R. depallens* (Pers.) Fr. (155); *R. fragilis* (Pers.) Fr. (123K); *R. grisea* Fr. s. Gillet (155); *R. integra* (L.) Fr. s. Maire (133); *R. nigricans* (136); *R. nitida* (Pers.) Fr. (133); *R. ochroleuca* Pers. (124K, 134); *R. pectinata* Fr. (123K); *R. risigallina* (Batsch) Sacc. (124K); *R. sanguinea* (Bull.) Fr. (134); *R. vesca* Fr. (141); *Schizophyllum commune* Fr. (8, 121, 171, 190A); *Scleroderma bovista* Fr. (122K); *S. citrinum* Pers. (141); *S. verrucosum* (Bull.) Pers. (155); *Serpula himantioides* (Fr.) P. Karst. (91A); *Simocybe centunculus* (Fr.) Singer var. *centunculus* (171); *S. haustellaris* (Fr.) Watling (92, 172); *S. reducta* (Fr.) P. Karst. (123K); *Skeletocutis nivea* (Jungh.) Jean Keller (8, 125K); *Sparassis crispa* (Wulfen) Fr. (100, 160, 172, near the hospital in Ludwikowo); *Sphaerobolus stellatus* Tode (122K); *Steccherinum bourdotii* Saliba & A. David (92); *S. ochraceum* (Pers. ex J. F. Gmel.) Gray (125K, 172); *Stereum gausapatum* (Fr.) Fr. (121, 123K); *S. hirsutum* (Willd.) Pers. (91B, 92, 125K, 155, 166A, 172, 173, 190A); *S. rugosum* Pers. (124K, 173); *S. sanguinolentum* (Alb. & Schwein.) Fr. (144); *S. subtomentosum* Pouzar (91B, 121, 208); *Strobilurus esculentus* (Wulfen) Singer (132); *S. tenacellus* (Pers.) Singer (83, 166, 166A, 177, 191B); *Stropharia cyanea* (Bull.) Tuom. (91B, 92, 123K, 155); *S. pseudocyanea* (Desm.) Morgan var. *pseudocyanea* (123K); *Suillus grevillei* (Klotzsch) Singer var. *grevillei* (124K); *Tapinella atrotomentosa* (Batsch) Šutara (121K, 141); *Trametes gibbosa* (Pers.) Fr. (136); *T. hirsuta* (Wulfen) Pilát (121, 125K, 208); *T. ochracea* (Pers.) Gilb. & Ryvarden (184); *T. pubescens* (Schumach.) Pilát (198); *T. versicolor* (L.) Pilát (10, 91A, 91B, 125K, 155, 166, 208); *Tremella mesenterica* Retz. (92, 121, 124K, 166, 172); *Trichaptum abietinum* (Pers. ex J. F. Gmel.) Ryvarden (83, 91A, 135, 166, 172, 191B); *Tricholoma fulvum* (Bull.) Bigeard & H. Guill. (123K, 141); *Tricholomopsis rutilans* (Schaeff.) Singer (8, 208); *Tubaria furfuracea* (Pers.) Gillet s. lato (122K, 172, 200); *Tulasnella violea* (Quél.) Bourdot & Galzin (78C, 199); *Typhula erythropus* (Pers.) Fr. (92, 208); *T. gyrans* Batsch (121); *Vuilleminia*

*comedens* (Nees) Maire (83); *Xerocomus badius* (Fr.) E.-J. Gilbert (76, 124K, 141); *X. chrysenteron* (Bull.) Quél. (125K, 155, 160); *X. cisalpinus* Simonini, H. Ladurner & Peintner (121, 121K, 123K); *X. ripariellus* Redeuilh (122K); *Xerula pudens* (Pers.) Singer (121); *Xylodon nespori* (Bres.) Hjortstam & Ryvarden (122K, 200); *X. paradoxus* (Schrad.) Chevall. (90, 122K).



**Figure 24** Basidioma of *Geastrum triplex* in WPN; October 04, 2019. Photography by A. Kujawa.



**Figure 25** Basidiomata of *Melanoleuca grammopodia* from WPN; October 12, 2019. Photography by T. Ślusarczyk.

#### 4. Summary

During this second year of route-method field research in WPN (in 86 forest divisions), over 1,250 records of 526 taxa were collected, including 189 not hitherto mentioned from WPN. Among them, nine taxa are new to Poland (*Acanthophysellum lividocoeruleum*, *Agaricus moellerianus*, *Callistosporium luteo-olivaceum*, *Entoloma terreum*, *Flammulina populicola*, *Leucoagaricus sublittoralis*, *Marasmius anomalus* var. *microsporus*, *Phaeohelotium rufescens*, *Tulasnella danica*), and 24 are new to the Wielkopolska region (e.g., *Buchwaldoboletus lignicola*, *Mycena diosma*, *Sistotrema coroniferum*). One species protected by law (*Geastrum*

*corollinum*) was recorded. In addition, numerous red-listed species new to WPN were found: Ex – 1 (*Lepiota erminea*), E – 7 (e.g., *Bovista graveolens*, *Phlebia livida*, *Xerula melanotricha*), V – 8 (e.g., *Buchwaldoboletus lignicola*, *Limacella guttata*, *Tricholoma populinum*), R – 13 (e.g., *Botryobasidium laeve*, *Hymenochaete tabacina*, and *Russula caerulea*), and I – 1 (*Russula chloroides*). These results indicate the necessity and legitimacy of further mycological studies in WPN. The current number of fungal taxa known in this park reached 1,122, which proves the importance of this area for protecting and conserving fungal biota in central Wielkopolska.

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